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Fax: (+40)21-312.97.83

E-mail: editura@niculescu.ro

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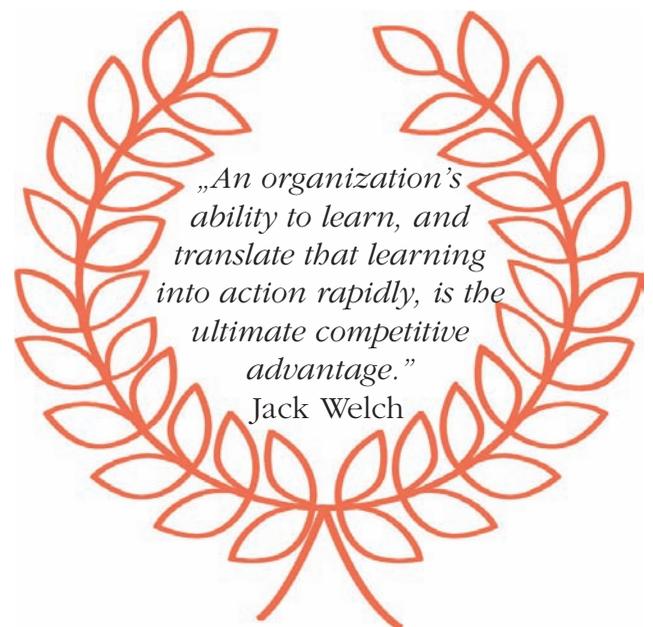
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# The Mirage of Processes

The essence of performance is the creation of value and it focuses on what is important to customers. Organizational performance can be measured by different indicators such as efficiency and effectiveness. Efficiency is the organization's ability to maximize outcome (profit) on its capital such as quality, resource utilization, flexibility, innovation and adaptation to change. On the other hand, the effectiveness of an organization is its capability to perform a function with optimal use of resources. Thus, effectiveness and efficiency are two methods of performance assessment. Poor performance is a leading indicator of future decline. Organizations operate in a complex world and they focus on maximizing short-term performance, rather than achieving long-term goals. All organizations are open social systems consisting of people which are organized and managed to accomplish common goals. Systems have inputs (raw materials, capital, people, and information), processes, outputs and outcomes (products or services for consumers). Organizations need to have clear statements of vision, values, strategies and plans for achieving their objectives. The management needs to know how well internal business processes are running, and whether organizational offering meets the customer requirements. In a complex adaptive organization, business processes and interactions among them can reshape the overall structure. During the integration processes, new capabilities or opportunities may be created. A process is defined as a collection of activities and linked tasks that, once completed, will accomplish an identifiable output such as the development of a service or product for customers. Processes can help to predict future performance based on trends, because the business environments are dynamic, complex, and interconnected. For example, the new product development process is complex and is associated with high risks.

A process involves inputs or factors which contribute to add value either directly or indirectly by producing required outputs using a variety of outputs. Thus, business processes can be classified into two types: core business processes and support processes. Core business processes are known

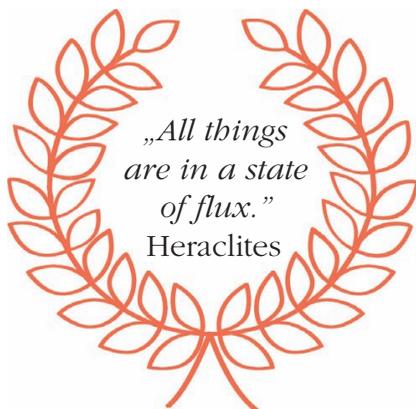




as operational processes and provide value to customers, for example, manufacturing and sales processes. Instead of that, support processes indirectly contribute to the achievement of core business processes. The support processes are usually cross-functional boundaries. Also, all organizations need core business processes to function properly, for example, the teaching and learning processes are the core processes that are specific for higher education institutions. Weak business processes waste time and money. The last managerial challenge is the need to integrate business processes into a coherent construction.

The usage of business process modeling helps organization management to visualize, understand, analysis and make better decisions. A business process can be modeled through decomposition each key process its component parts (process-mapping). Process mapping is a diagram representing a sequence of activities consisting of events, activities, and links between items in the sequence from end to end. It shows a logical, step-by-step connection between the organization processes. Data flow diagrams describe the processes and how these processes are connected in organizations. It focuses on the internal dynamics that shapes the performance of the organization. Management uses structural analysis to identify the opportunities to improve the process performance. Also, it can use the intelligent business process management platforms to improve the predictive response to unexpected business disruptions. This ability is be crucial in determining the best solution for organization in a turbulent business environment.

*Prof. Gheorghe Militaru, Ph.D.  
Deputy Chief Editor*



# The Value-Added Processes of Entrepreneurial Universities

Alexandra Hadăr (1), Alexandru Marin (2), Laura Boanță (2),  
Anca Alexandra Purcărea (2)

(1) Arwen Professional Services Corporation, Bucharest Romania,

(2) University POLITEHNICA of Bucharest, Romania

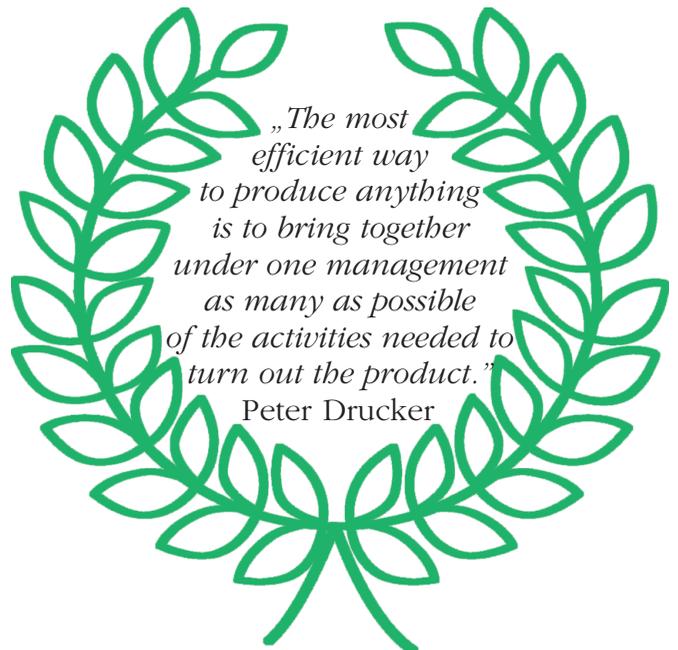
Abstract

*The study is concerned with increasing the performances of universities through competitive advantage development, mainly focusing on intellectual property valorization by means of a specialized model. Nowadays, the role of the so-called „third mission” of universities is increasing constantly. By taking over and adapting the conceptual framework specific to companies (strategic management or competitive advantage) to universities is possible to monitor the performances of higher education institutions for a better integration into the socio-economic environment. The new approach advanced by the Technology Transfer Centers is taken into account in order to define the CANVAS Business Model, adapted to an efficient competitive model with two major components: „Value Proposition” and „Growth Strategy”. This represents a completely new current practice in which entrepreneurial universities Romania should deal with market conditions and with the specific socio-economic and industrial environment.*

**Keywords:** university performance, competitive advantage, intellectual property valorization, CANVAS business model, value proposition, growth strategy, entrepreneurial university

## Introduction

When an organization makes profits that exceed the average of the socio-economic environment where it's active, it has a competitive advantage over its competitors, the





main purpose to attain being to possess it in a sustainable manner (Ronquillo, 2012). Furthermore, a competitive strategy describes the method by which a Technology Transfer Center (TTC) from a university takes into account the existing competitors at the following levels: scientific, economic, and geographic. As mentioned above, there are three ways to implement a competitive strategy for an academic environment:

- *Cost leadership*: a low-cost education and research services relative to the competitors, which is particularly useful in markets where price is a decisive factor;
- *Differentiation*: the university seeks to develop a competitive advantage through supplying and marketing an educational/research / technology product or service that is in some way different to what the competition is doing;
- *Focused strategy*: identifying the needs, desires and interests of the particular market segments (students, companies, interested parties) and customizing marketing techniques to reflect those characteristics.

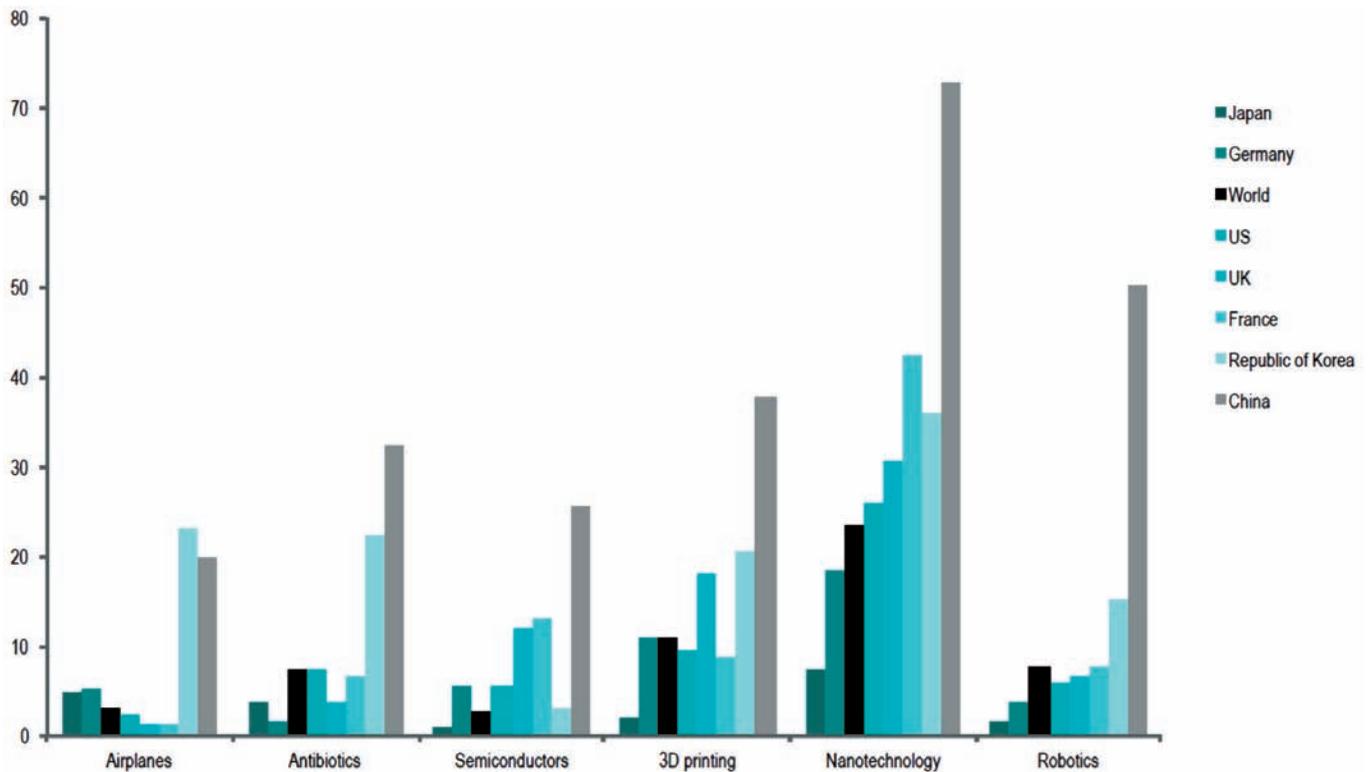
A mixture of two or more of these strategies is also possible, depending on the

university's TTC's objectives and current educational / research market position.

## Linkages Between Scientific Institutions and Companies

The World Intellectual Property Report from 2015 (WIPO, 2015) mentions that science system and formal linkages between scientific institutions and companies appear to be increasingly important today.

Figure 1 shows the share of applicants from universities and Public Research Organizations (PROs) with higher contribution of academic patents for 3D printing, nanotechnology and robotics. Nanotechnology contributions from academic applicants represent around a quarter of patents worldwide. While academic patenting has become more prominent, there are also notable differences between countries. In the case of Japan, universities and PROs never account for more than 10% of total first filings. By contrast, China generally shows the highest percentages of academic patenting, exceeding 70% for nanotechnology and 50% for robotics:



**Figure 1** – Share of universities and public research organizations applicants in patent filings (%)

Starting from Michael Porter's model (Ronquillo 2012), the position of a university in the educational and research market can be analyzed. A brief specific description of the specific „five forces” acting in the academic environment is given below:

**I. Rivalry.** If the rivalry between organizations is poor, the socio-economic environment is considered „disciplined” / regulated, this being most frequently the case of the academic environment in the past. Today and in the future this rule is no longer valid, the recusant „tigers” being interested to avoid this „smooth market” and to take leader position on a global scale. Rivalry level is influenced by some of the following characteristics:

1. A big number of organizations acting on the same educational and research market;
2. Slow increase and sometimes even a decrease of the educational and research market impose a struggle for attracting the clients (students);
3. High fixed costs lead to a scale economy and intensify the rivalry;
4. Small differentiations between educational and research services attract higher competition, the value of a brand discouraging the rivalry;
5. Similar to the commercial markets, high costs for exit barriers in the educational and research field determines the organizations to find solutions for continuing their activity, even if it's no longer profitable;

6. A diversity of rivals with different cultures, histories, and philosophies make the educational and research environment unstable. Thus, there is a greater possibility that maverick and misjudging rivals reorient, the competition being volatile and frequently intense.

**II. The threat of substitutes.** The substitute educational and research services become a threat when their price is modifying and affects the demand level, associated with an increased elasticity of the prices, because clients / students have alternative better offers.

**III. The buyers' power.** The market is influenced by the impact that clients / students have on the educational and research system. Generally, when the academic environment is strong, we deal with the so-called „monopsony” – an environment where there are several suppliers and one „generic” buyer (i.e. students).

**IV. Suppliers' power.** An educational and research organization needs good professionals, educational and laboratory facilities, equipment, components and other consumables, thus establishing contractual terms with all these parties. When the labor relations are strict and the providers for material needs are strong, the cost of education and research processes can be high, not always associated with high-quality standards, and the public procurement rules create a certain lack of „freedom to operate”.

**V. The threat of new entrants and entry barriers.** There are not only traditional competitors in the educational and research market, but it is also highly possible to appear new actors or some others to be reorganized, affecting the rivalry on the market. In theory, entering or exiting the market is free, but in reality, every organization tries to protect its area of influence against other



competitors by establishing specific „entry barriers”, some of these being listed below:

1. Public authorities and regulations;
2. Intellectual property rights;
3. Specificity of the educational and research services;
4. The level of organizational effectiveness.

The general strategies for controlling the five forces could be developed on three essential levels: organization as a whole; business unit (i.e. faculty); functional unit/ department / research center.

The „business” unit level is the first / direct level of competition for educational and research activities, following the „CANVAS Business Model” (Osterwalder 2004). As mentioned already, we emphasize what Michael Porter identified three generic strategies (cost advantage, differentiation and focused approach) which can be implemented for creating a competitive advantage for an organization / university, offering the possibility to develop the strengths and defend against the negative effects of the above mentioned five forces.

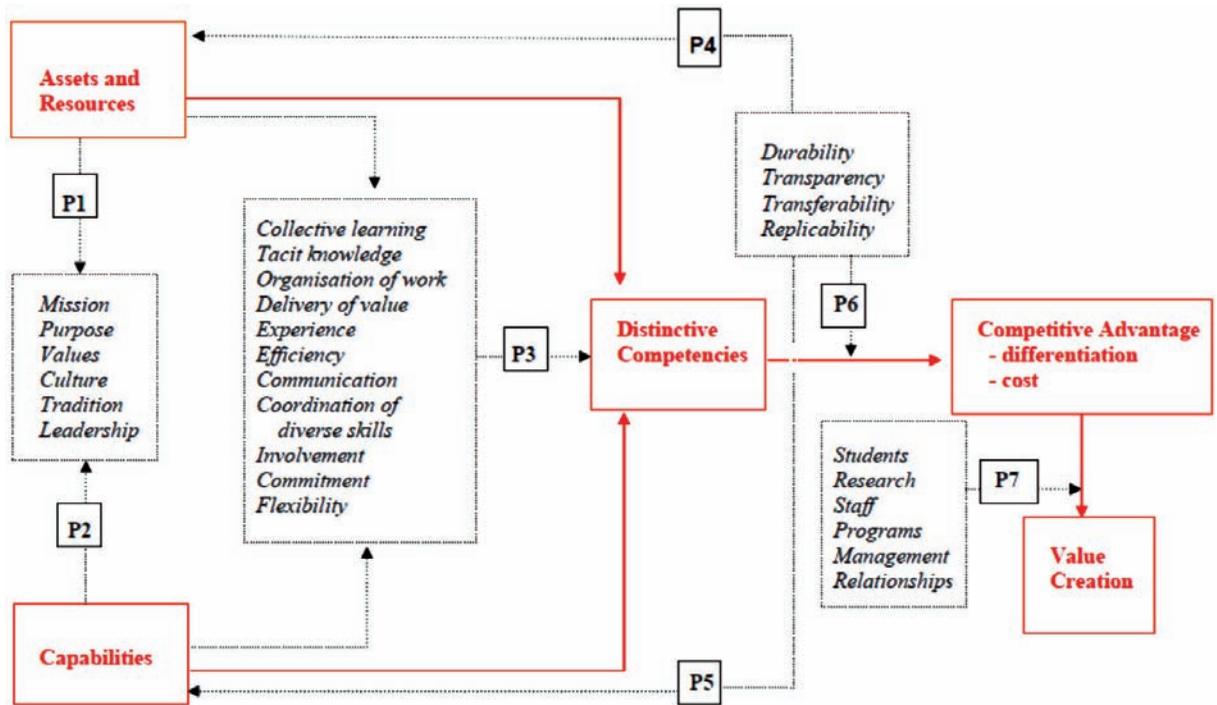
## Objectives of the Study

The present paper aims to develop a competitive advantage model for universities, mainly focused on the valorization of intellectual property rights. Starting from the cited study (Bradmore, 2007), the authors developed a conceptual framework for the development of a competitiveness strategy in universities, in a moment of rapid intensification of the rivalry in the sector of higher education at a global scale. Essentially, there were identified six key dimensions of the strategy: students, research, academic staff, study programs,



management and functional relationships, integrated into a competitive advantage model, together with the influence and control variables on which depends their successful implementation.

Figure 2 presents a classical competitive advantage model adapted to an academic institution. This model suggests that organizations that are capable of consolidating their assets, resources and capabilities gain a sustainable competitive advantage. Assets and resources of universities include branding and reputation, educational and research infrastructure, the total incomes from different sources, major investments, intellectual property right granting and valorization, strategic partnerships and alliances, human resource, students and alumni. Higher education institutions capabilities include: individual and group academic skills and competencies, system, mechanisms and procedures through which people can fulfill their professional duties. The interactions between assets, resources and capabilities are settled in the mission, purposes, values, culture, tradition and leadership of every university.



**Figure 2** – A classical model of competitive advantage, adapted to an academic institution

There is a tight connection between the competitive advantage and the value proposition from „CANVAS Business Model” (Osterwalder, 2004). The specialized literature emphasizes that the main resources of a sustainable competitive advantage are (i) differentiation – offering to organizations protection against rivals by developing innovative / superior products or services and (ii) reducing the prices – fighting against the competitors’ attacks with dumping price policy (Havas, 2015).

Universities must understand all aspects concerning the strategy associated with the value proposition for students, academic staff and all interested parties if they target to gain and retain a competitive advantage. Developing distinctive competencies depends on several organizational attributes, such as: collective learning, tacit knowledge, activities organization, added value, efficiency, experience, communica-

tions and the existence of different competencies, engagement and flexibility. The assets, resources and capabilities must accomplish certain characteristics: sustainability, transparency, transferability and multiplication. Also, the existence of a high quality and continuous information flow is needed, which is an essential attribute for the optimal control of these strategies (Greco *et al.*, 2013). The above presented conceptual framework is synthesized in seven generic sentences, identified with P1 ÷ P7, as marked in Figure 2:

P1 – Mission, scope, values, culture, tradition and leadership are major agents for accumulation / utilization of assets and resources from universities;

P2 – Mission, scope, values, culture, tradition and leadership are major agents for accumulation / utilization of capabilities from universities;

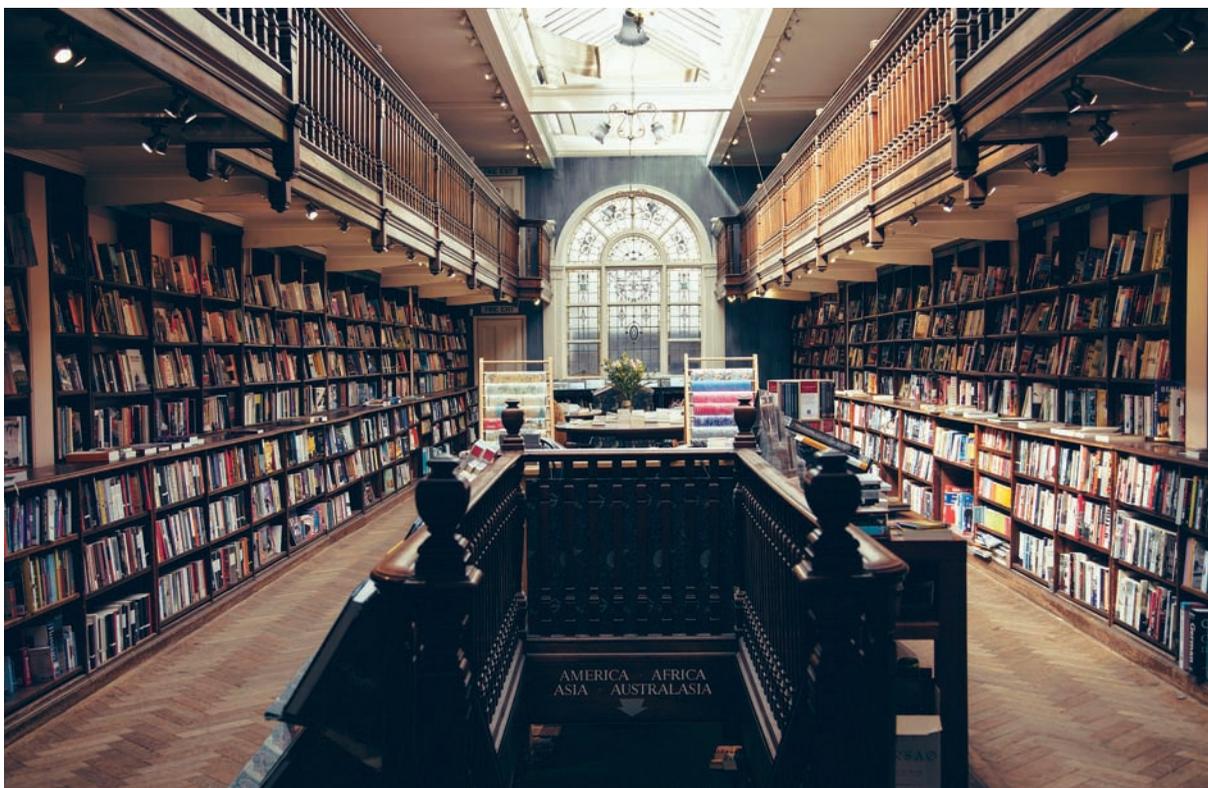
- P3 – Collective learning, tacit knowledge, activities organization, added value, efficiency, experience, and communication, coordination of different competencies, engagement and flexibility are major agents for universities to consolidate assets and resources in the framework of distinctive competencies;
- P4 – Sustainability, transparency, transferability and multiplication are essential characteristics of assets and resources for creating and developing the distinctive competencies in universities;
- P5 – Sustainability, transparency, transferability and multiplication are essential characteristics for the capability of creating and developing the distinctive competencies in universities;
- P6 – Capacity for creating and developing the distinctive competencies, offering a competitive advantage for universities, is determined by sustainability,

transparency, transferability and multiplication of assets, resources and capabilities;

- P7 – Students, research, academic staff, study programs, management and the system of functional relations represents the „key” dimensions of the university’s strategy, for developing competitiveness and creating a value proposition in the academic environment.

## Results and Discussion

The contributions of this paper rely on our demarche for the evaluation of the performances of universities, from the perspective of its competitive advantage, mainly focusing on the intellectual property valorization. Nowadays, beside the first two classical missions of universities – offering education and conducting research – the role of the so-called „third mission” is



increasing constantly, comprising: long life learning (continuous education), technology / knowledge transfer and innovation, and the social engagement for the benefit of the society (Ionescu and Militaru, 2010). The analysis of the partnerships between the higher education system and socio-economic environment reveals some specific aspects concerning the above mentioned „third mission” of universities:

- Transparency of activities and information relies on the skepticism of the cultural approach, and lack of clear / controllable financial consequences;
- Patchy development of activities, i.e. the connection with the intellectual property rights internal policy, different from one university to another;
- Contextual diversity of understanding the real meaning of „third mission” role for a higher education institution;
- Differences between the approach and the objectives, i.e. the more active partnerships which have important financial effects are more visible and desired than others for which social

relevance prevails. The latter have a big impact on society, but sometimes have lower visibility, rendering it difficult to make a comparison or benchmarking.

In the actual context, we deal with a new conceptual framework for orienting the development of a competitiveness strategy in universities, along with a rapid intensification of competition in the higher education system, on a global scale. Today universities are fully integrated into the innovation ecosystem, setting a new concept of the entrepreneurial university in the new knowledge – based economy (Militaru and Ionescu, 2010). Implementing this concept has two components:

- Through commercialization of the knowledge and results obtained through research activities („knowledge hubs”), connecting the second classical mission (research) with the third mission (socio-economic development);



- By direct connection between the first classical mission (education) with the third mission (socio-economic development), when accepting the revolutionary idea that universities act today in a „free global education market”.

Universities, as entrepreneurial organizations, must be flexible, assuming five statements as their fundamental scopes: knowledge capitalization; relationships with industry and public authorities; independence from any spheres of influence; balanced ratio between independence and interrelation; continuous renewal of internal structures (Nyman, 2015). In this spirit, some essential steps to be followed can help universities to adopt an optimal set of monitoring indicators for academic entrepreneurship:

- Analysis / revision of the strategy for promoting and supporting academic entrepreneurship;
- Identification of the internal factors that influence the „start-up” activities and selecting the key aspects to be monitored continuously;
- Analysis / revision of the existing systems to assess the academic performances;
- Selection and adaptation of the monitoring indicators for academic entrepreneurship (definitions, key concepts, periodicity of revision etc.);
- Integration of the adopted indicators’ set in the existing framework of assessing academic performance.

As a conclusion, by taking over and adapting the conceptual framework specific to companies (strategic management or competitive advantage) to universities, it is possible to monitor the performances of higher education institutions for a better integration with the socio-economic environment. All the aspects analyzed above



can be customized to any university, as an applicative case study, which represents the main purpose of the present paper.

Nevertheless, every university must have some concerns about its capacity to survive and prosper in an increasingly competitive domestic higher education environment. As Table 1 shows, two particular competitive concerns give rise to the strategic responses that a Romanian university is giving to rapid intensification of competition in the global higher education arena: the growing presence of strong international rivals and the insufficient national funding for tertiary education in Romania (and the consequent need to find alternative funding sources). Driving these two competitive concerns (see Table 1, column 1) are: the continuous strong global demand for tertiary education, and particularly from the European region; the trends of globalization of tertiary education; the increasing importance of achieving world-ranking in research and teaching in order to attract government and industry funding and sponsorship; and the perceived benefits in terms of public and private funding for consolidating its presence in Europe.

**Table 1** – Schematic correspondences factors for a Romanian university

Drivers	Competitive challenges	Strategic responses	Theoretical basis for responses
Continuing strong global demand for tertiary education	Growing presence/ competition of established universities in Europe	Attraction and retention of outstanding researchers, promotion of collaboration through provision of outstanding research facilities	No obvious reliance on specific models, but strategic responses in line with prominent models in literature, for broad scope, differentiation, and market leadership
Globalization of tertiary education			
Increasing need for world's leading universities to enhance their reputation for research and education to attract students, staff, alliances, private funding		Attraction and retention of outstanding, excellent academic staff to enhance student learning	
	Fostering multidisciplinary research in strategic areas		
Perceiving benefits for the university as a whole in consolidating its presence in Europe	Insufficient national funding <i>per student</i> ; the need to find alternative funding sources	Initiative for establishing alliances	

Additionally, among university's strategic response to increasing competition (see Table 1, column 3) can be included the following priorities: attraction and retention of leading researchers and promotion of collaboration in research through provision of high-quality infrastructure; attraction and retention of outstanding academic staff; extension and fostering of multidisciplinary research in selected areas; collaboration and partnering with the wider community for mutually beneficial exchanges and an initiative for establishment alliances.

The theoretical underpinning of strategic orientations of any Romanian university is to be clarified in the near future based on the university's vision, goals and purposes,

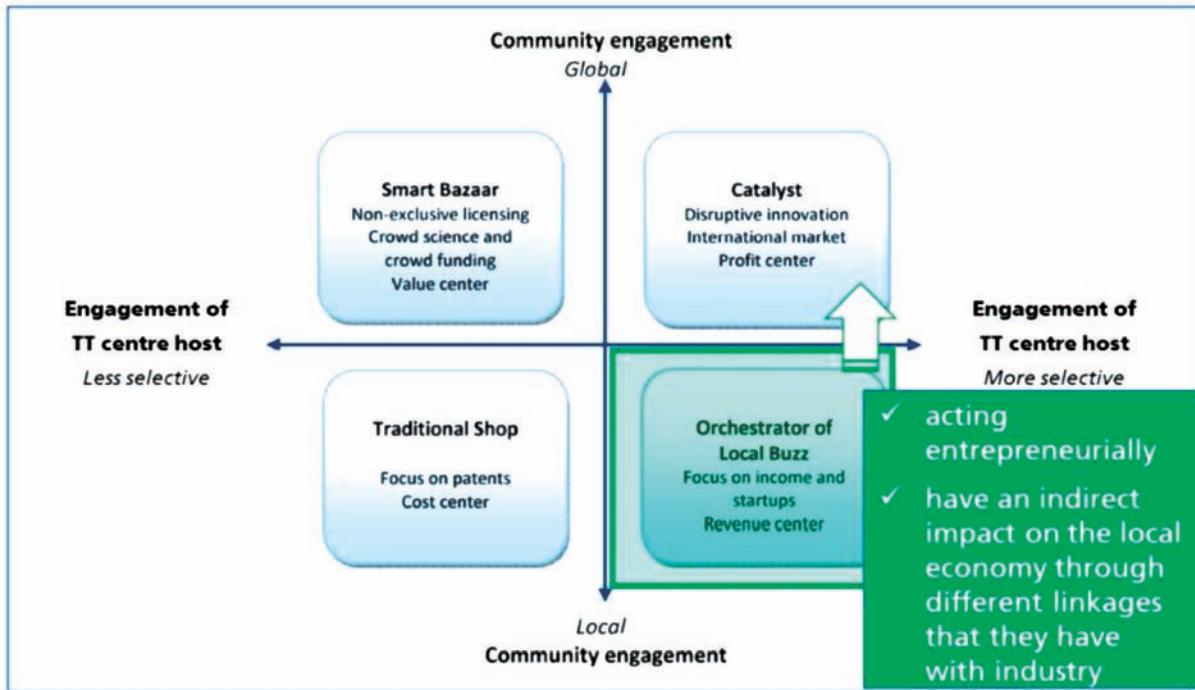
rather than on specific models and / or frameworks to be found in the literature of strategic management and competitive advantage. Nevertheless, strands of models and frameworks that are prominent in that literature are discernible in university's strategic response to the current environment.

## Selecting a Model

For any Romanian university it is an essential option to adopt the best model, out of the four typical ones presented in Figure 3. If the university is assuming an entrepreneurial orientation, it should act as an „Orchestrator of Local Buzz” targeting

to have an indirect impact on the local / regional / national economy, through the very good linkages recommended to be developed with the industry actors. Never-

theless, it could target to act like a „Catalyst”, capable to producing disruptive innovation, acting as a profit center and integrated into an international market:



**Figure 3 – TTC Business Model**

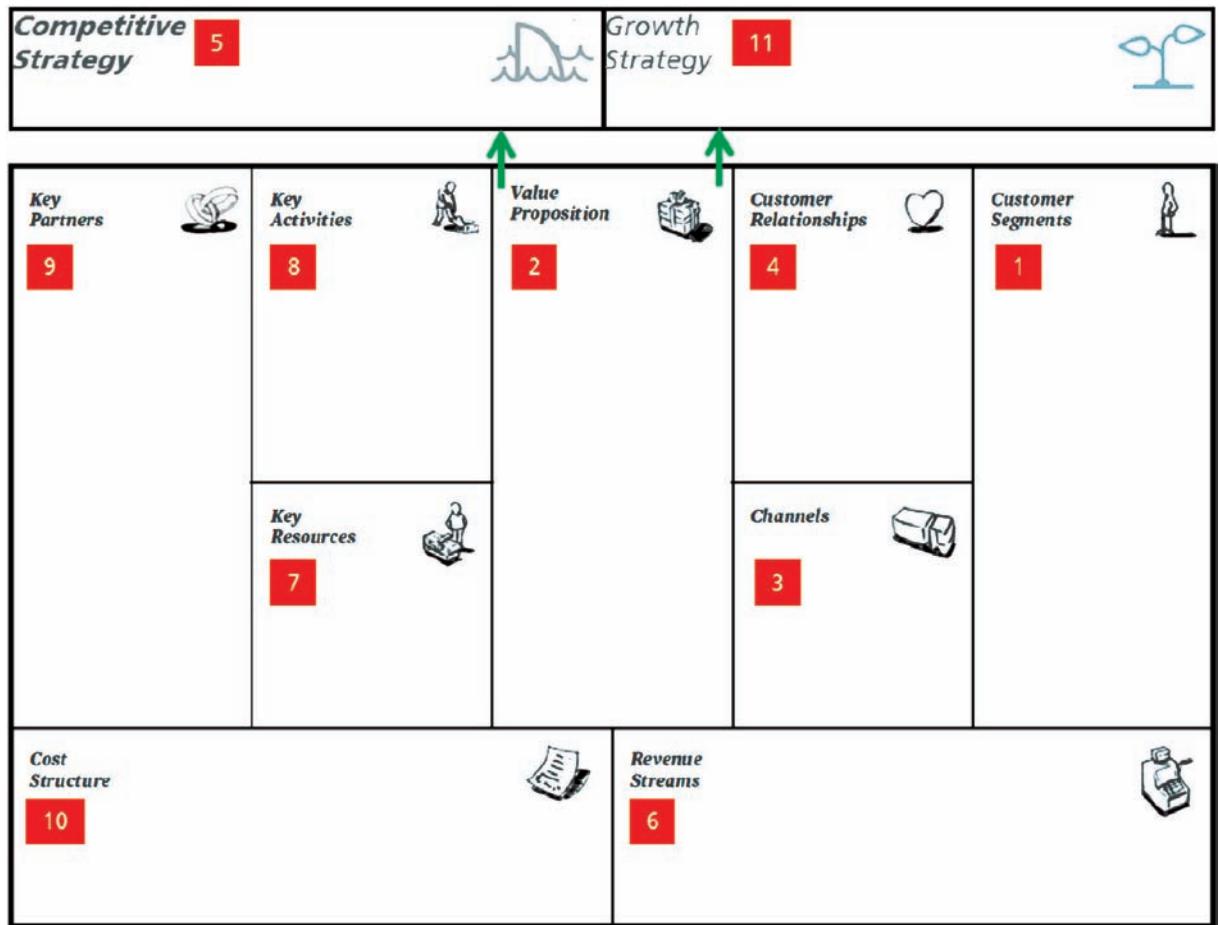
This new approach for the TTC of a university is taken into account to define the CANVAS Business Model which is adapted to the competitive model and its essential generic characteristics (coming from real market needs). The model is presented following the brief description of two major components: „Value Proposition” and „Growth Strategy” (Figure 4).

The Value Propositions Building Block describes the bundle of products and services that create value for a specific Customer Segment. The Value Proposition is the reason why customers turn to a TTC. It solves a customer problem or it satisfies a customer need. Each Value Proposition consists of a selected bundle of products and / or specific educational and research services that cater to the needs

of a specific Customer Segment. In this view, the Value Proposition is an aggregation or bundle of benefits that a TTC offers to customers / students / companies. Some Value Propositions may be innovative and represent a new or disruptive offer. Others may be similar to existing market offers, but with added features and attributes. Both of these Value Propositions classes must be taken into consideration by the TTC from the entrepreneurial university.

Values may be quantitative (e.g. price, the speed of service) or qualitative (e.g. design, customer experience). Elements from the following non-exhaustive list can contribute to the customer value creation:

- Novelty: some Value Propositions satisfy an entirely new set of needs that



**Figure 4** – CANVAS Business Model structure for the TTC from an entrepreneurial university

- customers (students/companies) previously didn't perceive because there was no similar offering;
- Performance: improving products and/or educational / research services performance has traditionally been a common way to create value;
  - Customization: tailoring products and services to the specific needs of individual customers (students / companies) or Customer Segments creates value. This approach allows for customized products and services while still taking advantage of economies of scale;
  - „Getting the job done”: value can be created simply by helping a customer (students/ companies) to get certain jobs done;
  - Design: it is an important, but difficult element to measure. A product may stand out because of superior design. i.e. in the consumer electronics industries, design can be a particularly important part of the Value Proposition;
  - Brand/status: customers (students / companies) may find value in the simple act of using and displaying a specific brand;
  - Price: offering similar value at a lower price is a common way to satisfy the needs of price – sensitive Customer Segments (students / companies);

- Cost reduction: helping customers (students / companies) reduce costs is an important way to create value;
- Risk reduction: Customers (students / companies) value reducing the risks they incur when purchasing products or services;
- Accessibility: making products and services available to customers (students / companies) who previously lacked access to them is another way to create value;
- Convenience/usability: making „things” more convenient or easier to use can create substantial value.

The Growth Strategy is the strategy aimed at gaining a larger market share, even at the expense of short-term earnings. The TTC's Growth Strategy must take into account the key regional growth strategy and the whole development framework proposed for the TTC's from an entrepreneurial university. The four broad growth strategies are:

- Diversification: developing new products and/or educational / research services in new markets can be a riskier strategy given the unproven marketplace;
- Product development: meaning new products and/or educational / research

services into existing market as it mirrors the market development strategy. Developing new products and/or educational / research services requires new skills and continual tweaking until success is achieved;

- Market penetration: expanding the current products and/or educational / research services in your current market. It's all about the „competitive edge”;
- Market development: expand existing products and/or educational / research services into new markets. The new market can be industry-related or geographical. Occasionally modifying the product and/or educational / research services slightly can also open up new markets.

The content of these two paragraphs (Value Proposition and Growth Strategy) shows the fundamental changes and the original way in Romania's current practice, in which an entrepreneurial university should deal with market conditions, this terms being well understood by the socio-economic and the industrial environment, strictly associated with the general concept of competitive advantage.

## Conclusions

We developed a competitive advantage model for universities, mainly focused on the valorization of intellectual property rights, in the context of the entrepreneurial orientation, by adapting the classical model of competitive advantage to an academic institution and pursuing the objective of consolidating its assets, including branding and reputation, intellectual property right granting and valorization, strategic partnerships and alliances, human resource, students and alumni.



Because of the tight connection between the competitive advantage and the „Value Proposition” of any university business model, its mission should focus on developing distinctive competencies, such as: collective learning, tacit knowledge, activities organization, added value, efficiency, experience, communications, engagement and flexibility for the students, academic staff and all interested parties.

The evaluation of the performances of universities, from the perspective of its competitive advantage, mainly focused on the intellectual property valorization, and referring to the business model concepts of „Value Proposition” and „Growth

Strategy” contributes to the strategic orientation of the Romanian higher education in order to be competitive „in the new academic market conditions”.

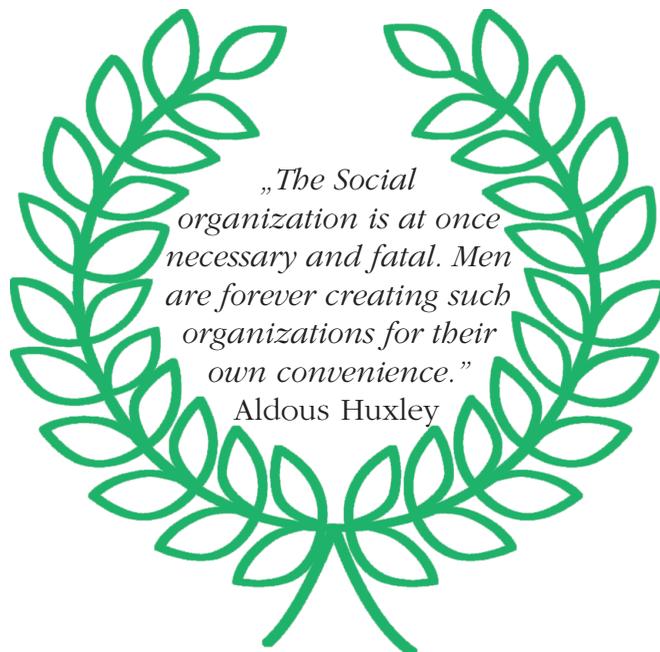
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## REFERENCES

1. Bradmore, D.J. (2007) *The Quest of Australian Public Universities for Competitive Advantage in a Global Higher Education Environment*. Unpublished Ph.D. thesis. [Online] Available from: [https://www.researchgate.net/publication/277812139\\_Quest\\_of\\_Australian\\_public\\_universities\\_for\\_competitive\\_advantage\\_in\\_a\\_global\\_higher\\_education\\_environment](https://www.researchgate.net/publication/277812139_Quest_of_Australian_public_universities_for_competitive_advantage_in_a_global_higher_education_environment). [Accessed: 18<sup>th</sup> February, 2016].
2. Carayannis, E.G. and Rakhmatullin, R. (2014) The Quadruple/Quintuple Innovation Helixes and Smart Specialisation Strategies for Sustainable and Inclusive Growth in Europe and Beyond. *Journal of the Knowledge Economy*. (5). pp. 212-239.
3. Greco, M., Grimaldi, M., Scarabotti, L. and Schiraldi, M.M. (2013) The Sources of Competitive Advantage in University Spin-Offs: A Case Study, *Journal of Technology Management & Innovation*. 8 (3). pp. 139-151.
4. Havas, A. (2015) Types of Knowledge and Diversity of Business-Academia Collaborations: Implications for Measurement and Policy. *Triple Helix* 2(12).
5. Ionescu S. and Militaru G. (2010) Problems of Implementing Quality Systems in Universities. *Proceedings: International Symposium Quality Management in Higher Education (QMHE)*. 2. Tulcea. July 8-9.
6. Mahdia, O.R. and Almsafir, M.K. (2014) The Role of Strategic Leadership in Building Sustainable Competitive Advantage in the Academic Environment. *Procedia – Social and Behavioral Sciences*. 129. pp. 289-296.
7. Militaru, G. and Ionescu, S. (2010) Models of Learning in Integrated Management Systems. *Metalurgia International*. 15(3). pp. 52-57.

8. Nyman, G. S. (2015) University-Business-Government Collaboration: From Institutes to Platforms and Ecosystems. *Triple Helix*. 2(2). [Online] Available from: <http://triple-helixjournal.springeropen.com/articles/10.1186/s40604-014-0014-x>. [Accessed: 8<sup>th</sup> March 2016].
9. Osterwalder, A. (2004) The business model ontology a proposition in a design science approach. Unpublished Ph.D. thesis. [Online] Available from: [www.hec.unil.ch/aosterwa/PhD/Osterwalder\\_PhD\\_BM\\_Ontology.pdf](http://www.hec.unil.ch/aosterwa/PhD/Osterwalder_PhD_BM_Ontology.pdf). [Accessed: 10<sup>th</sup> February, 2016].
10. Ronquillo, T. A. (2012) Analysis of Competitiveness of Batangas State University College of Engineering Using Porter's Five Competitive Forces Model. *Proceedings of the 2012 AAEE Conference*. [Online] Melbourne. October 1-2. Available from: <http://www.aaee.com.au/>. [Accessed: 11<sup>th</sup> February, 2016].
11. WIPO (2015) *World Intellectual Property Report 2015*. [Online] Available from: [http://www.wipo.int/econ\\_stat/en/economics/wipr/](http://www.wipo.int/econ_stat/en/economics/wipr/). [Accessed: 2<sup>nd</sup> March, 2016].



# The Use of Social Media in the Recruitment Process

**Lucie Bohmova**

University of Economics, Prague, Czech Republic

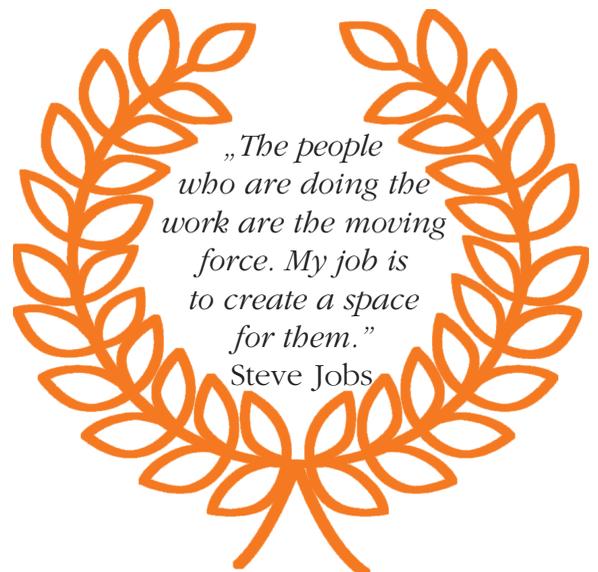
Abstract

*LinkedIn is a business-oriented social networking service. It provides tools to build and manage professional networks. But it especially gives recruiters a quick and easy access to a large range of resumes from skilled potential employees all around the world. The purpose of this paper is to explore how the ten biggest companies in different European countries (Norway, France and Germany) use LinkedIn for hiring as compared with corporate websites. In addition, we compared the number of employees with the number of employees who are members in company's page on LinkedIn. In the theory part, we found that LinkedIn is a very important recruiting tool for companies. Our overall finding is that LinkedIn is not used by companies as much as theory suggests it should be. The investigated companies seem to lack encouraging their employees to update their LinkedIn profile regularly. We cannot conclude that there is a correlation between the number of jobs offered and the number of followers. The results and discussion show that job postings on corporate websites compared to the job boards on LinkedIn are much higher for the Norwegian and French companies. This result differs from the German companies where we observed that four companies have more jobs posted on LinkedIn than on their corporate website. This research is limited to quantitative data.*

**Keywords:** LinkedIn, recruitment, job boards, Human Resources, corporate websites

## Introduction

Social media recruitment is a process of hiring new employees with the use of social media such as LinkedIn, Facebook, Google+, Twitter and many other social media sites which are popular in certain geographical areas or countries, for example, Weibo (China) or VKontakte (Russia).





There are a lot of tactics, strategies and steps on how to achieve a good social media recruitment process and the whole social HR has a lot of benefits and drawbacks that are going to be described in the paper. In 2012, 80% of companies were using social media for recruitment and 95% of them were using LinkedIn (Isaacson, 2012). So we can safely assume that currently the first number will be much closer to 100% and almost every company is now using LinkedIn as a hiring tool.

LinkedIn has over 332 million members in over 200 countries, and it is by far the most popular professional social media website in the world. In particular, it gives recruiters quick and easy access to a large range of resumes from skilled potential employees all around the world. LinkedIn is built upon a simple philosophy: „Relationships Matter.” Social networking in the workplace has become a crucial communication tool for many businesses. It provides a platform for creating communities based

on similar interests, hobbies or knowledge (Pavliček, 2014). LinkedIn is advantageous for Human Resources, who use it for both networking and recruiting. „LinkedIn has revolutionized the recruiting world” (The Muse, 2014). This claim proves how important this social media tool has become in the field of recruitment, both for companies and job seekers. LinkedIn is now the world’s largest professional online service. Europe is their biggest market outside the United States, and Norway (1+ million users), France (8+ million users) and Germany (3.5+ million users) are some of the countries with the highest adoption rates (Schawbel, 2011).

The title of the Economist stating some of the key advantages of LinkedIn, confirms that the main benefit for recruiters is finding ‘passive’ job seekers (The Economist, 2014). They correspond to those who could miss the job offer, but who would still be good potential candidates for the company.



## Research Methodology

The purpose of this research is to find out how the 10 biggest companies based on market capitalization from France, Germany and Norway use LinkedIn for hiring employees. We are also looking for differences between countries.

In this study, a quantitative research method based on collection of primary data through observing the activity on LinkedIn was used. The data was collected based on observation of online activity on LinkedIn over one month conducted by students of courses focused on New Media. In addition, the number of job positions on LinkedIn was compared with the number of jobs advertised on corporate websites.

We had five factors we observed and studied. In this section, we will give a short explanation of each of the factors. The first factor is the total number of employees of the company. This factor was used together with a second factor, namely the number

of employees registered on LinkedIn. By comparing these two factors we believe that we can get a picture of how important the company believes LinkedIn is.

Another factor is posts per week. This factor explains the company's usage of LinkedIn. In addition, it shows the company's attitude towards sharing information and updating their followers. Hence, this factor also shows how important the company believes LinkedIn is.

The last two factors, which are connected, are job postings on LinkedIn and job postings on the corporate website. We chose to observe these factors in order to research how the company uses LinkedIn compared to their corporate websites.

The analysis of the data was divided into two parts: one concerning the absolute value of the factors, and the other one focusing on the ratio between some of the factors. We analyzed the absolute value for the following factors: followers, posts per week and job postings on LinkedIn. When we analyzed these factors, we simply looked at the numbers and compared different companies in each country, as well as comparing data from the three countries.

Regarding the ratios, we used the numerical data for the factors and compared different factors by calculating the ratio between them. The ratios are calculated based on the factors for each individual country and in further discussions, these ratios were compared between the countries, but also between companies in each country. We looked into two ratios for each country: the number of followers versus the number of job postings on LinkedIn, and the number of job postings on LinkedIn versus the number of job postings on corporate websites. These ratios were put into charts, which are presented in the result section and used for further discussion.

## Research Results

The results are presented for each country separately and this information has been used in the discussion that follows.

### Norway

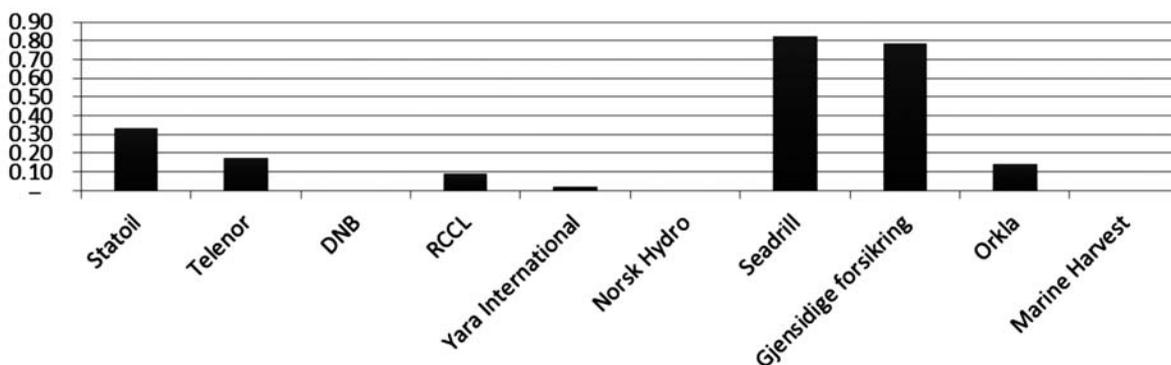
The 10 biggest companies in Norway are Statoil, Telenor Group, DNB, Royal Caribbean Cruises, Yara International, Norsk Hydro, Seadrill Limited, Gjensidige Forsikring, Orkla and Marine Harvest ASA (Oslo Børs, 2014). Of the ten biggest companies in Norway in terms of market capitalization, the biggest company Statoil also has the most followers on LinkedIn, with more than 230,000 people.

The average number of posts per week is only 2.40 for the Norwegian companies. Yara International was the most active with five posts while both Royal Caribbean Cruises and Marine Harvest had zero posts in one week. The companies are restrained to share too much news about themselves on their LinkedIn profile.

Two companies, namely Seadrill and Gjensidige Forsikring used LinkedIn for

more than half of the jobs offered on their corporate website. Figure 1 shows that only two companies use LinkedIn for more than half of their jobs offered on their corporate website. The average is that 26% of all jobs offered on their corporate website is also offered on LinkedIn. Note that DNB did not have any jobs on either their corporate website or on LinkedIn at the moment we did the observation. Marine Harvest had only 3 jobs on their corporate website and 0 on LinkedIn. Norsk Hydro had as much as 22 jobs offered on their corporate website, but still none offered on LinkedIn. These findings tell us that Norwegian companies do not use LinkedIn very actively to attract people to work for them.

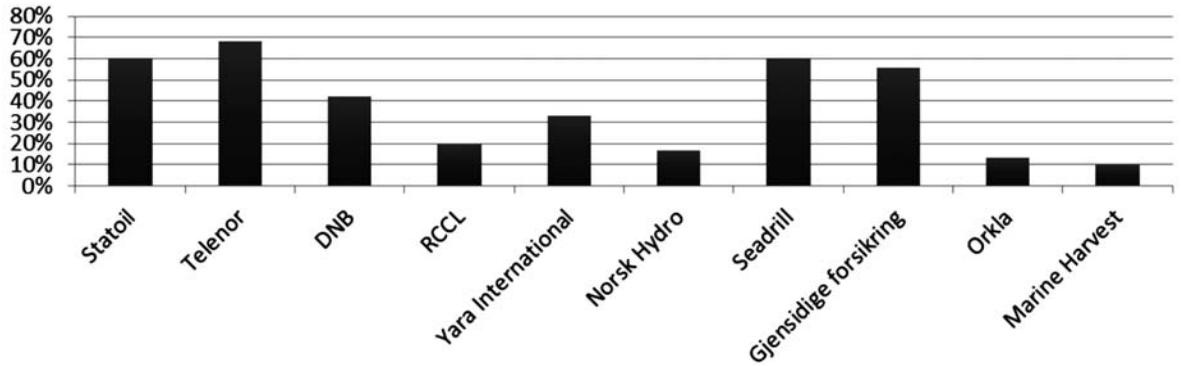
Followers / LinkedIn jobs is a ratio that shows how visible each of the jobs offered on LinkedIn is for one company. Statoil has the most followers per job offered on LinkedIn, with about 25,000. The average for all ten companies is just below 7.000. This is partly because some companies offer few or no jobs on LinkedIn, and partly because some companies have few followers compared to Statoil.



**Figure 1** – Ratio: jobs on LinkedIn / jobs on corporate website for companies in Norway

Figure 2 shows the percentage of the total number of employees that has a LinkedIn profile and also follows their employer's corporate LinkedIn profile. There are huge differences between the ten

biggest companies in Norway. Orkla and Marine Harvest have the smallest numbers, 13% and 10% respectively. Gjensidige Forsikring has the highest number reaching 98%. The average for all companies is 42%.



**Figure 2** – Ratio: employees on LinkedIn / total number of employees for companies in Norway

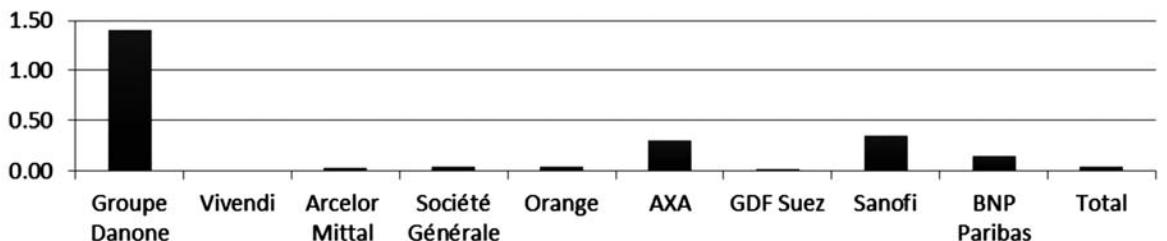
### France

The LinkedIn observation for the 10 biggest companies in France included Groupe Danone, Vivendi S.A., ArcelorMittal S.A., Société Générale, Orange S.A., AXA, GDF Suez, Sanofi S.A., BNP Paribas and Total S.A. (CAC 40, 2012).

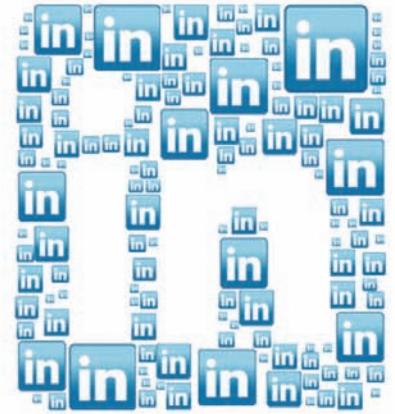
The average number of posts per week is only 2.0 for the French companies. Groupe Danone is the most regular poster, whereas Vivendi has not posted anything on LinkedIn. The low number of posts could be explained by several reasons. Similar to Norwegian and German companies, LinkedIn posts can be used to make important announcements, such as the launch of new products. The main another source of content is communication about the corporate culture of the company, as explored by Group Danone for instance.

The most LinkedIn followers are generated by Total with 429,488, followed by Group Danone with 387,997. At the same time Vivendi SA, as France’s second-biggest company by CAC 40 ranking, has only 3,325 followers on the platform, which indicates that a high market capitalization cannot be regarded as a factor for high popularity on LinkedIn.

Arcelor Mittal indicates a high value when analyzing the ratio of LinkedIn followers and jobs posted on LinkedIn. At Arcelor Mittal LinkedIn page there are 19,687 more followers than jobs offered. The total has the second highest ratio with 15,339 followers. These results can be explained partly by the very low number of jobs posted on LinkedIn by these companies.

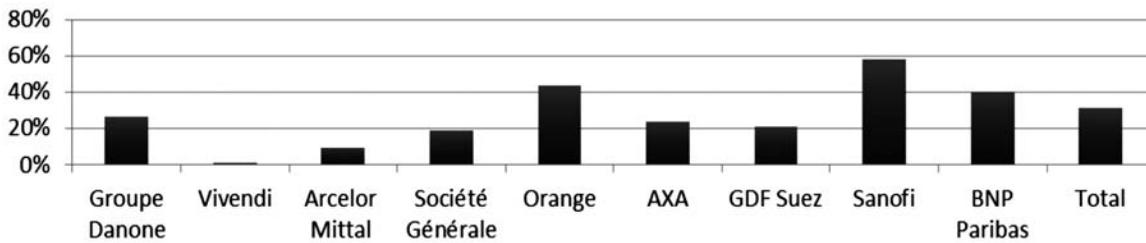


**Figure 3** – Ratio: jobs on LinkedIn / jobs on corporate website for companies in France



The average ratio measured here is 0.3 compared to 0.93 for German companies. It means that the amount of jobs offered often is higher on the corporate website than on LinkedIn in France. Groupe Danone has the highest ratio with 1.40 showing

that 40% more jobs are posted on LinkedIn according to the corporate website. As a contrary example, one can use Vivendi or GDF Suez with a low ratio of 0.02 and 0.03. The same goes for Total with a ratio of 0.04.



**Figure 4** – Ratio: Employees on LinkedIn / total number of employees for companies in France

Investigating the corporations' number of employees with a LinkedIn profile, one can outline that Sanofi and Orange, on the one hand, have the highest percentage of employees with a LinkedIn profile (58% and 43%, respectively), followed by BNP Paribas with 40%. In absolute numbers, BNP Paribas and Orange have the highest number of employees with LinkedIn profiles. At the bottom of the ranking, Vivendi has only 304 employees on LinkedIn for 58,000 employees: only 1% of their employees have profiles on LinkedIn, which is very low.



## Germany

We analyzed the LinkedIn operations of the ten biggest German companies, which are Bayer AG, Volkswagen AG, Siemens AG, Daimler AG, SAP SE, BASF SE, Allianz SE, BMW AG, Deutsche Telekom AG and Deutsche Bank AG.

The average number of posts per week is only 2.70 for the German companies, although this is 12.5% higher than the value measured for the ten biggest Norwegian companies. Most posts were added by Daimler AG and SAP AG, whereas Volkswagen AG did not post anything. The low number of posts could be explained by several reasons. One can underline that similar to Norway, German companies try to regulate their LinkedIn posts, due the fact that they only want to post highly important information such as the launch of new products, which has been observed in the cases of BASF SE and Bayer AG. Both corporations launched innovative products and announced it. Thus, LinkedIn seems to be used for announcing important company news, while at the same time German corporations try to post interactive and interesting topics in order to engage their followers.

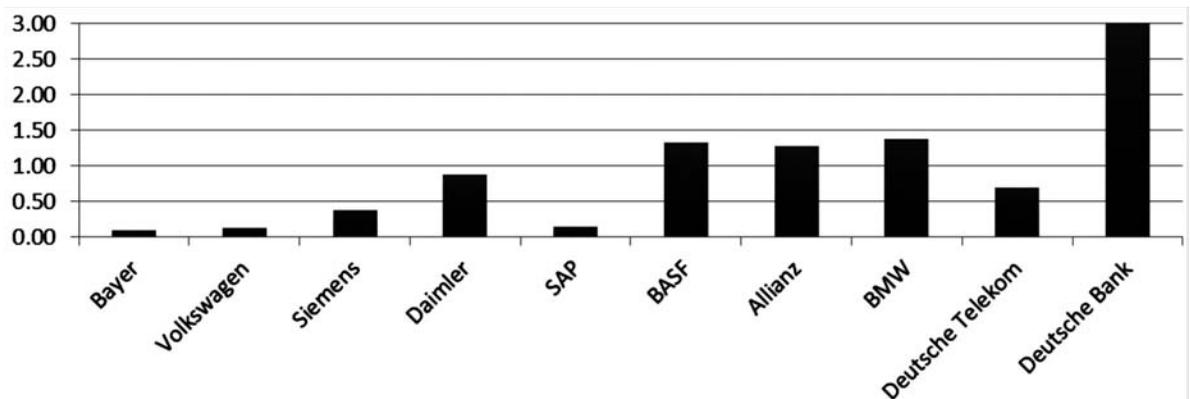
The most LinkedIn followers are generated by Siemens AG with 668,223, followed by SAP SE with 62,893. At the same time,



Bayer AG, as Germany’s biggest company by market capitalization, has only 15,523 followers on the platform.

SAP SE again produces a high value when analyzing the ratio of LinkedIn followers and jobs posted on LinkedIn. At SAP SE, there are 2,125 followers per job position posted on LinkedIn. Bayer AG and Volkswagen AG show even higher values with 3,220 and 2,897.

According to the ratio of total amount of jobs posted on LinkedIn compared to jobs offered on the corporate website, it becomes obvious that German companies



**Figure 5** – Ratio: jobs on LinkedIn / jobs on corporate website for companies in Germany



Investigating the corporations' number of employees with a LinkedIn profile, one can outline that Siemens AG, on the one hand, has the highest number of employees with a LinkedIn profile (151,846), followed by SAP SE with 62,893. On the other hand, Siemens AG shows also a quite high ratio of employees on LinkedIn compared to the total number of employees (0.42). Nevertheless, SAP SE shows the highest ratio with 0.96, with 66% above the average of 0.30.

### Discussion

The ratio between the number of job postings on LinkedIn and the number of job postings on the corporate website supports the analysis of whether companies use LinkedIn for job posting at the same extent as their corporate website.

In Norway, there is a huge variation between companies. Two companies use LinkedIn heavily for job posting. They have almost as many jobs posted on LinkedIn as on their corporate website. On the opposite side, eight out of ten companies have only one-third of their job postings on LinkedIn. When looking at these findings, it has to be taken into consideration that the companies are not that big and

regard LinkedIn as highly more important for the recruiting process than Norwegian companies do.

The average ratio measured here is 0.93, meaning that the amount of jobs offered is often the same on both channels. Bayer AG has the lowest ratio with only 0.10, showing that only 10% of the jobs offered on the corporate website are also offered via LinkedIn. As a contrary example, Deutsche Bank AG has a ratio of only 3.01. Hence, Germany's biggest bank offers three times more jobs on LinkedIn than on its corporate website.

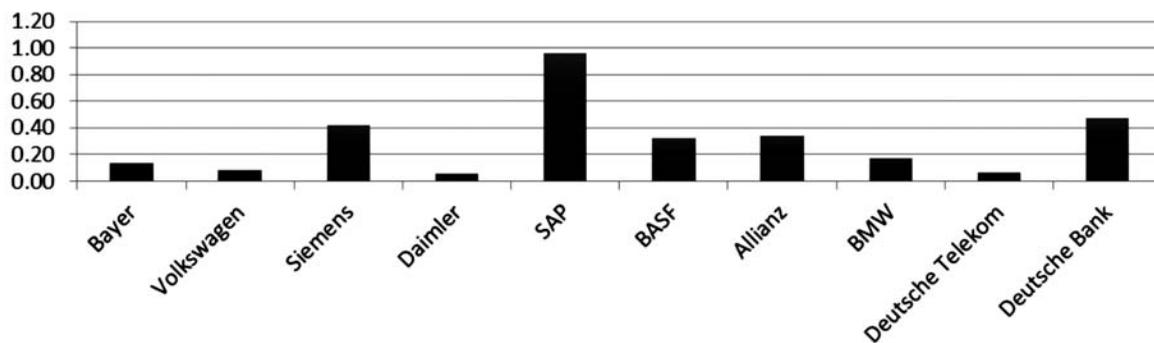


Figure 6 – Ratio: employees on LinkedIn / total number of employees for companies in Germany

they probably do not have continuous recruiting through the whole year. In Norway, a percent of 80% of the companies post only one-third of their job postings on LinkedIn. France is quite similar, but even more extreme. Nine out of ten companies have under one-third of their job postings on LinkedIn. Only Groupe Danone had more jobs posted on LinkedIn than on its corporate website.

In Germany the picture is different. Only three out of ten companies had under one-third of their job postings on LinkedIn. As many as four out of ten have more jobs posted on LinkedIn than on their corporate website. The three last companies have a between 40 and 80% of their job postings on LinkedIn. Based on these results we can conclude that the importance of LinkedIn

for the companies is higher than in France and Norway.

This highlights that the companies do not use LinkedIn as much as the existing literature say and the importance of LinkedIn for companies in recruiting seem to be lower than expected.

When comparing the three investigated countries, the common presence of LinkedIn in the corporate world can be outlined, which is further supported by the huge amount of company pages on LinkedIn around the world, a number which exceeds four million in total. LinkedIn activity seems to be quite high overall. Four out of the 30 investigated companies, which represent only 13%, did not post at least once in the week of observation. At the same time, the average amount of postings



varies between 2.0 and 3.4 for the three different countries, implying slight differences in LinkedIn activity among the three countries.

## Conclusions

In this paper, we have looked at how the 10 biggest companies in three different European countries use LinkedIn as a recruiting tool, and we have compared it with their corporate websites. This has been done by observing specific factors for each of the companies over a one-month period. Results have been discussed both for each country and by comparing the different countries. We found that all of the 10 biggest companies in the three countries are registered on LinkedIn. Almost all of the companies update their profiles weekly, but the number of posts per week on average is only about two. The amount of followers each company has does not seem to depend directly on the overall corporate platform activity. By this, we mean that it could not be observed any

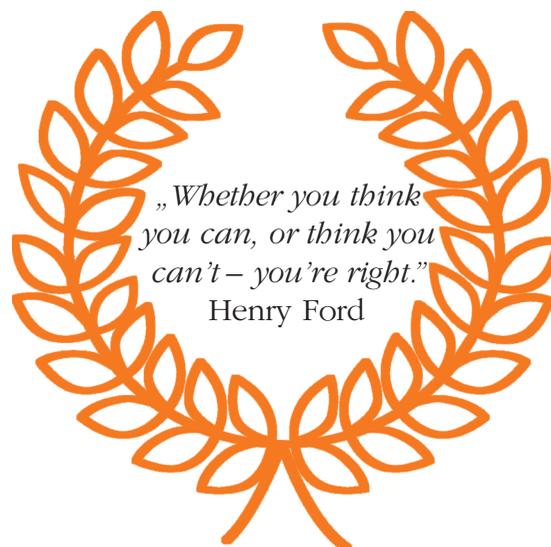
correlation between posts per week and the number of followers. We found a correlation between the number of jobs offered and the number of followers at the country level. We did not find the same correlation at the company level. This means that we cannot conclude that there is a correlation between the number of jobs offered and the number of followers. One possible explanation could be that LinkedIn's popularity in the different countries is the variable that explains the number of job offers, as compared to the number of followers on the platform.

The results and discussion show that job postings on corporate websites compared to job postings on LinkedIn are much higher for the Norwegian and French companies. This result differs from the German companies, where it can be observed that four of the analyzed companies have more jobs posted on LinkedIn than on their corporate website. This shows that German companies clearly focus more on using LinkedIn than the Norwegian and French companies.

## REFERENCES

1. Doucek, P., Maryska, M. and Novotny, O. (2012) Requirements on the competence of ICT managers and their coverage by the educational system – experience in the Czech Republic. *Journal of Business Economics and Management* [Online] p. 1–24. Available from: <http://www.tandfonline.com/doi/pdf/10.3846/16111699.2012.658436>. [Accessed: 3<sup>rd</sup> March, 2016].
2. Isaacson, K. and Peacey S. (2015) *Human Resources and Social Media: Does Social Media Keep You Up at Night? What You Need to Know About the Opportunities and Risks for Your Workforce* [Online]. Available from: <https://www.kpmg.com/US/en/IssuesAndInsights/ArticlesPublications/Documents/human-resources-and-social-media.pdf><http://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/> [Accessed: 16<sup>th</sup> December, 2015].

3. OBVITE (2014) *Social Recruiting Survey*. [Online] Available from: [https://www.jobvite.com/wp-content/uploads/2014/10/Jobvite\\_SocialRecruiting\\_Survey\\_2014.pdf](https://www.jobvite.com/wp-content/uploads/2014/10/Jobvite_SocialRecruiting_Survey_2014.pdf) [Accessed: 16<sup>th</sup> December, 2015].
4. OSLO BORS. (2015) *Kurser og marked Aksjer* (In English: *Quotes and Market Shares*). [Online] Available from: [http://www.oslobors.no/markedsaktivitet/stockList?newt\\_\\_menuCtx=1.14](http://www.oslobors.no/markedsaktivitet/stockList?newt__menuCtx=1.14) [Accessed: 2<sup>nd</sup> March 2016].
5. Nyeng, F. (2012) Nøkkelbegreper i forskningsmetode og vitenskapsteori (In English: *Key concepts in research methodology and philosophy of science*). Fagbokforlaget. [Online] Available from: <https://fagbokforlaget.no/> [Accessed: 2<sup>nd</sup> March 2016].
6. Pavlíček, A. (2013) Social Media – the Good, the Bad, the Ugly. In Doucek, P., Chroust, G. & Oskrdal, V. (eds.). *IDIMT 2013 – Information Technology, Human Values, Innovation and Economy*. Linz: Trauner Verlag.
7. Pavlíček, A. (2014) New and Social Media in the Workplace. In *IDIMT-2014 (Networking Societies – Cooperation and Conflict)*. Linz: Trauner.
8. Schawbel, D. (2011) LinkedIn is About to Put Job Boards (and Resumes) Out of Business. *Forbes*. [Online]. 1<sup>st</sup> June. Available from: <http://www.forbes.com/sites/danschawbel/2011/06/01/linkedin-is-about-to-put-job-boards-and-resumes-out-of-business/>. [Accessed: 16<sup>th</sup> December, 2015].
9. Smith, R. (2014) The LinkedIn Effect: Why Social Media Is Now Mandatory for Success. *Forbes*. [Online] Available from: <http://www.forbes.com/sites/ricksmith/2014/10/20/the-linkedin-effect-why-social-media-is-now-mandatory-for-success/> [Accessed: 16<sup>th</sup> December, 2015].
10. The Muse (2014) Smart Ways to Attract Recruiters. *Forbes* [Online] Available from: <http://www.forbes.com/sites/dailymuse/2014/10/06/3-smart-ways-to-attract-recruiters-to-your-linkedin-profile>. [Accessed: 16<sup>th</sup> December, 2015].
11. THE ECONOMIST. (2014) *Workers of the world, log in*. [Online] Available from: <http://www.economist.com/news/business/21612191-social-network-has-already-shaken-up-way-professionals-are-hired-its-ambitions-go-far> [Accessed: 16<sup>th</sup> December, 2015].



# The Advantages of Business Clusters

Ana-Maria Raluca Cojocaru (1), Sorin Ionescu (2)

(1) Hewlett-Packard, Bucharest, Romania, (2) University POLITEHNICA of Bucharest, Romania

## Abstract

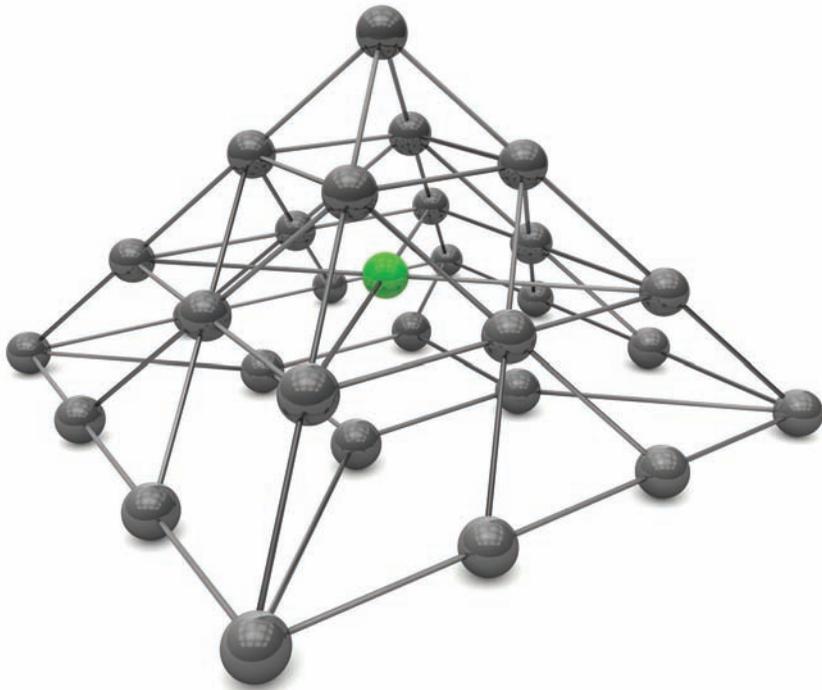
*The aim of this article is to describe the advantages and limitations of business clusters, often interpreted as being complex economic entities. Throughout the time, it has been observed that firms tend to concentrate in certain locations as various types of economic agglomerations. However, there is no single cause which is due the clustering phenomenon, on the point of clusters may be the result of several combinations of subsequent factors: the existence of a competent workforce, specialized suppliers, knowledge dissemination and entrepreneurial activity, the inter-dependence between entities, the organizational cultures or the local demand. The objective of this paper is to demonstrate why the presence of a cluster succeeds to enhance a firm's productivity as well as stimulate growth in a region, and moreover how it manages to attain these results. While the article shows that the advantages of business clusters are obvious, even measurable, such as: the competitive advantages, the operational efficiency of its members, the encouragement of innovation and technological advance, the creation of new companies, the formation of social capital and the adaptability to market changes; the disadvantages are almost nonexistent, rather there are certain limitations and ambiguities that stand from major structural, technological or industrial changes at macroeconomic level or other impactful events such as wars and crises.*

**Keywords:** cluster, business, regional development, competitiveness, localization economies

## Introduction

Nowadays a new paradigm is shaping, claiming the fact that clusters serve as the driving force for economic growth in the most regional economies. My mission in





this paper is to clarify what are the advantages of these entities and the limitations they face towards their development path. Having regard to the literature in the field, the most important features a cluster can have are the localization, the competitive advantages, and the networking potential. Proceeding with a deeper analysis of these factors, there are resulting a series of benefits for the firms, research institutes, universities, even the nation state and the population located in the region where the cluster functions. A well-established cluster is defined by four main characteristics:

- increased productivity through synergies, access to information and specialized inputs;
- the possibility of instant cooperation with business partners;
- more rapid innovation through cooperative research, constructive internal competition, as well as competitive striving;
- new business formation filing in niches and expanding the boundaries of the cluster.

In addition to these features, there are benefits such as the potential to adapt to structural changes and to the dynamics of the labor market as well as to attract foreign investment due to a higher degree of credibility. In conclusion, given the fact that the cluster members are interdependent; the good performance of one of them can boost the success of others.

## Experimental and Results

The paper was written based on the qualitative method of data collection from sources consisting of books, articles, case studies and reports. The research lead to a comprehensive analysis on the broad thematic concerns regarding the advantages and limitations of business clusters.

The findings of the current paper reveal that one of the most important characteristics of business clusters is represented by the possibility to share a common infrastructure, suppliers and distribution networks. The members of the cluster can benefit by the presence of firms that provide components, support services or raw materials, as well as help develop solutions and combine resources to take advantages of newly created market opportunities. On a first level, a strong business cluster will include suppliers of raw materials, distributors and primary components producers and on a second level, specialized services in finance, marketing, packaging, education, training and other specific facilities related to trade. In addition to these, there are benefits such as: the potential to easily adapt to structural changes and to the dynamics of the labor market or to attract foreign investment due to a higher degree of credibility. In conclusion, having regard to the fact that cluster members are interdependent, the good performance of one

of them can boost the success of others extending the positive organizational outcomes.

## Concept of Business Clusters

A vast domain of the research dedicated to cluster study was directed to identify a precise definition of a cluster or to examine whether the clusters are compatible with various economic measures implemented at regional level. As an overview, a cluster represents an umbrella concept, a concept that cannot be defined with precision (Audretsch and Feldman, 2003; Colgan and Baker, 2003; Dahl and Pedersen, 2003; Tracey and Clark, 2003), and essentially the structure of this entity is likely to vary by location or industry.

According to Michael Porter (1998) „A cluster is a geographical proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and externalities”. The main elements used by Porter to describe a cluster are: the geographic concentration, interconnections of companies and institutions, the simultaneous existence of competition and cooperation between entities and the specialization factor. As a general statement, the cluster represents a fundamental organizational framework, which often is identified as a triple helix structure (Figure 1), relevant for regional economies and economic development strategies. However, the analysis method in terms of organizing businesses in a cluster is valuable to understand why clusters exist, how we can identify them and which the benefits for regional economic development are. As there is no an exhaustive definition of a cluster, a proper contribution in this field is to identify the challenges encountered by regions in their development

trials and further analyze and adapt a cluster-based strategy to the competitive advantages of the regions and to those of businesses operating there.

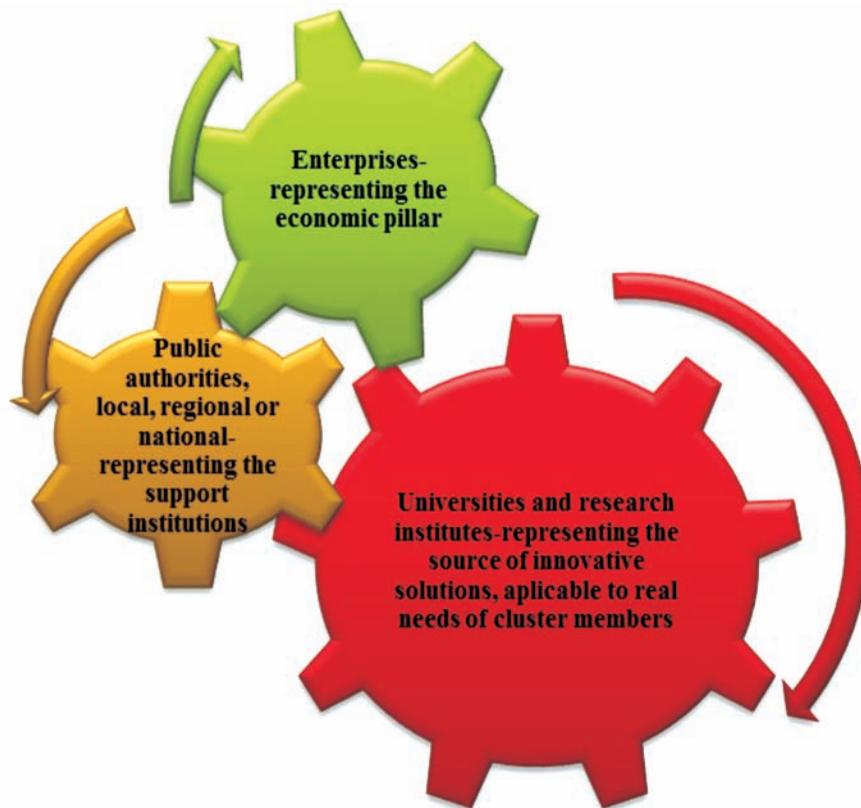
Among the factors that explain the evolution of clusters are the external influences derived from market competition and rapid technological changes that have obviously affected the competitiveness fundamentals of nations and enterprises (Guerrieri, 2001). Within traditional economic sectors, just as in the field of latest technologies, clustering activity has become a new model of economic development and led to important discoveries in growing new business strategies (Lagendijk 1999).

A typical initiative to set up a cluster starts from a small organization as a result of an entrepreneurial initiative, with the support from the side of public or private institutions which generally allows the creation of a critical mass in order to permit further development. Clusters are particularly effective organizations conducive to innovation, they are a collection of various



actors, yet interrelated in their actions. A second constituent member of a cluster is the research organization, for instance, research institutes that produce advanced knowledge. The third type of membership is represented by the educational organization, noticing that universities are a special case, as they play the role of both research and education institution. The fourth type is the providers of capital, such as investors or banks that provide financial resources for exploitation of inventions and business models. The fifth type, government and public agencies, including actors

who have the ability to develop and implement public policies regarding infrastructure investment, law and other important dimensions for innovation. The rationale for business clusters is that when creating a critical mass around a sector or industry, different actors can support each other and the resources can be managed more effectively. Nevertheless, the critical mass is a minimum criterion, as constituent entities of a cluster must be interlinked and qualified to allow a mutual mobility of resources and expertise, including technology dissemination.



**Figure 1** – *Triple Helix Model of Clusters* (Source: adapted from Etzkowitz, 1997)

Assuming the members of a cluster are associated by numerous formal and non-formal connections through which they constantly interact, they become dependent on each other in some respects, but also, they become able to operate in a

more efficient way. From this standpoint, the network of interdependencies between companies, institutions and various support service providers belonging to a cluster is currently considered one of the most important resources that a company can

have, as in the case of financial, technological or informational resources. Proximity, external economies and the economies of scale created, are key elements that encourage the overall performance of companies within a cluster.

Cluster type agglomerations appear and develop in different ways and in this respect, there is no pattern that can be transferred from one economy to another. From empirical observations, it appears that clusters may be the result of one of the following cases: (a) strategic exploitation of a natural site, (b) reserve of natural resources, including specialized professional skills that may occur in the vicinity of well-known research institutes, (c) localization in areas with well-developed infrastructure, (d) reaction to local development needs, (e) a result of the activities of one or more successful companies.

The firms normally tend to locate in regions that privilege their economic activity, being it with the aim to access resources or gain access to new markets. Sometimes, though, choosing a certain place may be just a „historical accident”. The onset of the clustering process, however, is always determined by the presence of positive externalities and the engine that influences the further development of the cluster is the competition between rival companies (Porter 1990), which forces them to be innovative, creative and to keep track with the technological advances. Thus, the research and development activity is stimulated and the labor force become more specialized by higher professional qualifications and the existence of a higher value-added services sector. The free movement of labor from one company to another within the cluster and the proximity allow fast and easy transfer of knowledge to new companies resulting in increased



competitiveness and economic growth. The presence of externalities and the dissemination of knowledge within the cluster will continue to lead to the emergence of new activities, which will, in turn, generate the appearance of new companies upstream or downstream. In conclusion, clusters will become over time a part of an organic development process.

Strengthening the competitive position of the companies within a cluster by providing material, financial and human capital, creates an environment that will naturally attract new members. The shortcomings that may exist throughout the upstream production chain (inputs) and downstream (final products) will be transformed into opportunities for other companies interested to locate in clusters. This development will help to diversify the cluster, create synergies and open new opportunities for collaboration. Following up with the newly transformed resources, over time, they will contribute to creating more value, increase investment, wages and prosperity in the area where the cluster functions. This type of evolution refers to the optimistic scenario in which the cluster is becoming performant, helping to improve the functional parameters of its members and to ameliorate the situation of the entire



geographic region where it is located. Success depends, however, on a wide range of factors, including: the existence of a stimulating economic environment; understanding the necessity of simultaneous cooperation and competition between the members; creating strong links between companies, and between them and the rest of cluster's organizations; the existence of performant and powerful institutions and public agencies; good communication between members and the overall recognition of the idea that a cluster-based approach to development is a systemic one, in which each stakeholder plays an essential role.

Furthermore, neglecting the key factors leveraging growth and development of clusters, ultimately generates stagnation and decline. Inadequate regulation, high levels of taxation, weak competition, low level research institutes and universities, insufficient funding of research and development, failure to keep pace with the new technologies, inability to meet consumer demands and to seize new market opportunities, inadequate labor market policies, etc. may all contribute to the collapse and disappearance of a cluster. Moreover, like any living organism, clusters appear, develop, grow, mature, regress and die. The duration of each stage varies from case to case, depending on the intrinsic potential of the cluster, but also, potential external

factors may exert their influence. The governmental agencies should primarily recognize the exact stage in the life cycle of the cluster as a fundamental to outline the appropriate development strategy and focus on preventing a cluster from attaining the stage of decline. Research to date demonstrates that cluster development constitutes a time lengthy process, from years to decades, several clusters being the result of natural impulses of evolving markets, without any external assistance. On the other hand, there are clusters that have developed faster due to the implementation of regional policies that favored this phenomenon.

In the recent economic geography literature dedicated to clusters, it is debated the contradiction between globalization, and alternatively the regional advantage and the importance of the geographical location (Markusen, 1996; Porter, 1998; Maskell, 2001). In time, it has been observed that economic activity tends to concentrate in certain locations under various types of economic agglomerations. However, there is no single cause which is due the clustering phenomenon, as clusters may be the result of several combinations of subsequent factors: the existence of a competent workforce, knowledge dissemination, specialized suppliers, entrepreneurial activity, organizational cultures, local demand and interdependencies between entities. A cluster is a by excellence an organized group of companies, governmental or non-governmental actors, universities and research institutes located in proximity that share productivity benefits derived from their geographical location and interconnections. Cluster analysis can help to identify the strengths of a regions and the challenges it faces and to establish realistic ways to shape the economic future of

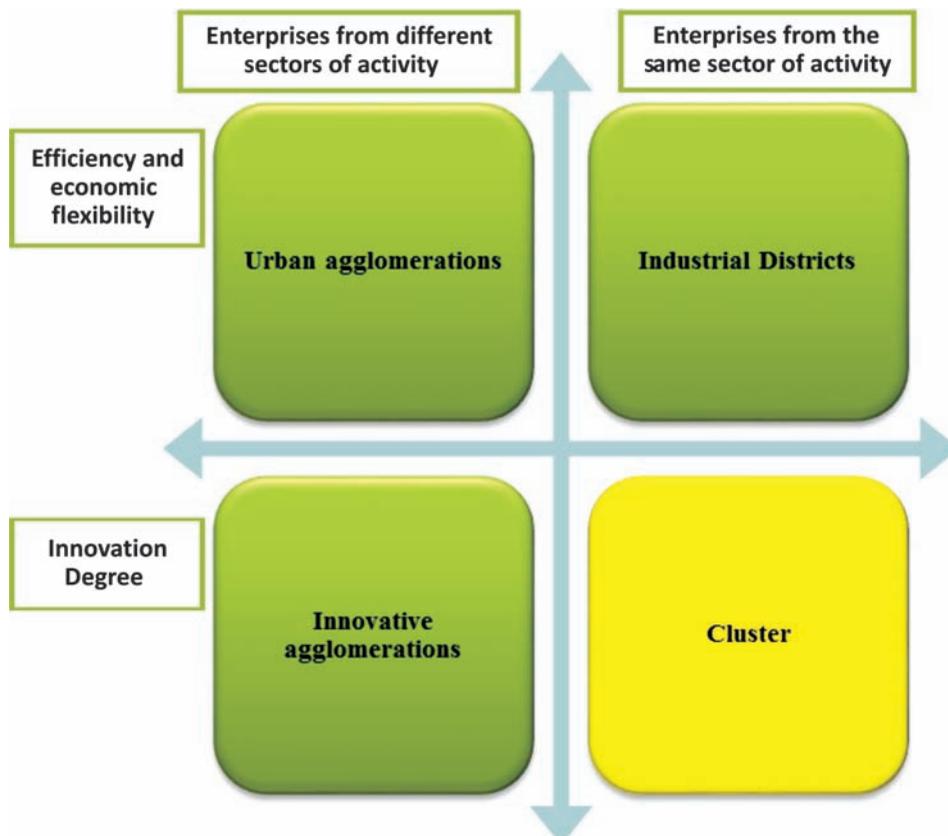
a region. Additionally, there are three assumptions on the basis of which the article further exposes the advantages and limitations of business clusters are:

- Clusters come out to be key organizational units that sustain and increase the performance of regional economies. The foundation of a regional economy is represented rather by a group of clusters, instead of a collection of independent firms. Businesses are agglomerating in a region where each firm can accumulate benefits derived from the location in proximity to other similar companies. The firms in a cluster have a similar set of strengths and common needs.
- The cluster-based strategy is important because a regional development policy guided by a group of companies turns

out to be more efficient than relying on individual or dispersed firms.

- Thinking in the logic of clusters offers an important lesson for practice and policy developments because it promotes a model of doing business that respects the unique features of a region. Unlike other situations that imitate development models, clusters facilitate the transition from analysis to dialogue between its members, offer different strategies and new possibilities to reinvent or create favorable environments for the emergence of new clusters.

In order to understand the patterns of clustering in terms of connections between firms, researchers have defined various models illustrating the characteristics of a region and its logistics chains (Figure 2):

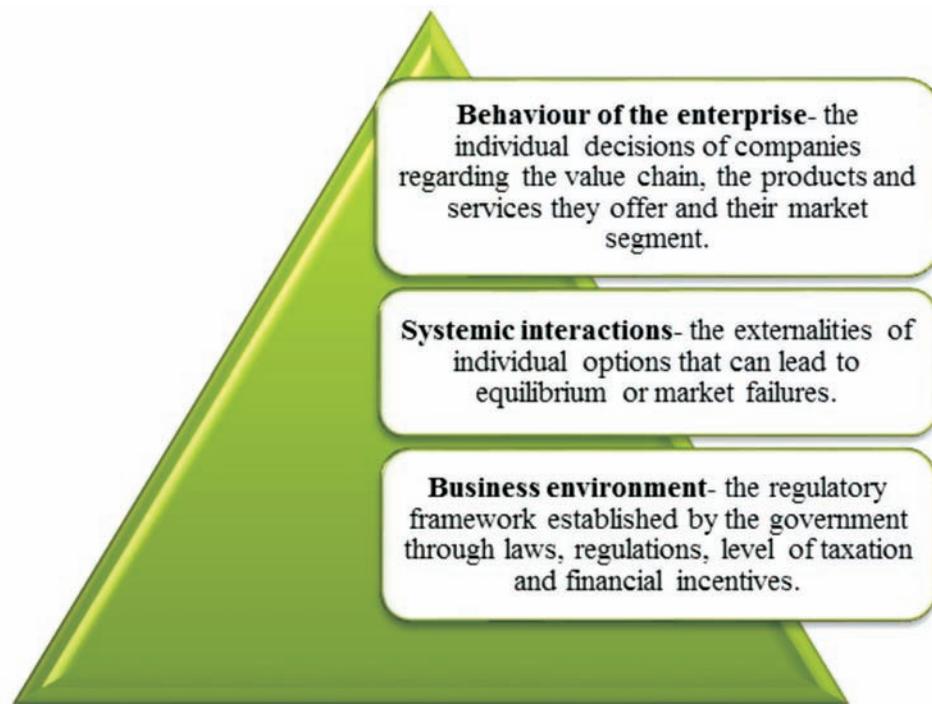


**Figure 2** – *Types of economic agglomerations* (Source: Malmberg, Sölvell, Zander, 1996)

In Figure 3 it can be observed that cluster entities are formed by companies operating in the same sector of activity and in order to become successful they require a significant degree of innovation, which in fact represents the main driver of development in a company (Porter, 1998). Among the most common sources that influence the growing of clusters are specific issues related to location, business environment, the long-term impact of the entrepreneurial decisions taken both by the public or private sector. A major challenge to founding a cluster is that from the

beginning of fulfilling these basic conditions until the final consolidation of the cluster it may last from several years to decades.

Further in the article, the analysis details the idea that business clusters are beneficial to regional development, because on the strength of this configuration, companies are able to operate activities with a higher degree of efficiency, research institutes, and universities can reach a better level of innovativeness and overall, the entrepreneurial activity is stimulated throughout the region where the cluster is located.



**Figure 3** – *The description of market interactions*

## Advantages of Business Clusters

Despite theoretical and practical analysis of clusters, yet it has not been defined a generic model to explain the success or decline of business clusters, but there are widely recognized advantages of this phenomena (Porter, 1990; Porter, 1998; Krugman, 1991; Baptista and Swann, 1998;

Malmberg and Maskell, 2001; Carlino, 2001; Etzkowitz, 2002; Solvell, 2003): the advantage of reducing the supply chain costs through the proximity between customers and suppliers, the creation of a competitive environment that foster innovation, research and development, the benefit of a facilitated access to resources, the

acceleration of new businesses formation, the encouragement of entrepreneurial activities, transfer of marketing and business strategy information as well as the emergence of economies of scale and the creation of a specialized regional workforce.

**The localization advantage.** The concentration of several businesses in a certain location can determine significant cost reductions for the members of the clusters, these being known as *localization economies*. Potential sources of savings are the access to specialized inputs and business services, competent workforce, public infrastructure investments directed towards growth-driven sectors of activity, financial markets familiar with a specific type of business within a region and a potential increase of technology and information transfers between firms.

Alfred Marshall (1980) makes an observation on promoting the clustering process: „When an industry has thus chosen a locality for itself, it is likely to stay there for a long time: so great are the advantages which people following the same skilled trade get from near neighborhood to one another. Good work is rightly appreciated; inventions and improvements in machinery, in processes and the general organization of the business, have their merits promptly discussed: if one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the source of new ideas”.

Furthermore, a locally accessible labor market is formed. As the concentration of a specialized labor force appears due to the fact that the abilities are improved within a cluster; further it can attract new talent to the overall benefit of firms. Firstly, companies can use the workforce alternatively and the geographic concentration

may allow employees to move from one company to another depending on the local market demand. Even through this process can reduce the unemployment level, the employees may benefit of lower wages in return of stability of total income on long and medium term (Diamond and Simon, 1990; Krugman, 1990). Secondly, the proximity of similar firms represents an additional motivation for future employees to invest in industry specific competencies because the availability of these skills in the region will not make an employee dependent on one single job while there are many potential employers throughout the area (Rotemberg and Saloner, 2000). Thus, the external economies result in the creation of a common labor market where every economic entity can realize the recruitment process.

**The competitive advantage.** The clustering phenomenon facilitates the reorganization of businesses, for example, the transition from the traditional organization of large firms engaged in mass production to smaller firms oriented towards niche products. Changes in the structure





of businesses are attributed to the growing competition at the global level and to the emergence of new production technologies (e.g. computer-aided manufacturing processes); essentially clusters represent an attractive location for small specialized, computer-assisted businesses. As a general conduct, products specialization and the adoption of new technologies become more prominent and more tangible among businesses within a cluster no matter their area of specialization (Figure 2). The proximity between firms with a certain degree of specialization and their suppliers of inputs and products' markets increase the frequency with which goods move along the production chain. Facilitated access to products and inputs allows firms to adapt quickly to a changing environment. In the case of computer-based technologies, the spatial concentration of firms leads to a formation of a skilled workforce in the determined region.

The competitive advantages of business clusters to companies located randomly can be summarized as:

- reducing transportation time and expenditure and the costs of financial transactions;
- facilitating access to specialized inputs and the transfer of information;
- sourcing new technologies and create structural changes oriented through more specialization or differentiation;

- creating a more accessible and better-qualified labor market;
- providing economic sustainability due to the long-term orientation of companies;
- the organizing joint supply chain that results in reduced logistics costs and geographical proximity between customers and suppliers;
- accelerating the innovation process and the entrepreneurial activity, encouraging cooperation in research and boosting competition by extending cluster boundaries;
- creating economies of scale.

The presence of a cluster with a certain industrial specialization in a particular location will accelerate entrepreneurship by lowering the cost of starting a business, will offer new opportunities for innovation and will facilitate the access to a diverse range of inputs and complementary products (Porter, 1998; Feldman, 2005; Glaeser, Kerr, 2009) also it will provide economic benefits for the organizations within a cluster:

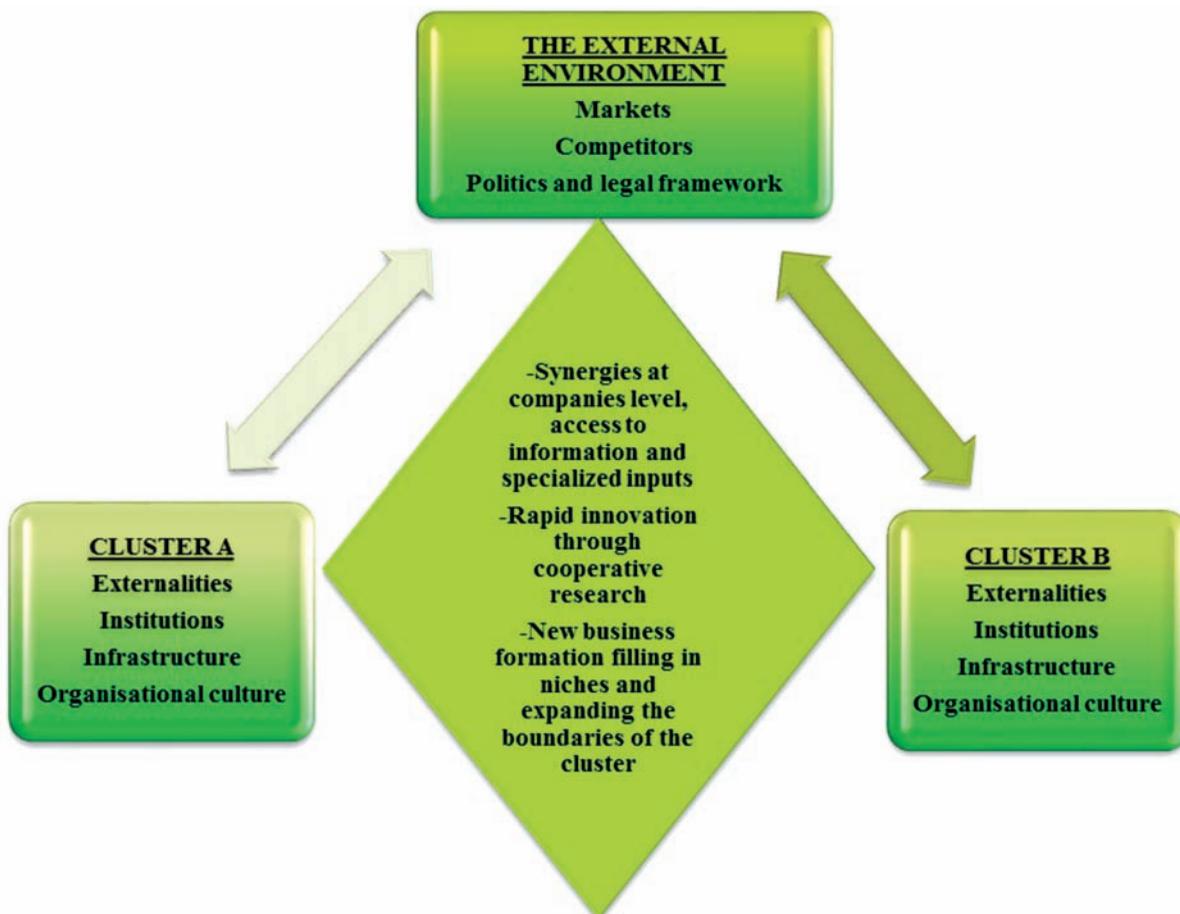
- companies operate with a greater efficiency given the access to specialized assets and suppliers who fulfill their contractual terms more effectively as if the companies were isolated;
- companies and research institutes can achieve higher levels of innovation and dissemination of knowledge; interactions with customers and neighboring companies are rising several new ideas as well the innovation process creates

competitive pressure so the degree of new business formation tends to be accelerated within clusters;

- by retaining and even expanding business clusters may result in a significant number of jobs, particularly for residents of the region where they are located.

**The connections advantage.** The process of networking evolves as the cooperation between companies in order to derive benefits from their complementarities, to explore new markets or to integrate activities with the aim to attract resources or know-how (Figure 4). Such cooperation occurs naturally within business clusters. Studies on the interconnections within the business sector highlight that

network firms have many advantages derived from cooperation with actors of the same category. It is more likely that companies will collaborate within a network in order to exchange marketing information, develop new products and contribute to technological development than companies that are not part of a network. Firms within a network report that their competitiveness and profitability is driven by cooperation and partnership between companies. A higher degree of cooperation between cluster's members increase the trust between firms and their proximity facilitates communication, as it is known; nothing causes the innovation process to be more efficient than the proximity of competition.



**Figure 4** – *Interdependent links between clusters and the external environment*



The proximity of companies in the same industry allow the exchange of knowledge and ideas through direct contact and free movement of labor, MAR dissemination (Marshall-Arrow-Romer); it also imposes a high pace of innovation and greater productivity (Baptista and Swann, 1998). This advantage is determined by the existence of a homogenous environment in terms of knowledge, proximity to other similar companies and direct contact with people in the same sector and risks reduction impact on the innovation process through informal transfer of information between partners, companies and their customers or between firms and research institutes (Malmberg, Solvell, Zander, 1996).

The mechanism of clustering provides a better guarantee for attracting resources. The concentration of development efforts enables regions to use economic resources more effectively. Accordingly, a cluster-type entity enables the regions to concentrate their resources on the processes of recruitment, retention, and expansion or development programs dedicated to emergent businesses more than to provide temporary support to various types of business.

The structuring process dedicated to development enables a clearer identification of the business needs of specific industries and allows investment in fewer development programs, but of a higher quality.

Also, due to the interconnections between the firms of a cluster and the specific support programs, there might appear a multiplier effect for the region's economy. Total earnings from employment, recruitment or retention of cluster members will exceed those of associated companies of similar size that are not part of a cluster.

## Limitations of Business Clusters

The potential benefits associated with business clusters represent leading steps to elaborate a regional development strategy based on clusters. The main challenge inherent in pursuing such a path is represented by the degree of the strategy's success that usually happens to be of a lower occurrence across many regions. Thus, some difficulties that a cluster may encounter on the way of its development are to:

- demonstrate concrete results in terms of intangible assets such as know-how, innovation and creativity, governance and efficient management;
- ensure long-term sustainability;
- create specialized institutions and social capital.

The cluster can also be a tool for better understanding on how to do business, to shape and implement policies in order to stimulate competitiveness, but there are some limitations of clusters such as the geographical and technological gaps between companies or the degree of specialization of cluster's members.

***Business clusters can be difficult to set up due to the fact that regions may have difficulties in choosing the winners.*** A precondition for the development of a regional cluster is to identify the competitive advantages figuring out the existent local labor skills, unique regional characteristics, accessibility, and quality of public

and private infrastructure and proximity to the markets of inputs and products. Clustering efforts must first be oriented towards services and infrastructure required by businesses in order to remain competitive on the long run. Therefore, the concept of founding a program dedicated to business clusters requires extensive study of the region's potential and of the economic processes that take place locally.

Many scientists are skeptical about the fact that a respective public environment will identify specific regional competitive advantages, select efficient companies, industries or design programs to support specific sectors. Regional competitive advantage can change over time as a result of new emerging technologies, trends or institutions, but the state or local authorities responsible for development might be late with analyzing the economic phenomena at a regional, national or international level as to determine the regional competitive advantage. Also, selecting the specific targets of business clusters is problematic because predictions about growth opportunities are inefficient; growth projections change over time in response to market changes and individual firms may face employment and sales trends opposite to those in a specific industrial sector; in which one cluster may evolve.

***Business clusters can be difficult to set up due to the fact that latest entrants may be uncompetitive.*** The benefits to which some of the cluster members have access are providing a distinct competitive advantage already formed compared to entities that are entering lately onto the market. Already established clusters benefit of facilities such as cost reductions, specialized infrastructure, institutional support, developed networks

for collaboration that are not available to clusters of small start-ups or new entrants. The concerns are related to the fact that it might not be possible for latecomers on the market to overcome the disadvantages inherent in the existing clusters. The consensus reached by the researchers is positive but in special circumstances. The new clusters can compete with the existing business concentrations, if starting positions would not be too unequal, individuals and firms can relocate quickly thus localization economies can emerge properly. However, in the absence of these favorable circumstances, the disadvantages encountered by the latecomers on the market can create significant public expenditure.

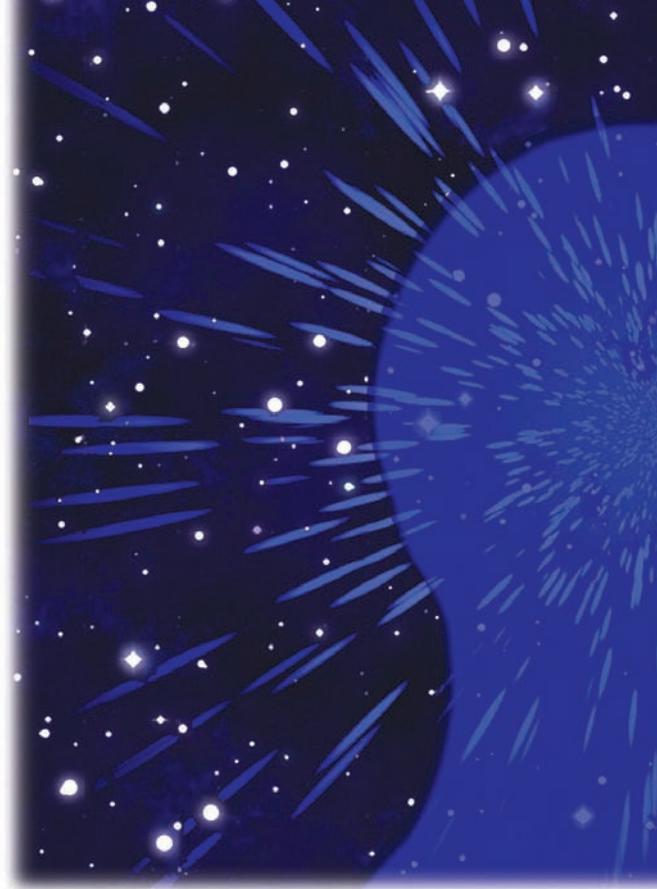
***Business clusters can be difficult to set up due to the obstacles in setting up support institutions.*** The research literature in the field of business clusters is consistent regarding its description on



the regional institutional framework and the necessary support to form clusters. It is recommended that changes in the political, social and economic conditions result in boosting and encouraging the collective action. Thus, competition between companies is discouraged because these rivalries impede networking and the collective sharing of services such as training programs for the labor force, information exchange, development and technology transfer or ideas related to developing new products, which are by default defining a business cluster. The formation of a new cluster usually encounters resistance to change from regional institutions or the cooperation strategy may be limited by incomplete information and opportunistic behavior.

***Business clusters can be difficult to set up due to the local community's and authority's tendency towards traditional business development.*** There is a tendency to oversimplify the definition of „cluster” to where clusters are a commonality (Rosenfeld, 2005). This trivializes the concept, dilutes its real potential as an instrument of economic development policy, and opens it to criticism. It is especially the case of local officials, developers and the community that prefer to support traditional development paths because they are familiar and well understood. Thus, an education effort may be necessary to help these resistance groups to understand the aims and the advantages of cluster development.

Clusters exemplify a tool for better understanding the comparative strengths of an economy so the public sector can steadily organize itself to build on those strengths and help companies take better advantage of them. Part of the loss of clarity in defining the term „cluster” is mainly due to



resistance upon the renewal of the industrial policy. As a result, regions tend to explore and set a cluster agenda so that no major employer is excluded, but this kind of policy undermines the efforts to support regional specialization and branding and tends to shift cluster initiatives towards meeting basic, more general needs such as education, infrastructure, and capital.

## Conclusions

In respect to form a better view on business clusters the article emphasizes on the three main characteristics: increased productivity – the access to information and specialized inputs and the possibility of close cooperation with business partners; a higher degree of innovation – the possibility of joint research and the existence of constructive internal competition; the encouragement to create new companies – the formation of niche sectors and



foreign investment due to a higher degree of credibility. In conclusion, given the fact that cluster members are interdependent, the good performance of one of them can boost the success of others. As a result of present research concerning the limitations of business clusters; this issue refers to a consensus in order to promote regional development that can take place only when the total returns are expected to be significant, the distribution of benefits and costs will be clear and when the community will eventually agree to support its weakest market players.

### Acknowledgements

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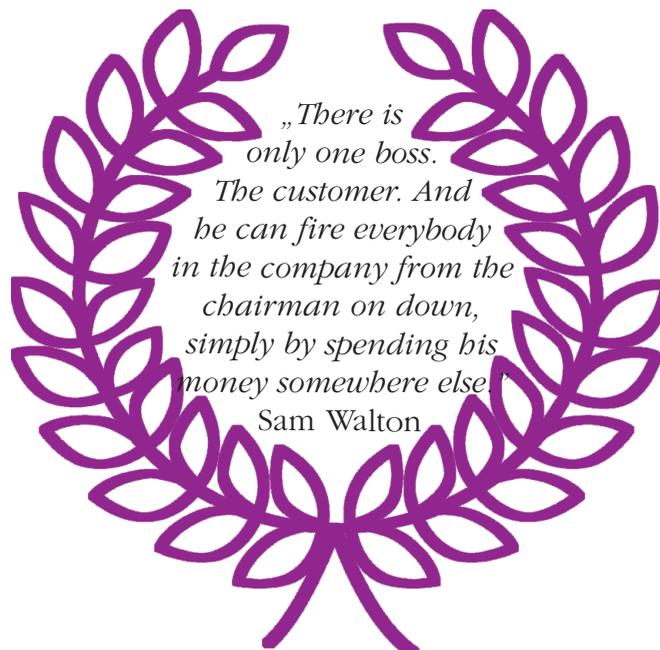
stretching the boundaries of the cluster. In addition to these, there are advantages such as: adapting to change and to the dynamics of the labor market and attract

## REFERENCES

1. Audretsch, B.D. and Feldman, P. M. (2003) Knowledge Spillovers and the Geography of Innovation. *Handbook of Urban and Regional Economics*. 4.
2. Baptista, R. and Swann, P. (1998) Do firms in clusters innovate more? *Research Policy*. 27. pp. 525-540.
3. Boja, C. (2012) Analysis of Knowledge Spillovers in IT clusters. *International Journal of Economic Practices and Theories*. 2 (4). [Online] Available from: [www.ijept.org](http://www.ijept.org) [Accessed: 25<sup>th</sup> September 2015].
4. Colgan, C. and Baker, C. (2003) A Framework for Assessing Cluster Development. *Economic Development Quarterly*. 17. p. 352-366.
5. Dahl, M., Dalum, B. and Pedersen, C. (2003) New firm formations and inherited organizational capabilities: analyzing modes of entry in high-tech cluster. *DRUID Summer Conference on Creating, sharing and transferring knowledge, The role of Geography, Institutions and Organizations*. Copenhagen. June 12-14.
6. Diamond, C.A and Simon, C.J. (1990) Industrial Specialization and the Returns to Labour. *Journal of Labour Economics*. 8 (2). p.175-201.

7. Etzkowitz, H. and Ranga, M. (2002) *A Triple Helix System for Knowledge-based Regional Development: From „Spheres” to „Spaces”* [Online] Available from: <http://www.triplehelix-conference.org/thpast/th8/downloads/Theme-Paper.pdf>. [Accessed: 6<sup>th</sup> October 2015].
8. Etzkowitz, H. and Ranga, M. (2002) *Triple Helix Systems: An Analytical Framework for Innovation Policy and Practice in the Knowledge Society. Industry and Higher Education, The Triple Helix and Innovation Policy and Practice*. H-STAR Institute. Stanford University.
9. Institute for Strategy and Competitiveness (2015) *Michael Porter and Competitiveness*. [Online] Available from: <http://www.isc.hbs.edu/competitiveness-economic-development/frameworks-and-key-concepts/Pages/default.aspx>. [Accessed: 6<sup>th</sup> October 2015].
10. Feldman, M. P., Francis, J. and Bercovitz, J. (2005). Creating a Cluster While Building a Firm: Entrepreneurs and the Formation of Industrial Clusters. *Regional Studies*. 39. pp. 129-141.
11. Carlino, G., Kerr and R.W. (2014) *Agglomeration and Innovation*. Working paper. [Online] Harvard Business School Available from: [http://www.hbs.edu/faculty/Publication%20Files/15-007\\_e181fd00-4426-4db8-8f70-89b1b5054a8f.pdf](http://www.hbs.edu/faculty/Publication%20Files/15-007_e181fd00-4426-4db8-8f70-89b1b5054a8f.pdf). [Accessed: 6<sup>th</sup> October 2015].
12. Glaeser, L.E., Kerr R.W. and Ponzetto, A.M. (2009) *Clusters of Entrepreneurship*. [Online] National Bureau of Economic Research. Available from: [http://scholar.harvard.edu/files/glaeser/files/urban\\_economics\\_and\\_entrepreneurship.pdf](http://scholar.harvard.edu/files/glaeser/files/urban_economics_and_entrepreneurship.pdf). [Accessed: 6<sup>th</sup> October 2015].
13. Krugman, P. (1991) *Geography and Trade*. Cambridge: MIT Press.
14. Krugman, P. (1990) Increasing Returns and Economic Geography. *Journal of Political Economy*. [Online] Available from: [https://www.princeton.edu/pr/pictures/g-k/krugman/krugman-increasing\\_returns\\_1991.pdf](https://www.princeton.edu/pr/pictures/g-k/krugman/krugman-increasing_returns_1991.pdf). [Accessed: 6<sup>th</sup> October 2015].
15. Malmberg, A. and Maskell, P. (2001) *The elusive concept of localization economies: towards a knowledge based theory of spatial clustering*. [Online] Available from: [http://sites.utoronto.ca/isrn/publications/WorkingPapers/Working01/Malmberg01\\_Elusive.pdf](http://sites.utoronto.ca/isrn/publications/WorkingPapers/Working01/Malmberg01_Elusive.pdf). [Accessed: 6<sup>th</sup> October 2015].
16. Porter, M. (1998) *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York: The Free Press.
17. Porter, M. *Cluster Power*. [Online] Available from: <http://www.governing.com/topics/economic-dev/Michael-Porter-Cluster-Power.html> [Accessed: 25<sup>th</sup> September 2015].
18. Porter, M. (1990) *The Competitive Advantage of Nations*. New York: The Free Press.
19. Porter, M. (1998) *Clusters and the New Economics of Competition*. [Online] Available from: <http://hbr.org/1998/11/clusters-and-the-new-economics-of-competition/> [Accessed: 25<sup>th</sup> September 2015].
20. Raffaelli, T., Tamotsu, N. and Cook, S. (2011) *Marshall, Marshallians and Industrial Economics*. Abingdon, Oxon: Routledge.
21. Rosenfeld, S. (2005). Industry Clusters: Business Choice, Policy Outcome or Branding Strategy? *Regional Technology Strategies*. [Online] Available from: <http://rtsinc.org/>. [Accessed: 25<sup>th</sup> September 2015].
22. Rotemberg, J.J. and Saloner, G. (2000) Competition and human capital accumulation: a theory of interregional specialization and trade. *Regional Science and Urban Economics*. [Online] Available from: <http://web.cenet.org.cn/upfile/109289.pdf>. [Accessed: 29<sup>th</sup> September 2015].

23. Solvell, O., Lindqvist, G. and Ketels, C. (2003) *The Cluster Initiative Greenbook*. [Online] Available from: <http://www.hse.ru/data/2012/08/08/1256393499/GreenbookSep031.pdf> [Accessed: 29<sup>th</sup> September 2015].
24. Tracey, P. and Clark, L.G. (2003) Alliances, Networks and Competitive Strategy: Rethinking Clusters of Innovation. *Growth and Change*. 34(4). p. 508-511.
25. Marshall, A. (1980) *Principles of Economics*. [Online] Available from: [http://files.liberty-fund.org/files/1676/Marshall\\_0197\\_EBk\\_v6.0.pdf](http://files.liberty-fund.org/files/1676/Marshall_0197_EBk_v6.0.pdf) [Accessed: 29<sup>th</sup> September 2015].
26. Lagendijk, A. and Charles, D. (1999) Clustering as a New Growth Strategy for Regional Economies? A Discussion of New Forms of Regional Industrial Policy in the UK. In Roelandt, T. and Den Hertog, P. (eds). *Boosting Innovation: The Cluster Approach*. [Online] OECD. Paris. Available from: <http://www.ru.nl/publish/pages/514805/lag99-oecd.pdf>. [Accessed: 29<sup>th</sup> September 2015].
27. Guerrieri, P. and Pietrobelli, C. (2001) *Industrial Districts' Evolution and Technological Regimes: Italy and Taiwan*. [Online]. Available from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.201.9711&rep=rep1&type=pdf>. [Accessed: 29<sup>th</sup> September 2015].
28. Markusen, A. (1996) Sticky Places in Slippery Space: A Typology of Industrial Districts. *Economic Geography*. [Online] 72. p.293-313. Available from: <https://www2.hhh.umn.edu/publications/4017/document.pdf>. [Accessed: 29<sup>th</sup> September 2015].
29. Malmberg, A. and Maskell, P. (2001) *The elusive concept of localization economies: towards a knowledge based theory of spatial clustering*. [Online] Available from: [http://sites.utoronto.ca/isrn/publications/WorkingPapers/Working01/Malmberg01\\_Elusive.pdf](http://sites.utoronto.ca/isrn/publications/WorkingPapers/Working01/Malmberg01_Elusive.pdf). [Accessed: 29<sup>th</sup> September 2015].
30. Malmberg, A., Sölvell, Ö. and Zander, I. (1996) Spatial Clustering, Local Accumulation of Knowledge and Firm Competitiveness. *Geografiska Annaler. Series B. Human Geography*. 78(2). pp. 85-97.



# The Analysis of the Cosmetic Industry Based on Processes

**Bogdan Fleacă**

University POLITEHNICA of Bucharest, Romania

Abstract

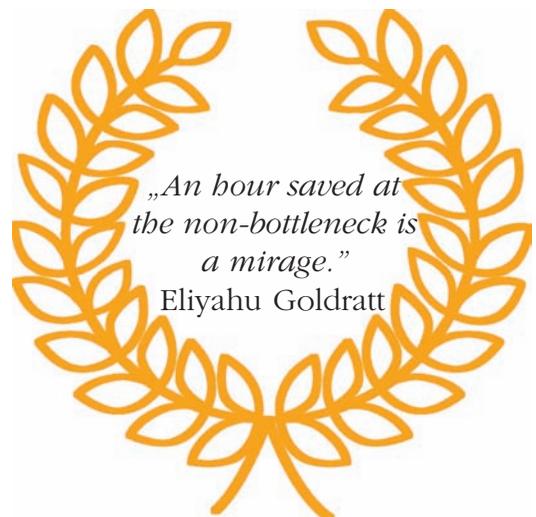
*An effective analysis of major phenomena within the global economy requires a thoroughly identification and comprehension of long-term effects such as globalization, unbalanced usage of natural resources, and the increased need for innovating and designing sustainable economic and businesses systems. The paper aims to investigate the highly dynamic industry of cosmetic and personal care products as being the sector responsible for the economic growth of European Union market. The analysis targets those processes responsible for developing the cosmetic industry and takes a process view for integrating the structure of cosmetic sector described by NACE nomenclature with the envisaged processes. The results revealed the tendency and key factors of the cosmetic and personal care industry and proposed a conceptual model describing the research and development, manufacturing and distribution processes embedded in the main hierarchical level of cosmetic products typology, based on NACE framework: sections, divisions, groups and classes.*

**Keywords:** competitiveness, innovation, cosmetic industry, processes

## Introduction

Innovation and research (R&D) endeavors are viewed as key drivers with significant impact on price-based competitiveness, leading to increased demand for products and services. They facilitate the long-term growth potential by adapting to the new technologies that increase the efficiency of businesses through combining production factors.

From this perspective, the European Commission is focusing on harnessing the potential of research and innovation to generate growth for the Member States, by defining the Europe 2020 strategy for



smart, sustainable and inclusive growth with related target indicators by prioritizing the growth-enhancing expenditure in business research and innovation.

Production, prosperity and economic growth are directly linked to the investment's shares from GDP (Gross Domestic Product) of each member state, thus creating significant differences and reflecting the internationalization strategies of companies and the capacity of regions to attract and retain multinational organizations.

An investment of 3% of GDP in research and development activities for both public and private sectors is the performance target of the European Union, which has established the political framework for enabling businesses growth and the mechanisms for facilitating the flows of different forms of funding, aiming at supporting the innovation and labour productivity (EC 2010).

In this context settled by innovation and competitiveness forces, one of the highly dynamic and innovative sectors is represented by the cosmetics and personal care industry, responsible for Europe's EUR 70 billion (excluding exports) cosmetics, toiletry and perfumes industry since 1962. Moreover, as the Personal Care Association argued, the cosmetics and personal care industry is an essential industry for the improvement of the quality of life, having a high responsibility for customers' health and wellbeing, and to the environment ([www.cosmeticseurope.eu](http://www.cosmeticseurope.eu)).

## Research Approach

According to the „*European competitiveness report 2014*“, during the last decade, the expenditure in research and development has increased slightly faster than the GDP, creating a gradual increase in R&D expenditure to just above 2% of



GDP, but still far from the 3% target (EC 2014). However, the largest share of R&D investments from the Gross Domestic Product (GDP) was made outside the EU: in the United States and Canada (8.4%), followed by China (4.3%), India (1.9%), other European countries (1.6%) and Japan (1.2%) (EC 2014).

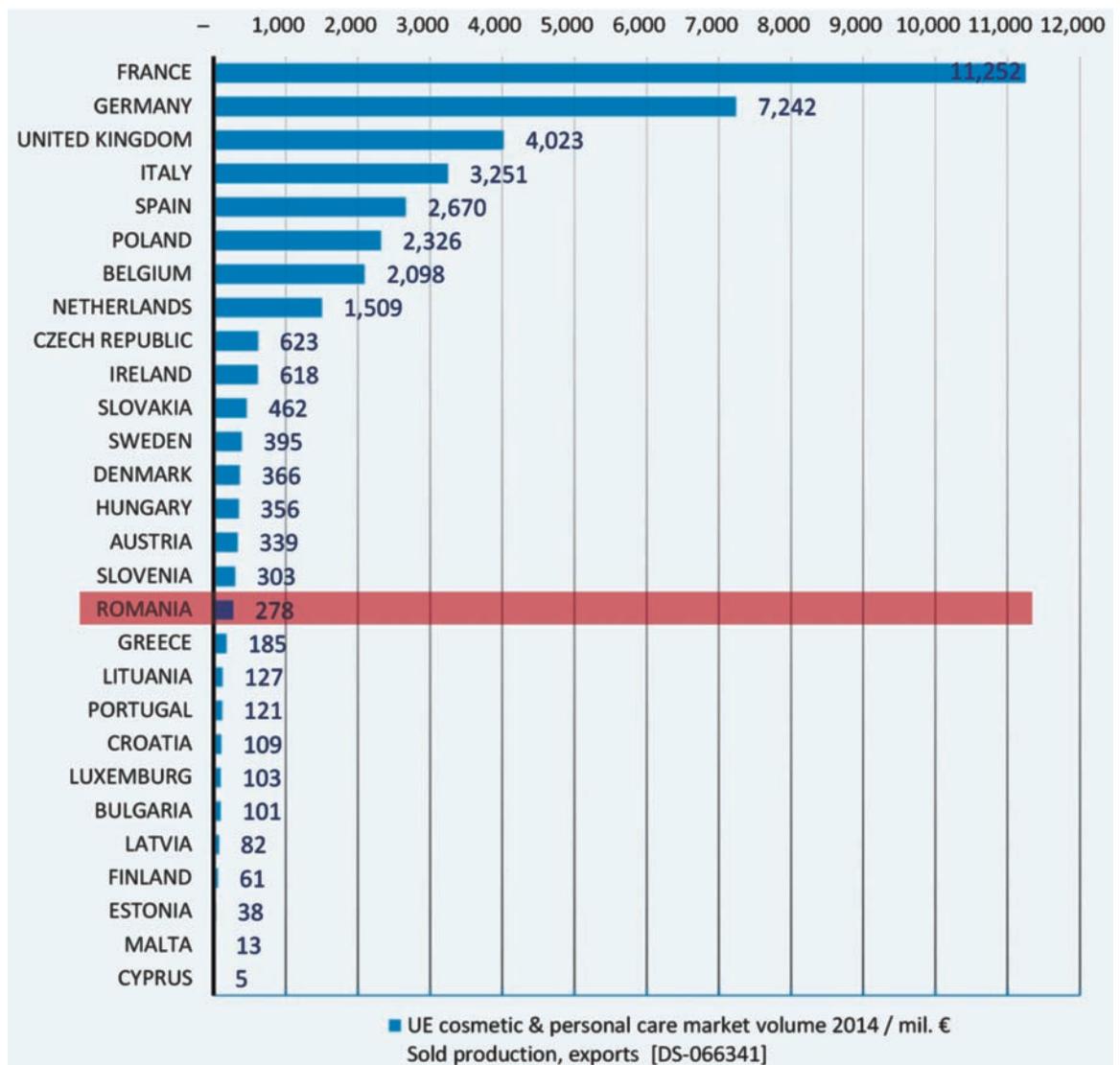
Interestingly, the Joint Research Center (JRC) EC and the Directorate General for Research and Innovation from the EC, in the report entitled „*The 2013 EU Survey on Industrial R&D Investments Trends*“ revealed the research results of 1000 EU based companies and pointed out that the sectors with high yearly R&D investment have decreased compared to previous studies, as follows: software and computer services (6%), pharmaceutical and biotechnology (4%), health care equipment and services (3%). For the medium R&D investing intensity sector, the electronic and electrical equipment has 9%, industrial engineering 5.5%, and chemicals 4.55% (EC 2013).

For some sectors, „*The 2014 EU Survey on Industrial R&D Investments Trends*“ pointed out that the expected R&D investment changes have increased compared to previous surveys: electronic & electrical equipment (9% p.a. over the next three years), general industrials (7%), construction & materials (7%), pharmaceuticals & biotechnology (4%), and technology hardware & equipment (4%) (EC 2014, JRC.IPTS).

As for the cosmetic and personal care industry, the world's largest exporter of cosmetic products in terms of Market Retail Sales Prices (RSP) billions of euros (bn. €) is Europe, counting for 69 bn. € and representing one-third of the global market, followed by the USA with 47 bn. €, China with 29 bn. €, and Japan with 18 bn. €. As appearances and the improved self-esteem are considered key factors in obtaining success in life, the same source highlighted the dynamic characteristic of the industry

emerged from the changing customer expectations for quality, health and well-being (COLIPA 2013).

According to Eurostat, for 2014 year, the Romanian industry of cosmetic and personal care products was ranked seventeenth among the 28 EU countries with a market volume (Retail Sales Price – RSP) of 278 million Euros, followed by Greece with 185 million Euros, Portugal with 185 million Euros and Bulgaria with 101 million Euros (Figure 1):



**Figure 1** – The market share for cosmetic and personal care sector, EU level.

(Source: <http://appsso.eurostat.ec.europa.eu>)

Looking at the market tendencies and the cross-country comparisons, it is difficult to explain the differences in market volume of the cosmetic and personal care sector, as there are numerous significant factors that influence the consumption pattern for cosmetic products, such as the climate changes, people's skin characteristics and so on. Undoubtedly, the share of R&D expenditure coupled with the high rate of innovation emerged from the development of new and improved pharmaceutical ingredients, the new technologies and also the differentiated products and services can be considered responsible for these significant differences between the cosmetics market shares of the EU countries.

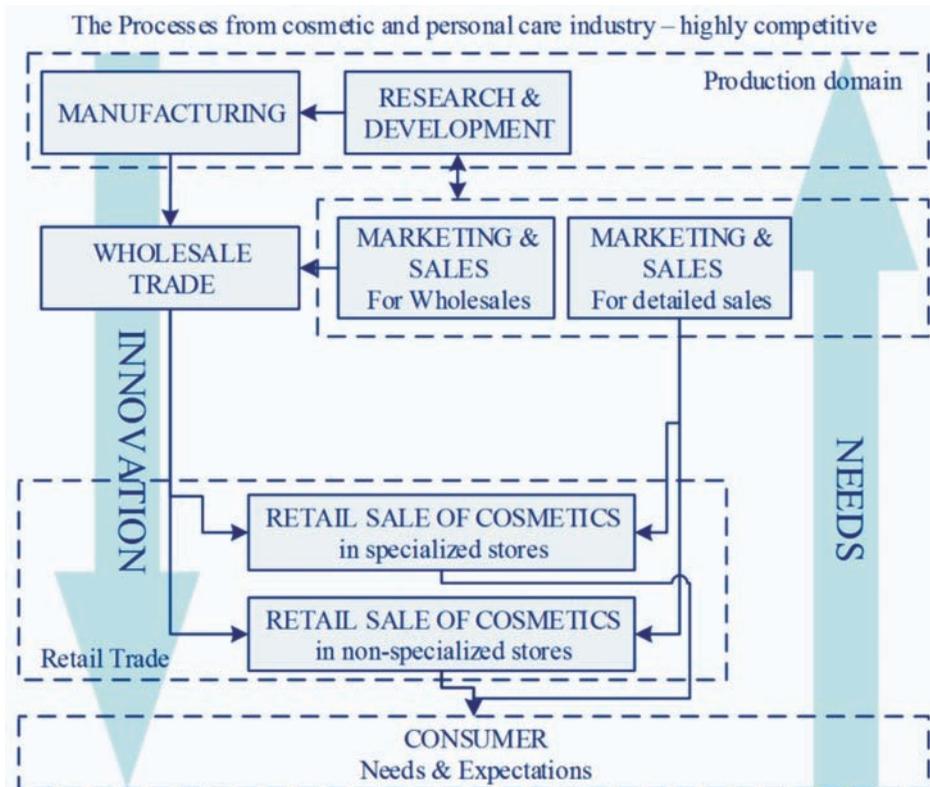
Thereby, the scope of this research focused on analyzing the processes responsible for the dynamic characteristics of the cosmetic and personal care industry, referred to as research and development

processes, manufacturing and distribution processes.

## Research Results

According to the scholars, the modern customers are highly concerned about acquiring and using „green” products, they are willing to maintain their health and well-being, and to be informed about improved products which can better satisfy their needs (Denis, 2015).

The generic processes responsible for satisfying the customers' expectations with respect to quality, health and well-being are embedded in the whole industry value chain, starting with the production domain, which covers research and development processes and the manufacturing processes, followed by marketing and sales domain, which encompasses wholesale and retail trades' processes (Figure 2):



**Figure 2** – Key processes embedded in the cosmetic and personal care industry



The first leading factor – the production domain – with the related R&D and manufacturing processes aims at designing safe cosmetic products with new formulas directly linked to customers' needs and beauty expectations. The latest studies have revealed that the most competitive cosmetic sectors bound by consumers' beauty desires are the skin care and body care products, each of them representing about 25% of the overall market in EU, and the perfumes products with 15% (COLIPA, 2012).

Skin care products such as lotions, moisturizers, facial masks, eye creams, hydrating and anti-ageing creams are focusing on skin maintenance. Hair care products like shampoos, hair colorants, hair sprays, lotions and anti-dandruff shampoos improve personal hygiene and enable self-expression. Body care products such as soaps, antiperspirants, deodorants, body washes and lotions, shower gels target the body comfort and hygiene. The perfumes products are stimulating personal well-being,

influencing people emotions and inspiring human creativity (COLIPA, 2012).

Worthy to mention, the research and development processes are directly linked to the cosmetic market tendencies such as: a) the growth of the natural cosmetic products sector; b) the increased demand for multi-functional cosmetic products, as the consumers favor high-tech innovative components with clear benefits in anti-aging; c) the expansion of innovative cosmetic products designed specifically to men (Rossi, 2007).

The manufacturing processes have to cope with significant challenges that impact the structure and competitive patterns of the market, such as investment costs, economies of scales, and regulatory burdens. At the European level, the investment costs in land, facilities and labor are cheaper, but the cost of doing business is significantly increased by the regulatory framework burdens. The economies of scales enable companies to increase the scale of operation with the aid of a high level of specialization and also by purchasing materials in bulk quantities through long-term contracts. Finally, the regulatory burdens have huge importance in the manufacturing sector, since it uses a wide range of chemical ingredients (Rossi, 2007).

The second leading factor – the marketing and sales domain – is covering two key categories: marketing and sales processes, and distribution processes for wholesale and retail sales. The marketing processes are in charge of collecting, analyzing and understanding the cosmetic consumers' expectations and also to lure them with innovative cosmetic products and offers.

The distribution processes for wholesale and retail are responsible for ensuring products' availability to the end consumers, at a fair price. As this sector is one of

the industrial activities affected by counterfeiting, which may increase risks to human health, the EC regulation no. 1223/2009 of the European Parliament and of the Council has imposed clear and detailed rules to ensure traceability of cosmetic products throughout the whole supply chain, making market surveillance simpler and more efficient. Thereby, the wholesalers and retailers of cosmetic products have clear roles and responsibilities related to: i) storage and transport conditions compliant with the requirements of the regulations; ii) providing labelling information for cosmetic products in relation to applicable requirements; and iii) ensuring accurate and exhaustively information to the end user about the content, risks, and related effects (EU Regulation no. 1223/2009).

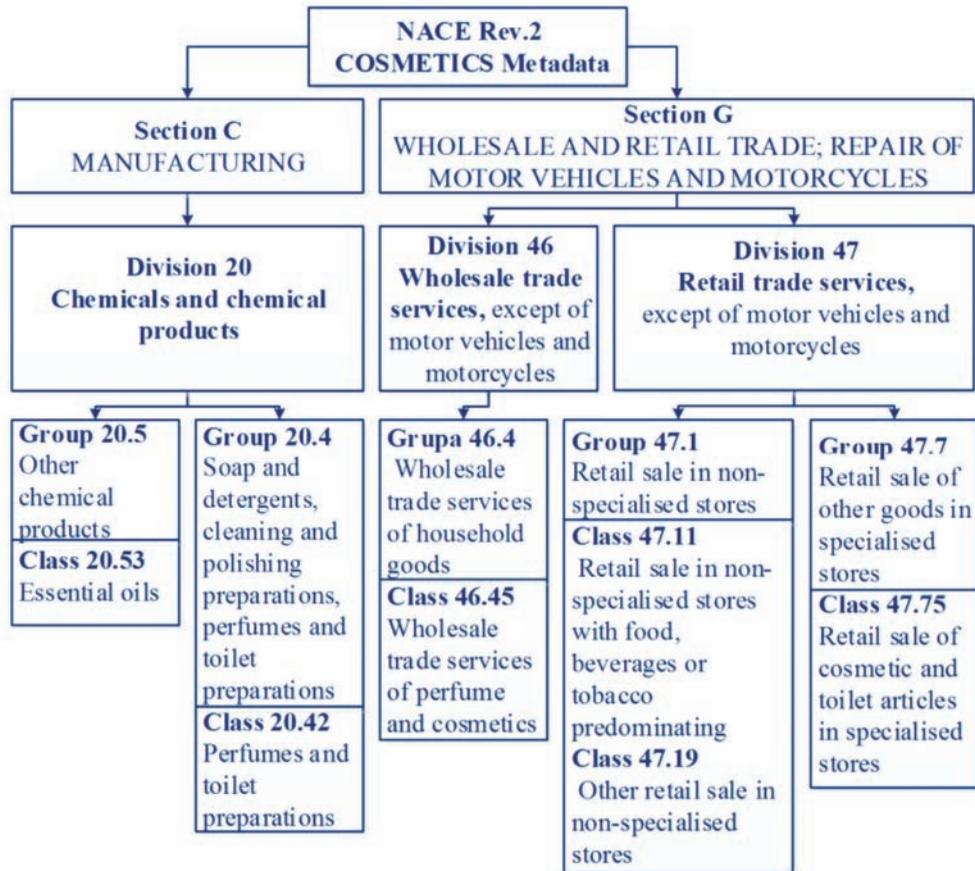
Under these circumstances, analyzing the pattern of key processes related to the most competitive cosmetic sector such as skin care, body care and perfumes requires taking into consideration the European framework for collecting and presenting statistical data produced in different statistics domains, at various level of aggregation.

The statistical classification of economic activities in the European Community (NACE rev.2) takes advantage of the hierarchical structure and aggregates the activities based on the following cycle: inputs of resources – the production process – outputs of products (goods and services) (Eurostat Methodologies and Working papers, NACE Rev. 2).

As the boundaries of the research are limited to the cosmetic sector, the author collected and organized data which are highly relevant for selected cosmetic products such as skin care, body care and perfumes (Figure 3). In this regard, the NACE rev. 2 framework enables to pinpoint the most relevant two sections for the cosmetic sector as referred to as *section C. Manufacturing* and *section G. Wholesale and retail trade*. The analysis goes through the second level of detail and brings the two-digit numerical code of the division that displays the main activities from each division as: i) for *section C: division 20. Chemicals products*; ii) for *section G: division 46. Wholesale trade services* and *47. Retail trade services* (Eurostat Methodologies and Working papers, NACE Rev.2).



## Classification structure NACE sections in the cosmetic and personal care industry



using and modelling: EUROSTAT - RAMON – Reference And Management Of Nomenclatures  
Statistical Classification of Economic Activities in the European Community, Rev. 2 (2008)

**Figure 3** – *The blueprint of cosmetic products classification (according to NACE rev 2.)*

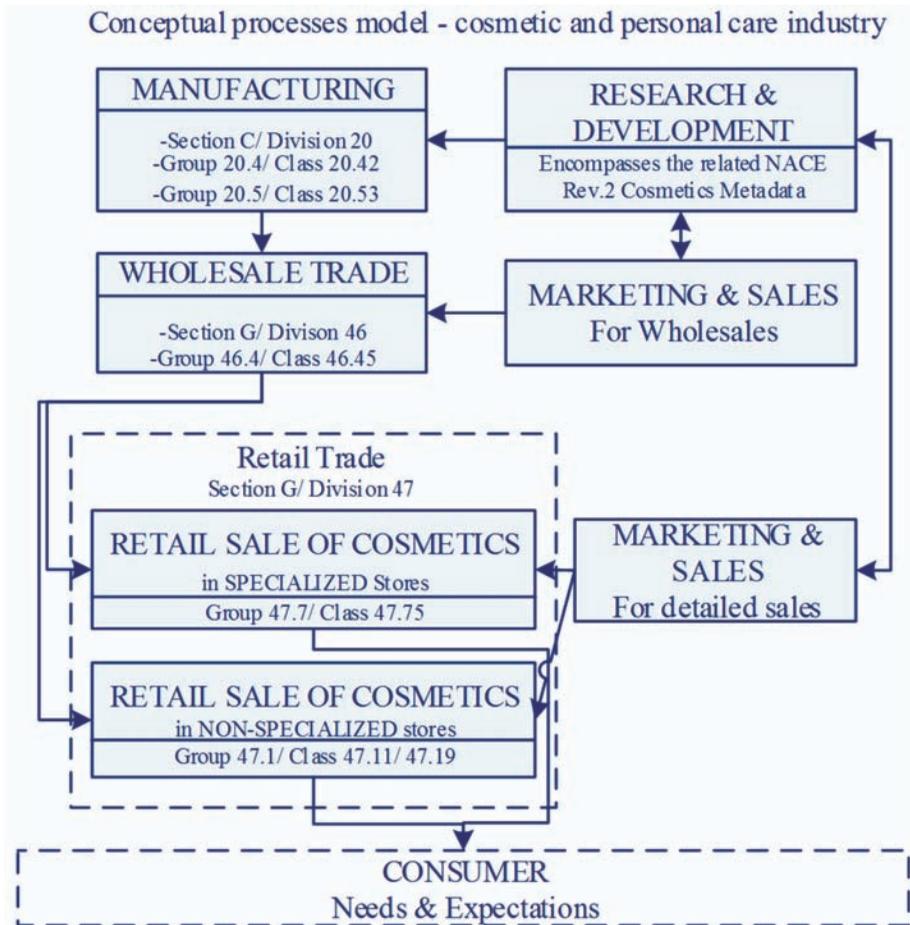
Moreover, considering the characteristics of the cosmetic products sector, the uses of these products and the inputs, the process and the technology of production, it can be delineated the most relevant product groups for each related divisions (e.g. Group 20.5/ 20.4; 46.7/ 47.1/ 47.7). Also, the refined analysis emphasizes the relevant classes which group together activities when they share a common process for producing goods or services using similar technologies (e.g. class 20.53/ 20.42; 46.45/ 47.11/ 47.19/ 47.75) (Eurostat, 2009).

Taking into consideration the dynamic characteristics of the cosmetic and personal care sector that calls for a thorough

concern for a responsible use of resources in the whole value chain, from raw materials to after-sales services, the author proposed a model that links key processes from the studied industry to related cosmetic products embedded in the hierarchical structure of NACE nomenclature (Figure 4). As the figure suggests, research and development processes, which are responsible for bringing innovative and safe products to the market, are covering all chemical products as input basis for manufacturing cosmetic products. Manufacturing processes are integrating the group of soap and detergents, cleaning and polishing preparation, perfumes and toilet

preparations, and also the group of other chemical products. In terms of marketing and sales domain, the wholesale trade processes have a distribution purpose and aim at ensuring the availability of the household goods as perfumes and cosmetics on the market. The retail trade processes take the outputs of the previous processes and

ensure a timely and wide distribution of cosmetics products on the market for consumption or end use. Therefore, the relevant categories are retail sales in specialized and non-specialized stores. These are the key actors for distributing the cosmetic products at a fair price to the end users.



**Figure 4** – The key processes and related NACE rev. 2 cosmetic products classification framework

## Conclusions

The pressure on the rational use of resources and the aging population are moving toward creating long-term challenges for the world economy, especially for cosmetic and personal care industry which is coping with a high demand for innovation and tailor-made solutions needed for

nurturing the consumers' well-being and self-esteem.

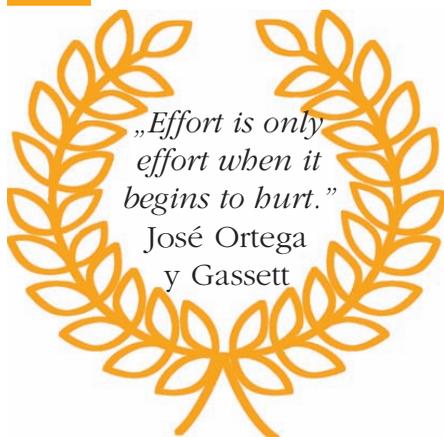
Thereby, the paper has focused on analyzing the patterns of cosmetic and personal care industry by highlighting the major processes responsible for the coherent functioning: research and development, manufacturing and distribution. Also, by

aggregating various levels of data from NACE framework and by capitalizing the input – process – output cycle, it has been proposed the conceptual model for capturing the relationships between the re-

search and development, manufacturing and distribution processes embedded in the main hierarchical level of cosmetic products typology.

## REFERENCES

1. COSMETICS EUROPE. (2012) *Science, Beauty, and Care: Innovation in Cosmetics*. [Online] Available from: <https://www.cosmeticseurope.eu/publications-cosmetics-europe-association/guidelines.html> [Accessed: 12<sup>th</sup> February, 2016].
2. COSMETICS EUROPE. (2013) *Cosmetics Europe Activity Report 2013*. [Online] Available from: <https://www.cosmeticseurope.eu/publications-cosmetics-europe-association/annual-reports.html?view=item&id=98&catid=44> [Accessed: 12<sup>th</sup> February, 2016].
3. Denis H., Dosso M., Hervás F. and Millot V., Squicciarini M. and Vezzani A. (2015). *World Corporate Top R&D Investors: Innovation and IP bundles. A JRC and OECD common report*. Publications Office of the European Union. [Online] Available from: <https://ideas.repec.org/p/ipt/iptwpa/jrc94932.html>. [Accessed: 10<sup>th</sup> February, 2016].
4. EUR-LEX. (2016) *Europe 2020 A strategy for smart, sustainable and inclusive growth*. [Online] Available from: <http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A52010DC2020> [Accessed: 10<sup>th</sup> February, 2016].
5. EUROPEAN COMMISSION. (2016) *Helping Firms Grow – European Competitiveness Report 2014*. Commission Staff Working Document SWD(2014)277 final. [Online] Available from: <http://ec.europa.eu>. [Accessed: 10<sup>th</sup> February, 2016].
6. EUROPEAN COMMISSION. (2013) *The 2013 EU Survey on Industrial R&D Investments Trends*. [Online] Available from: <http://iri.jrc.ec.europa.eu/survey13.html> [Accessed: 10<sup>th</sup> February, 2016].
7. EUROPEAN COMMISSION. (2014) *The 2014 EU Survey on Industrial R&D Investments Trends*. [Online] Available from: <http://iri.jrc.ec.europa.eu/survey14.html>. [Accessed: 10<sup>th</sup> February, 2016].
8. Eurostat. (2008) *NACE Rev.2. Statistical classification of economic activities in the European Community* [Online] Available from: <http://bookshop.europa.eu>. [Accessed: 10<sup>th</sup> February, 2016].
9. Rossi, E., Prlic, A. and Hoffman, R. (2007) *A study of the European Cosmetic Industry*. [Online] Available from: [http://www.pedz.uni-mannheim.de/daten/edz-h/gdb/07/exec\\_summ\\_cosmetics\\_2007.pdf](http://www.pedz.uni-mannheim.de/daten/edz-h/gdb/07/exec_summ_cosmetics_2007.pdf) [Accessed: 14<sup>th</sup> February, 2016].
10. (2009) Regulation (EU) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on Cosmetic Products. *Official Journal of the European Union*. L342/22.12.2009. [Online] p.1-151. Available from: <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:342:0059:0209:en:pdf> [Accessed: 14<sup>th</sup> February, 2016].



# Transferring Data in Disaster Management

**Karin Rainer (1), Ines Levy (1), Georg Neubauer (2), Georg Thallinger (3),  
Markus Glanzer (4)**

(1) Agency for European Integration and Economic Development, Vienna, Austria, (2) Austrian Institute of Technology GmbH, Vienna, Austria, (3) Joanneum Research GmbH, Graz, Austria, (4) Austrian Red Cross, Vienna, Austria

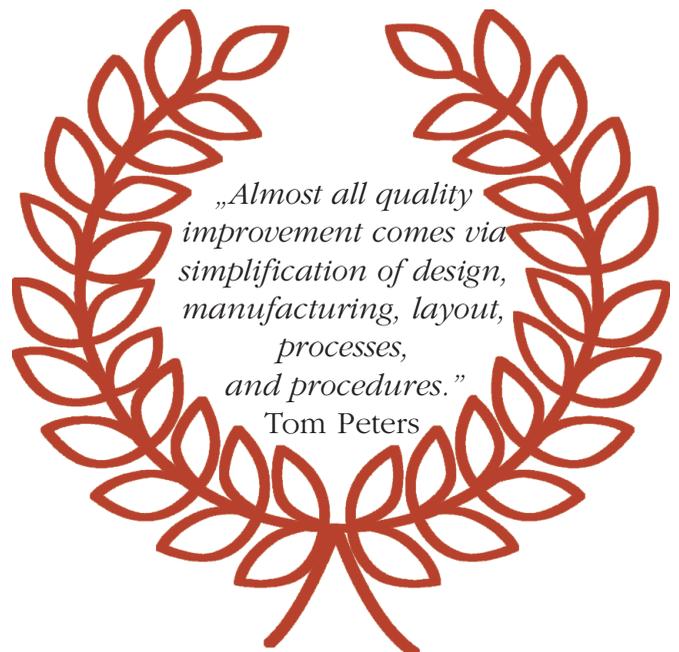
**Abstract**

*Crises and disasters occur all over the world with the highest impact on the most vulnerable groups in society. Generating a trusted status of information out of a multitude of reliable and relevant data about a critical situation is a priority for effective and coordinated disaster management and relief measures delivered by governmental organizations (GOs) and non-governmental organizations (NGOs). Data gathering, processing, information visualization (internal as well as external) and dissemination for decision support and mitigation is performed via a number of different channels. The QuOIMA-project, funded by the Austrian Security Research Program KIRAS, focused on the various possibilities to use publicly available, open source data generated in the sphere of traditional (online distributed) and social media.*

**Keywords:** disaster management, wisdom of crowds, multiplier agents, social media, communication flows, resilience enhancement

## **Introduction**

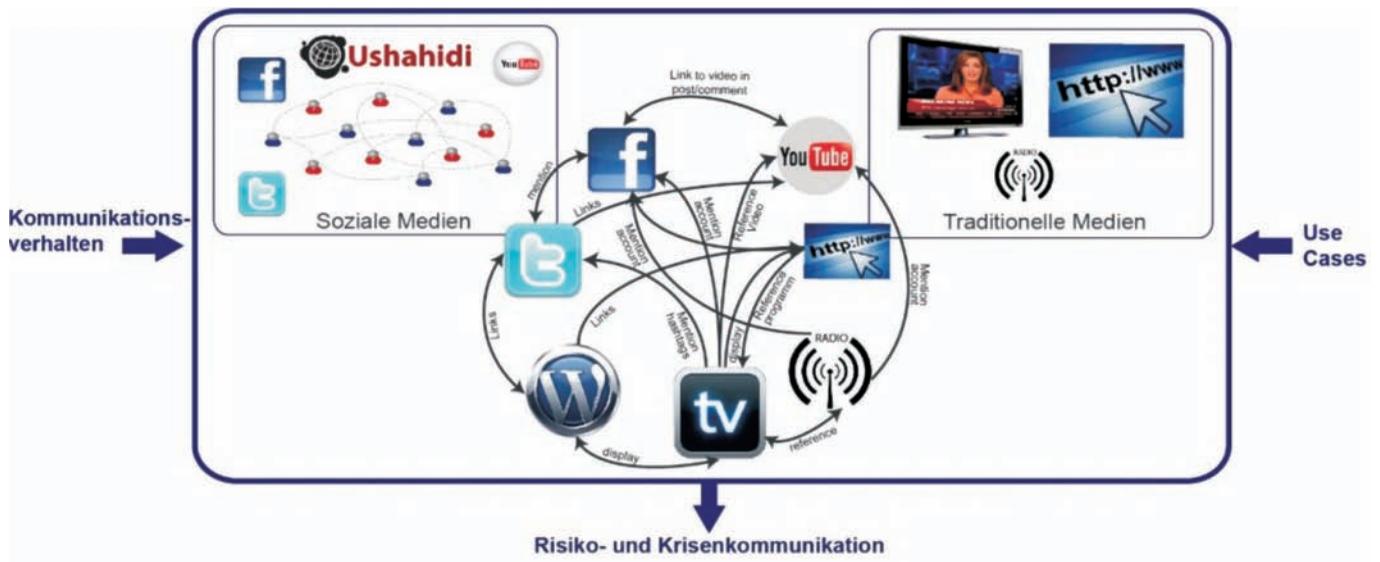
Crises and disasters are constantly covered and accompanied by today's media. While traditional media have a long history of covering disasters and crises, recent examples of natural as well as man-made disasters show that social media provide useful, effective, additional and complementary information and can help improve



situational awareness. Social media interact with traditional media in various ways – providing different and sometimes unfiltered angles, sparking off initial coverage of the event, or amplifying information. Together they produce a wide spectrum of data about an event. As helpful as all of this raw data may be, it usually comes in various formats from multiple media sources, in different languages and levels of reliability, and is generally unstructured, inhomogeneous, and rarely specified in terms of the location.

To meet the challenges of using such data, the KIRAS (Austrian National Security Research Program) project QuOIMA

aimed at developing a cross-media content analysis framework and at extending existing technologies to improve the situational awareness of decision makers as shown in Figure 1. QuOIMA acronym stands for Integrated Open Source Multimedia Analysis (*German: Quelloffene integrierte Multimedia Analyse*). The cross-media, multimedia and multilingual approach adopted by QuOIMA were expected to identify risk indicators and factors for efficient crisis and disaster management, as well as the early detection of emerging threats and trends. Models for the improvement of situational awareness were developed and can contribute to faster reaction times.



**Figure 1** – Systemic overview of the sources and information flows of the QuOIMA project

## The QuOIMA Project

From a technical viewpoint, QuOIMA is based on the SAIL LABS Media Mining System for open source information (OSINF) and on the insights gained from a previous KIRAS project (MDL). Strategically, QuOIMA is based on a five-stage disaster management model developed by the Austrian National Defense Academy (Backfried *et al.*,

2013). These technical and strategic foundations form a powerful basis for improving situational awareness during natural disasters.

The investigation and development of such methods consequently formed core activities within QuOIMA. Components for the analysis and selection of quality-assured scenarios for the deployment of the developed technologies, as well as additional



Long-term reliability as an objective criterion of information and the consistent external and internal appearance of disaster management organizations can be seen as a prerequisite for the development of trust. Even if there might be relevant and significant cross-cultural differences, the building of high-reliability organizations (Horsley, 2012) and the benefits for reliable internal and external information and knowledge development for effective disaster response has to be developed timely and continuously.

Subsequent to the elaborated importance of intra-organizational developments in order to grant reliable information and knowledge management, interoperating components of a disaster response system, like the interaction with a potentially affected community, have to be taken into account. Specifically, the vital but often non-reflected issue of facilitating and promoting the social model of „trust“ (Misztal, 1996; Siegrist *et al.*, 2007) and thus representing the capacity to fulfil specific expectations, stands for disaster response organizations in a reciprocal relationship with reliable external information management and the authentic, ongoing interaction of organization and public.

In the wake of the QuOIMA-project, the question of trust in the community was researched more thoroughly via a restricted survey among the Facebook community to stand as a qualitative example for the views and expectations of the citizens regarding information gathering in crises. As Figure 2 shows, the matter of trust concerns not only directly affected citizens. The organizational sphere has to deal with information and has to verify them also. Thus, the importance of trusted data and the verification of information respectively, is a core task. The study „Trust in social

requirements posed by crisis communication within the context of enhanced early warning and resilience, were further areas of activity. The comprehensive, cross-media, multimedia and multilingual approach represented a unique and innovative research for crisis and disaster management. Research on sociological and legal aspects complemented and extended these activities.

Specifically, the vital factor of directly and indirectly concerned persons' trust towards official disaster management organizations and their activities during crisis situations are tightly connected with the appropriate channels and types of data and information distribution and thus the acceptance of communication and compliance to necessary measures (Siegrist *et al.*, 2014). Taking into account the complex interactions and interdependencies in dynamic crisis scenarios, trust and its related phenomena and effects can only be defined as a continuum created over a long period of reliable information exchange and interaction between official disaster management organizations.

media in case of crisis and disaster” was dedicated to the point of view of the public recipients regarding trust in traditional *versus* social media. The study was carried out in the autumn of 2014 and included a panel of several selected online communities, from which 90 persons responded. It was an addition to the initial QuOIMA-project plan, due to the constantly mentioned question of trust in workshops and expert interviews.

One output of the study was that traditional media are used more often than social media for the purpose of information gathering. Traditional media are also classified as more reliable than social media. On the other hand, social media are used with a much higher frequency. The study also shows the varied possibilities of using

social media in the context of crisis and disaster management (Levy, 2015). In the case of disaster response organizations, this issue seems even more crucial as the effective facilitation of relief, and support measures strongly rely not only on timely, but also on target group orientated communication as Reynolds *et al.* (2005) summarize for the health sector. Taking into account the above-mentioned inputs, internal processes of information and knowledge development measures, the prerequisites for the development of an externalization of effective procedures can be supported. Several factors seem to be of importance for this transportation and transformation of reliable information and continuous interaction to create framework parameters enabling trust in the community:

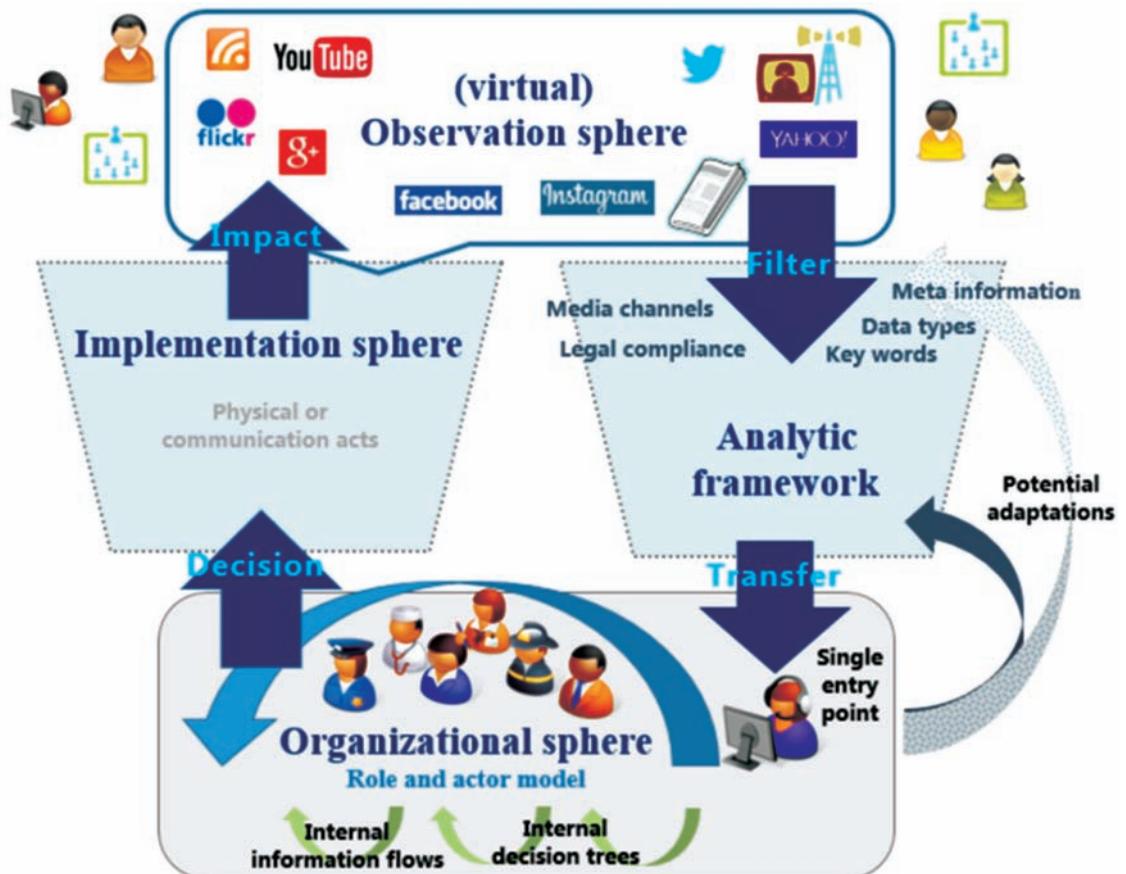


Figure 2 – Communication and decision support model of QuOIMA

Using the virtual observation sphere where online communication and information acts of the community via social media or by professional media organizations as an arbitrary starting point, the collectivity of manifestations undergoes a pre-set filter process. In an initial setting, the filters need to be tailored to the particular organization. In a running cycle, it can be adapted to the current necessities and requirements of the setting, event or organization status. The filter settings can have different qualities and quantitative thresholds and refer to technical, as well as topic or source related factors. Even reliability parameters can be taken into account, given that the required framework parameters can be provided to the filter layer.

## Open Questions

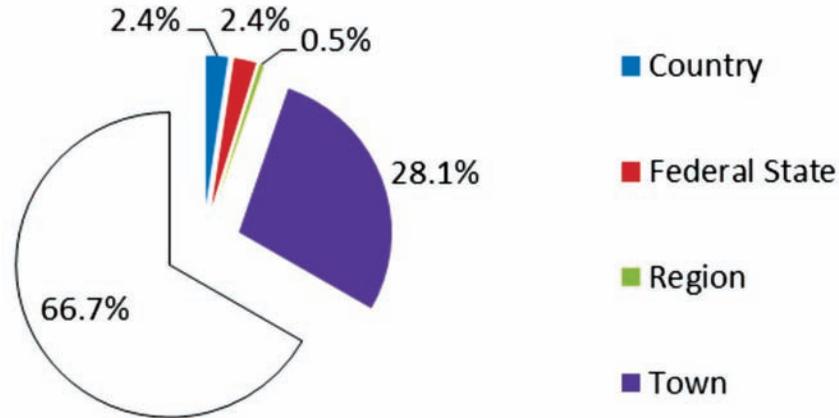
After the successful completion of the life-cycle of QuOIMA, the post-project evaluation identified several important research questions and gaps that had to stay unanswered due to the specific focus and limited resources. Although there are several good practice examples like Ushahidi (<http://www.ushahidi.com/>) or the relief web (<http://reliefweb.int/>), the use of social media and open source data for situation awareness and disaster management actions is still not widely spread and is at the beginning of a strategic use. From the experience of the QuOIMA project, one of the first questions that arise regarding the sensible use of this data source in a small country e.g. like Austria, is how to get a sensible amount of relevant data containing reliable location information. And above all, how can open source data legally be localized and positioned to contribute to timely situation awareness drafting.

The QuOIMA-team collected data during the flood in spring 2013 that severely affected several states in central Europe (Backfried *et al.*, 2014). Besides the information in the traditional media, altogether approx. 470.000 tweets, 9.800 posts or comments on Facebook in connection with the flood have been observed. Only a limited number of messages contained location information; either explicitly stating the location or embedded as metadata of the message. E.g. for Salzburg, 1.062 messages in total could be attributed to the city, as the city's name was stated explicitly in the message. Also, images contained in or referenced by social media messages were not as frequent as expected. From the 470.000 tweets, only 4.998 (1.1%) contained links to images or videos. The hope that several users post images depicting the same spot did not hold under these circumstances; that would have been useful in order to confirm the trustworthiness of information gained from the images. Also, those images tended to cover the more important geographic locations (e.g.; severely affected, the focus of rescue activities locations).



The team concluded that messages referencing images or videos have a higher probability of containing location information, in a percentage of approx. 33%. Although the information could be quite

coarse, e.g. „Deutschland” („Germany”) or „Bayern” („Bavaria”), the majority of location specifications were on the town level (Figure 3):



**Figure 3** – Level of location information in social messages containing links to images or videos

In addition to the obvious challenges in using open source and public social media data, these media communities have a high participatory potential (Bertot *et al.*, 2010). The threshold for contact and cooperation is very low for technically equipped and enabled citizens and innovative services aim to interaction with the communicating parties. Thus, it becomes possible to make appointments for supportive actions or to help each other in the case of contingency (Gao *et al.*, 2010). Institutionalized examples for this potential will be shown in section three with regards to the project RE-ACTA.

Another challenge that became obvious as a consequence of the missing quantity of the data is how to grant a certain level of quality of the data in terms of reliability and trustworthiness. Those two parameters are a core topic from the point of view of the emergency management and the involved persons as well (Merchant *et al.*,

2011). Without the possibility to verify inputs via additional sources e.g. due to the lack of different sources – as shown above – it becomes increasingly important to find additional forms granting the trustworthiness of sources and data.

In the course of the QuOIMA-project, algorithms were investigated and implemented to allow the comparison of video and image data from different open sources to give more information about the trustworthiness and validity of the digital data. In addition to this technological approach, other possible ways of securing data reliability, quality, and quantity can be found and will be discussed in the next section.

Last but not least, it became obvious that as shown in Figure 2, data management can never be a one-way road and has to be seen and handled as an interactive system. Thus, the challenge became obvious, as how to activate a broad basis

of the community in prevention and relief – also taking into account the still existing digital divide.

## Wisdom of Crowds

The International Red Cross declared in 2012 the urgent need to strengthen the resilience of the population. For instance, in Austria, the National Crisis and Disaster Management is based on the principles of self-protection on local areas and subsidiarity on higher levels of public authorities (Jachs, 2011). One of the pillars of the Austrian emergency response system is strong volunteer organizations. This strong level of voluntarism has to be both ensured as well as enhanced. Taking into account the multiple societal changes taking place nowadays such as the focusing on an individualistic lifestyle, new types of voluntary engagement have to be promoted. In this light, the RE-ACTA project has been set up (Neubauer *et al.*, 2013). RE-ACTA aims at systematically tasking the crowd, specifically the members of the Team Austria of the Austrian Red Cross.

Through the RE-ACTA project, new workflows for volunteer communication and coordination via mobile phones were implemented. RE-ACTA integrates a multitude of basic processes such as community building, registration of volunteers, as well as data maintenance (Sebald *et al.*, 2014). More specifically, a task manager can launch tasks for the crowds, encompassing the definition of tasks, selection of volunteers to be addressed in a specific crisis or disaster, as well as the distribution of the task. The volunteers are supported in their task execution by a specifically designed user interface. For compensation, they receive specifically designed information and individual guidance. For crisis managers, analyzes based on the volunteers' reports are provided, strengthening their operational picture.

An even more concentrated approach, focussing on the questions and challenges presented before in regard to an enhanced situation awareness by on site persons, adding up to current open source information from the social media, was initially created and formulated by AEI (The Agency for



European Integration and Economic Development), AIT (The Austrian Institute of Technology) and the Austrian Red Cross (ÖRK). With the aim of surveying the potential of multiplying agents to enhance the resilience in Austria, a plan for the analysis, suggestions and tools for a low-threshold implementation and integration with intermediary mediators in selected settings was set up under the name of MultiRes, and proposed for funding to the Austrian funding program KIRAS.

The initial situation identified in Austria via the outcomes of several pertinent projects of the working group showed several challenges and imminent problems in the broad field of preparedness and resilience of the population. For the population in Austria is evident a low hazard and risk awareness, especially regarding possible complex emergencies, crises and disasters. Prevention providers such as civil protection organizations, the Red Cross and other actors who are responsible for preparing the population for possible incidents, state that the knowledge and the necessary willingness for preventive measures and self-efficacy are poorly anchored. In an Austria-wide survey, the Civil Protection Association found a high level of trust in the emergency services and an equal lack of self-reliability regarding preparedness and prevention actions among the population (ÖZSV, 2007). This situation particularly manifests in urban areas by insufficient food and drinking water storage or exclusive reliance on public networks for heating and energy supply.

Research studies confirm that in Austria – and thus potentially in most comparable countries in Europe – the effect of depth and integration of existing, „classical” prevention communication in the everyday reality of the life of the population is

insufficient (Kirchner, 2011). The resources devoted to raising awareness such as brochures, online media or event concepts reach only a small part of the population and mostly on a superficial level. On the other hand, there is also only scarce knowledge about the possibilities of involvement and low-threshold offers of commitment and contribution to disaster prevention and management.

An improved awareness and knowledge of threats and possible self-efficacious measures are the first essential elements for increased resilience of the population. These factors could improve significantly the efficiency of future measures to protect the population (e.g. the introduction of new alarm concepts), and the wider cooperation of authorities, emergency services and the citizens. This cooperation could then contribute to specific coordinated and timely enacted activities – as shown by the example of RE-ACTA – as well as to a chain of reliable information gathering processes like the approach presented below.



The MultiRes-approach focuses on the possibility of implementing and enabling reliable persons, so-called multiplier agents, who successfully communicate in various domains of their usual everyday life, e.g. recipients in leisure clubs, members' sports clubs and other interest groups. They can be integrated into a broader understanding of Disaster Risk Management (DRM) to provide specific content for awareness-rising regarding risks and appropriate preventive provisions. In addition to the traditional top-down communication strategies of prevention providers, complementary channels on a subjective level with a personal connection between the prevention content and the respective addressees of the information can be installed. This personal level of involvement and attachment can support the depth of anchorage of the information.

On the other hand, the hypothesis of the MultiRes-approach includes the possibility of garnering the necessary, reliable additional onsite information. Targeted requests

for specific data via this trusted, pre-registered channel of the multiplier agents aim at enhancing the situation awareness of command and control centers in the case of emergencies. Multiplier agents are supposed to be able to easily activate their respective group members and thus to fill the information gap regarding location, reliability and trusted sources.

Adding up to tackling the mentioned challenges of currently available open source (social) media data, this approach can also be used to bridge the digital gap as well as build up trust from sides of sensitized or specifically vulnerable person groups into the measures of emergency responders. This is essential to base prevention and response measures on all three pillars of an efficient civil protection system (Rainer *et al.*, 2013) i.e. governmental, non-governmental and private sources of stability.

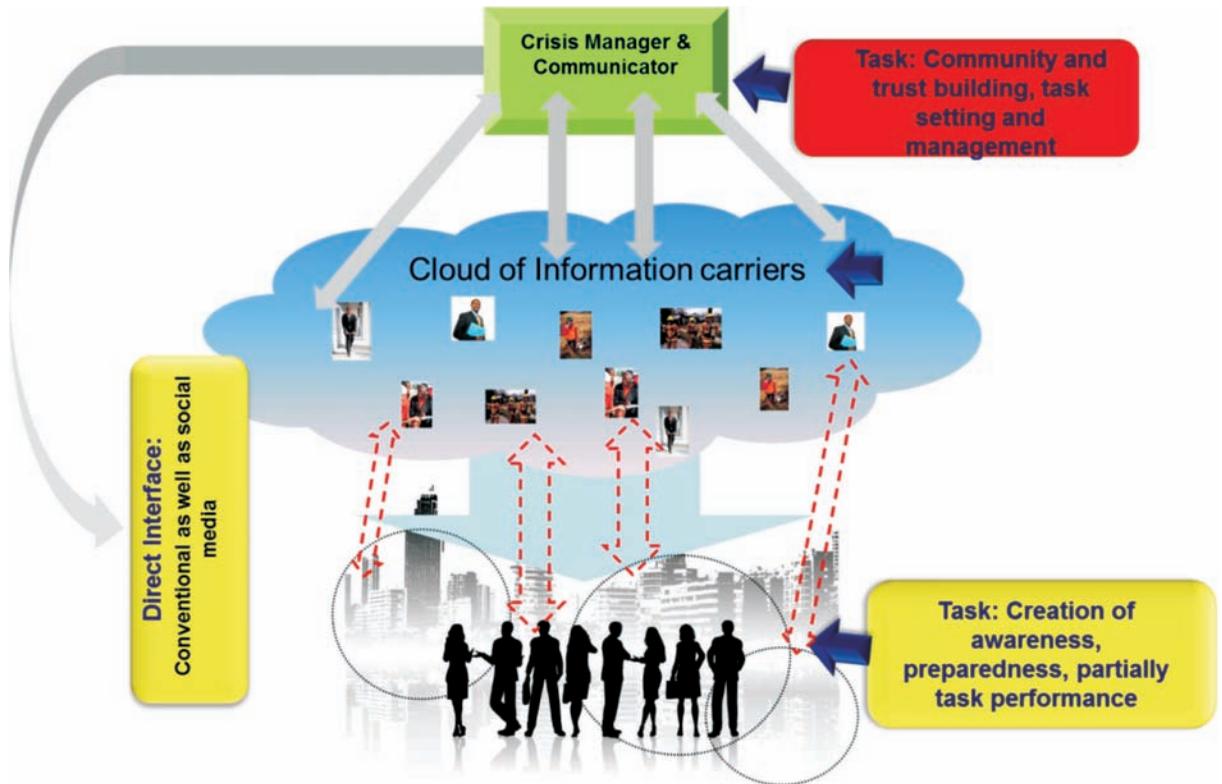
## Disaster Management

Disaster management – and above all preparedness and resilience building measures – have to take into account individual requirements of the population. This includes personal characteristics like gender, age, social and ethnical affiliation (Enarson and Morrow, 2000) as well as disabilities (McEntire, 2007) as well as the lack of language proficiency and knowledge of the local customs (e.g. in the case of tourists, new migrants, refugees). Specifically, in respect of age, low education or cultural limitations of the access of digital information systems, the „digital divide” represents a limiting factor in getting critical information in time and to contribute actively to the information feedback for a better situation awareness of the disaster management. A person trusted by the



community members as well as by emergency personnel, a multiplier agent, can act as intermediate to grant a stable flow of necessary information in both directions.

The MultiRes-approach builds upon these requirements and necessities occurring in a diverse society confronted with crises, as Figure 4 shows:



**Figure 4** – Concept of an enhanced multiplier agent approach for resilience building

Disasters are defined as „serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts” (UNSDR, 2009). Disasters are also able to tighten community bonding and make them more permeable (Neal *et al.*, 2012) but on the other hand, they obviously apply excessive pressure on affected individuals. In the situation itself, immediate physical and emotional responses can occur (Benight and Harper, 2002; Bryce, 2001), as well as the manifestation of distrust and thus non-compliance to members of the disaster management (Morrow, 1999) and necessary disaster relief actions

e.g. evacuation. Especially in communities with a lack of language proficiency or for individuals lacking literacy, the disadvantages of responding and recovering from a disaster are obvious. Cultural differences and even educational level can contribute to misunderstandings and thus deficits in preparing and responding to crisis situations (Phillips, 1993).

Basing on the inherence and belonging of the multiplier agent approach to the respective communities (e.g. migrant associations), some of these disabling factors can be reduced or even neutralized. With a direct and personal access to the members of potentially vulnerable communities,

factors as mistrust and / or misunderstanding of important actions in the relief phase of a disaster can be tackled. The practicality and real impact of the MultiRes-approach to enhance resilience and preparedness in disadvantaged groups has yet to be proven in monitored field tests.

## Expected Results

On the basis of a thorough requirement analysis, it will be surveyed which type of information is suitable to be disclosed by the emergency organizations to the multiplier agents and which media and channels are best fit for the transfer. A variety of characteristics of the information, such as language, the level of education or religion, the shape of the message (e.g. length, language, text *vs.* image) of the recipients, of the multiplier agents and their environment (the setting) and ultimately the channel for transmission of information are coordinated. Based on graph analysis, for selected examples, information and recipient-combinations are optimized taking into account the multipliers and input design (framing), as well as information channels (online-offline, print media, games, etc.).

MultiRes investigates whether intermediated paths via multipliers can be used to improve the perception of risk and preparing the population for possible incidents. This should add up to those already existing, superficial channels of communication for self-protection, prevention and related content. Recommendations for prevention providers are generated to optimize the selection of multipliers on the one hand, and the shape of the information on the other hand. Focused on the selected target population and on the information to be provided, the optimum orchestration for a best possible solution for a deep impact

information transfer will be the outcome of the MultiRes approach that will contribute to the enabling of future practices.

## Conclusions

This interactive gathered, multi-channel data, tapping the wisdom of crowds on the broadest possible level, could be used as vital and relevant input for situation awareness and decision support in disaster management. It could also foster and maintain active, bidirectional, the participatory involvement of community members in the prevention and the relief phase of a serious event – under the prerequisite of a trusted, reliable, and privacy safeguarding framework like the one applied within the REACTA-project or the MultiRes-approach.

This paper focusses on the outcomes of the post-project evaluation of the QuOIMA project, that showed several important research questions and gaps, such as how can relevant data be gathered in a sensible amount in a small country like Austria, how can reliability and trustworthiness of the data be granted, how can open source data legally be localized and geographically positioned, and last but not least, how can a broad part of the community be activated in the prevention and relief of emergency situations, taking into account the still existing digital divide.



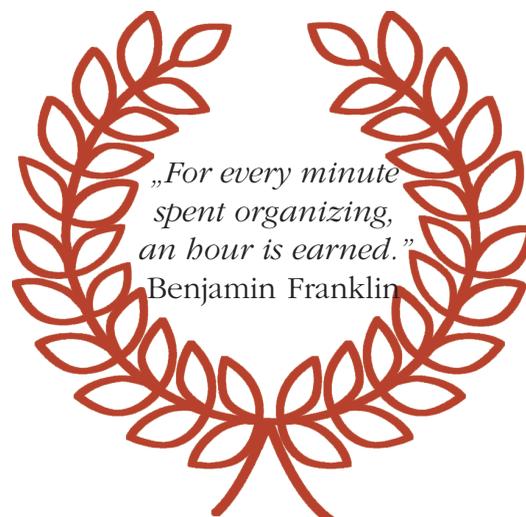
## Acknowledgement

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## REFERENCES

1. Backfried, G., Prinz, K., Quirchmayr, G., Göllner, J., and Czech, G. (2014) Cross-media, Multimedia, Multilingual Communication in Open Sources During Crises and Disasters. *Proceedings: The 11th International Conference on Information Systems for Crisis Response and Management, 2014 (ISCRAM 2014)*. Pennsylvania. 18-21 May 2014.
2. Batchelor, R. and Bobrowicz, A. (2014) Emphatic and Ethical Design of Technology. In: C. Stephanidis and M. Antona (Eds.): *8th International Conference on Universal Access in Human-Computer Interaction*. UAHCI 2014. Part I. pp. 3-10. Springer.
3. Benight, C.C. and Harper, M.L. (2002). Coping Self-Efficacy Perceptions as a Mediator Between Acute Stress Response and Long-Term Distress Following Natural Disasters. *Journal of Traumatic Stress*. 15 (3). pp. 177-186.
4. Bertot, J.C., Jaeger, P.J. and Grimes, J.M. (2010) Using ICTs to Create a Culture of Transparency: E-government and Social Media as Openness and Anti-Corruption Tools for Societies. *Government Information Quarterly*. 27. pp. 264-271.
5. Bryce, C.P. (2001) *Stress Management in Disasters*. Washington: Pan American Health Organization.
6. Enarson, E. and Morrow, B. (2000) *The Gendered Terrain of Disaster: Through Women's Eyes. Technical report*. Miami: International Hurricane Center.
7. Gao, H., Barbier, G. and Goolsby, R. (2011) Harnessing the Crowdsourcing Power of Social Media for Disaster Relief. *IEEE Intelligent Systems*. 26 (3). pp. 10-14.
8. Jachs, S. (2011) Introduction to Disaster Management. Hamburg: Tredition.
9. Kirchner, S. and Angleiter, B. (2011) Civil Defence. Evaluation of Austrian Civil Protection Measures in Terms of Acceptance and Satisfaction Among the Population and Experts. In: Sciences and Security. *Proceedings: Security Research Conference*. Vienna. pp. 73-76.
10. Levy, I. (2015) *Trust and Use of Media. A Sociological Study of the Trust and The Use of Media in Crisis and Disaster*. Master's thesis. Vienna.
11. Littlejohn, S. (1999) *Theories of Human Communication*. 6. Belmont.
12. McEntire, D. (2007). *Disaster Response and Recovery: Strategies and Tactics for Resilience*. Wiley.
13. Merchant, R.M., Elmer, S. and Lurie, N. (2011). Integrating Social Media into Emergency-Preparedness Efforts. *The New England Journal of Medicine*. 365 (4). pp. 289-291.
14. Morrow, B.H. (1999). Identifying and Mapping Community Vulnerability. *Disasters*. 23(1). pp. 1-18.

15. Neal, R., Bell, S. and Wilby, J. (2012) Emergence in the Disaster Response to the June 2007 Hull Floods. In Bichler, R., Blachfellner, S., and Hofkirchner, W. (eds.). *European Meeting on Cybernetics and Systems Research*. pp. 85-87.
16. Neubauer, G. et. al. (2013). Crowdtasking – A New Concept for Volunteer Management in Disaster Relief. In *Environmental Software Systems. Fostering Information Sharing*. Springer. pp. 345-356.
17. Ogris, G. and Paul, V. (2012) Social Strategies Regarding Risks by and for Marginalized Groups. In Federal Ministry for Transport, Innovation and Technology (Ed.). *Science, Safety – Results of Previous Study Projects*. 2. Vienna: Bohmann Druck und Verlag.
18. OZSV (2007) The SAFETY Check – Survey Results. In: ÖZSV Annual Report 2007. A year of Education, Information and Active Assistance in the Service of the Security of Austria. Vienna pp. 26-27.
19. Phillips, B.D. (1993) Cultural Diversity in Disasters: Sheltering, Housing, and Long-term Recovery. *International Journal of Mass Emergencies and Disasters*. 11(1). pp. 99-110.
20. Rainer, K., Levy, I., Schmid, J., Götsch, K., Quirchmayr, G., Göllner, J., Forst, N. and Backfried, G. (2015) New Opportunities and Challenges for Participation in Crisis and Disaster Relief. The Quoima Project as Example for Interaction, Participation and Privacy Protection in Disaster Management. *Central and Eastern European Legal Studies*. 1.
21. Rainer, K., Grubmüller, V., Pejic, I., Götsch, K. and Leitner, P. (2013) Social Media Applications in Crisis Interaction. *Systems. Connecting matter, life, culture and technology*. 1(1). pp. 110-127.
22. Sebald C., Neubauer G, Kabicher-Fuchs S, Flachberger C and Tellioglu H. (2014) The RE-ACTA Crowdtasking Platform for Crisis and Disaster Management in Austria. *Proceedings: EMCSR 2014 Book of Abstracts*. April. pp. 124-128.
23. UNITED NATIONS. (2009) *United Nations International Strategy for Disaster Reduction (UNISDR)*. *UNISDR Terminology on Disaster Risk Reduction*. Geneva.



# Work-Life Balance in Management Decisions

Ioan-Cristian Mustață, Andrei Niculescu

University POLITEHNICA of Bucharest, Romania

Abstract

*The paper aims to develop a concept that leads to a sustainable development of the enterprises as well as their employees, by balancing profit oriented and employee oriented goals. The long-term positive effects of such a balance could out-weight the extra costs arising and produce more prosperity and a better quality of life and the benefits would affect a wide range of stakeholders of the enterprise. Actual problems and potential solutions are explored by the means of a survey research by the author.*

**Keywords:** work-life balance, sustainable human resource management, integral human resource management, ethics, business philosophy

## Introduction

The paper deals with the question of balance between work and the personal life of working individuals, analyzing relevant aspects from the point of view of the enterprise, as well as from the point of view of the employees. The issue seems to be important, as the stress at workplace became lately one of the four factors recognized to affect the balance that ensures mental health next to the genetic inheritance, wounding trauma and private pressures (Gerbert, 2010). According to the same source, depression counts for nearly 10.000 suicides yearly in Germany, and the percentage of cases where early retirement was due to mental illness increased more than double in 15 years from 15.4% 1993 to 35.6% in 2008, causing losses of 3.9

billion Euro 2008 in Germany alone (Gerbert, 2010).

The severe loss of work-life balance can lead to a chronically lack of time in



a degree that also depends on factors like the marital status, the age of the employee, the number and the age of children as well as the level of employment and of income, the profession itself and other factors (Garhammer, 2003). In time, this can turn into burnout, a state of grave exhaustion, emptiness and depression, despite the fact that it is combined with social recognition and self-esteem, viewed by some as part of a successful career (Meckel, 2010). Burnout usually happens to people who do not develop a healthy distance to work, several types of working people being predisposed to it: the idealist, the ultra hard-working, the perfectionist, the loner, the grim and the thin-skinned (Gerbert, 2010). Such a psychological state will bring in time physical problems regarding the immunity or the cardiovascular system, that could become irreversible (Weinert, A.B., 2004).

From the point of view of the enterprise, it would be good to have balanced employees, with a happy life that do great at their jobs, achieving good and / or excellent results. This way, they contribute to the wealth of the enterprise and to a good atmosphere among the team members. From this point of view, the psychological and physical health of the employees is important for the enterprise, as well as for the employees, and there is a potential for a win-win situation. This explains the fact that some enterprises like Google, Microsoft, Bosch and many other invest into having good food or good entertainment possibilities such as sports, games etc. in the reach of the employees and at the expenses of the enterprise, sometimes combined with a flexible working program and preferably with clear performance indicators. This way, they keep their employees motivated and at the same point oriented towards the goals of the

enterprise. In the opposite direction, there is a win-lose situation, when enterprises develop a mechanism of constantly pressuring their employees by different mechanisms ranging from fear and authority of the managers, technology control expanded outside the border of the working place (Barker, 1993) to a subtle social pressure, in order to work at the limit of exhaustion to the benefit of the enterprise. When employees cannot keep the pace anymore because their health or their private life collapses under the pressure of the working place, they are left behind and the enterprise searches to hire new, usually young employees willing and able to work at constant pressure. In this case, the enterprise is not interested in having employees with a good work-life balance, and workaholic attitudes are encouraged. On the long ride, these companies lose a great number of their employees, always replacing them. The risk is to also loose the quality of the services and products, to earn a negative image in the community respectively.





## 1. Work-Life Balance

All employees identify to some extent with their organizations (Van Knippenberg, 2006). It is important to find healthy ways of identification, especially in the context of modern working places where communication technologies are involved that allow employees to stay connected to their jobs beyond the normal time and space boundaries (Reynolds, 2005), (Boswell and Olson-Buchanan, 2007).

Solutions to influence the work-life balance can be developed at three levels: at national level the law can impose some limits on the power of enterprises upon their employees, at the enterprise / organization level, workplace policies of the enterprise with resulting norms and organizational behavior can influence either positively or negatively the work-life balance of their employees, and at the individual level, each employee can be better informed and develop attitudes and skills that help one achieve a healthy degree of balance between work and personal life.

Some authors [Hoobler (2009), King (2008), Meckel (2010), Mumby (1998)] show a critical thinking towards the capacity of enterprise managers to create an atmosphere that encourages a good

balance between work and personal life, thus refraining from over-enforcing the value of work at the cost of the personal life of the employees, with different arguments: management teams have as a majority of male persons with little experience regarding work-family conflicts (Williams and Boushey, 2010). They already put work in the first place investing a lot of time in the struggle for power and ambition in order to achieve their actual position; this means time not spent with their families (which is usually a price too high for a woman to pay) (Pfeffer, 2010). They usually are either unmarried or married with wives that are providing for the household activities (Williams, 2000). The enterprise can use its power covertly by ideological controls, like promoting the idea of the ideal worker who commits totally to the enterprises (King, 2008), works late though extra time is not always paid etc.

In order to set some boundaries to enterprises who do not want or are not capable of creating adequate workplace policies by themselves, some countries created laws that protect the employees to a lower or higher degree. Because big enterprises usually possess the financial meanings to make a strong lobby to the lawmakers, it is important that such a strong lobby is balanced by the lobby of unions to ensure fair payment, training, safety measures and adequate working hours per week, paid vacations. As a result, workers in countries with strong unions work fewer hours and have more generous conditions than those from countries with weak unions (Reynolds, 2004).

As each individual has a right to strive for fulfillment at work and in the personal life, the first aligns better with the goals of the employer, as compared to the latter. While financial successful enterprises manage to achieve their financial goals, this is

not always done without imposing personal sacrifices on the employees. Enterprises can use their organizational power to impose policies, norms and thus organizational behavior (Mumby, 1998) that can be employee-friendly or not. Though some research states that work-family conflicts are not gender specific, working fathers and mother report in a percent of 95%, respectively 90% to have such conflicts (Williams and Boushey, 2010). Other studies show that working mothers are more often wrongly perceived as less committed to their work, compared to their childless colleagues, and in comparison with the commitment perception of working fathers (King, 2008). This perceived commitment by direct managers is usually related to the promotion of employees (Hoobler, Wayne and Lemmon, 2009).

As employees are not production robots, they identify with their role at work, as well as with other different roles in their personal life related to parenting, religion, hobbies etc. In case these identities can align in a rather harmonious way, we can speak about a good degree of work-life balance; else we have work-life conflicts (Tracy, 2000).

Thus, the solutions towards a better work-life balance are sought at a national, enterprise or individual level. It is important that they are based on a better understanding of the human being in its complexity and on its needs for a fulfilled life. The framework of integral human resource management – derived from the Bucharest Model of Integral Management (Mustață, 2012) is based on the viewpoint that human beings are complex beings, each is unique while all might share some universal values. Thus, it provides a model which tries to avoid oversimplification of the human being, and that can be used in the context of improving the work-life balance at national, enterprise or individual levels.



## 2. The Integral HRM Model

The model of Integral Human Resource Management derives from the Model of Integral Management. It is called integral because it aims to analyze the human being from an elevated point of view, respecting all its dimensions as well as its needs, its huge potential and its uniqueness. It is also called integral because it tries to synthesize, but not limit, the infinite potential of the evolution of human beings, by using eight principles.

An overview of the eight principles of the Integral human resource management (HRM) is presented in Figure 1, each principle being explained:

I	INSPIRATIONAL INTELLIGENCE
N	NONCONFORMISM
T	RUTHFULNESS
E	EFFICIENCY AND EFFECTIVENESS
G	GOODNESS
R	RESPONSIBILITY
A	ASPIRATION TO EVOLVE
L	LOVE

**Figure 1** – *The principles of Integral HRM*

The eight principles are described detailed in other contributions of the author (Mustata, 2012). In this article they will be introduced shortly, only regarding their link to the work-life balance issue and to the possible solutions. All three levels of improving the work-life balance at a country, enterprise or individual level can benefit of a positive image of the human being, open to its potential to evolve.

The principle of **Inspirational Intelligence** signifies that an enterprise, as well as its employees, can benefit substantially if its employees are inspired at their workplace, using their intelligence to innovate and creatively solve the challenges of a turbulent and fast changing environment. What kind of training, working environments and leadership styles develop the inspirational intelligence of the employees, respectively attract and keep loyal inspired and intelligent employees, remains a challenge that should be solved in each particular case with particular solutions. The presentation of this principle emphasizes that the development of such an environment which attracts inspired intelligent employees and helps them develop. Possible solutions could combine decent income, flexible schedule, creative environment and challenges, clear performance indicators and participative decision making, but is not limited to these ingredients.

The principle of Creativity and Courage for **Non-Conformism** means to develop and attract creative people in an enterprise. It is needed for continuously developing the innovation potential of the enterprise. This is an aspect considered as essential by (Alexe, 2012; Scarlat, Alexe and Alexe, 2009; Alexe, Scarlat and Alexe, 2010). This can be done by measures that stimulate the inspirational intelligence mentioned

before, as well as the insertion of unique challenges and projects to break the routine of every day's work.

The respect of the **Truth** translates in the work-life balance discussion as respecting the truth of the employees' identity in its complexity. Being kind and fair with persons with temporary special needs (for example working parents of small children), can lead to better transit solution then ignoring the problem out of fear to be forced to make too many exceptions. This implies that managers should invest time into knowing and understanding their direct subordinates very well, as well as searching for ways to improve communication (Alexe, Alexe, Popescu and Niculescu, 2011), as this is the foundation for finding the best prevention. It doesn't mean for example to allow an employee to be late for work without limits for long periods because his personal life demands more time, but maybe in such a case to discuss and find a temporary part-time so-



lution that is convenient for both the employee and the company.

**Efficiency and Effectiveness** refer to the aim and attitude to reach the established goals in all important direction. This includes the goals for profit, for social contribution, as well as for the personal evolution. All goals must be set realistically, so they do not need to sacrifice other important objectives.

**Goodness** refers to have the intention to contribute to the own well-being, as well the well-being of colleagues (managers and subordinates) and other stakeholders of the enterprise (customers, investors etc.). Sometimes, the well-being of different persons and groups is in a conflicting state, in which case critical thinking, ethics and fair play are essential in order to develop sustainable, correct long-term solutions to such conflicts.

**Responsibility** is a principle that is working well when it is a two-way road in an enterprise: the employees are respon-

sible to the enterprise, and the enterprise is responsible to them. For example, during the crisis, there were enterprises that refused to dismiss employees when facing decreases of their sales, thus of their incomes but found ways to communicate with their employees and settle shorter working times, combined with less payment for a limited period of time to cover the sales gap. When the crisis was over and sales increased, they were rewarded not to look for new untrained personnel, but to get back to the previous full-time agreement with their employees, triggering a win-win situation.

The principle of **Aspiration** to evolve is also a two-way road: the enterprise can give chances of training, evolution with job rotation, job enrichment and job enlargement to their employees, and the employees can take great joy in developing their own potential and use such chances to their best.

The principle of **Love** is a foundation and an essence of all other principles. Love is the deepest motivation to act. It refers to a joyful connection with other humans, nature and all that surrounds us. If love for all that is affected by our decisions and action (or lack of action) drives us, we have a good chance to find a way so that our goals are in harmony with all consequences regarding our work, the work of our subordinates, as well as our personal life.

The eight principles of Integral Human Resource Management do not deliver a clear receipt for success, but rather directions and a frame to look for solutions in each particular case. We also might fail sometimes, but mistakes and failures can be a foundation for learning and further evolution.



### 3. Research Methodology and Design

#### 3.1. Research Methods

The research underlying this paper is based on observation and on the critical thinking of the author, as well as on an on-line survey with 124 employees / entrepreneurs who work in Romania and employed either by their own company or by a multinational enterprise. The author aligns with Caproni (Caproni, 1997) regarding the opinion that taken-for-granted ideas and oversimplifications should always be put under question in the work-life balance discussions.

Observation and critical thinking were involved in creating the framework of the paper and the development of the concept of integral human resource management, as well as for the interpretation of the survey results.

The survey itself was meant as a tool of exploratory research, to draw a first picture of the work-life balance situation of employees with a higher education degree in Romania.

#### 3.2. Sample Description

A sample consisting of 124 employees answered the anonymous survey. The sample members were aged between 23-67 years, most of them (86%) were not married, they were working in Romania in multinational enterprises or in their own enterprise in different fields like IT Outsourcing, Advertising, Telecommunication, IT, Law, Transportation, PR, Sales, Management, Consulting etc.

### 4. Research Results

The results are divided into the following areas: work / overwork / stress at work, income/ benefits, personal life and health aspects, and satisfaction. At each question

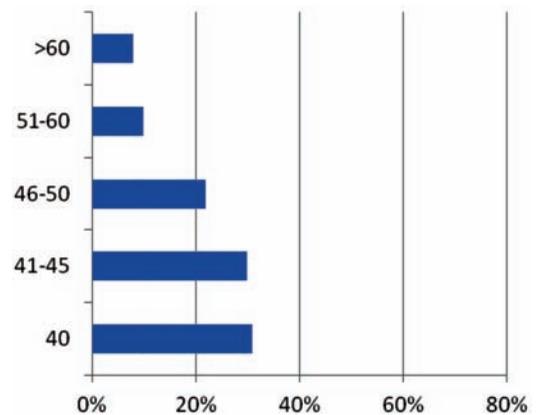
with predefined answers, these are indicated right after the question, as well as the percentage of the sample.

#### 4.1. The Work / Overwork / Stress at Work Section

The following question were raised:

**Q1:** How many hours do you work weekly (including checking work-related emails with the smartphone, tablet or computer)?

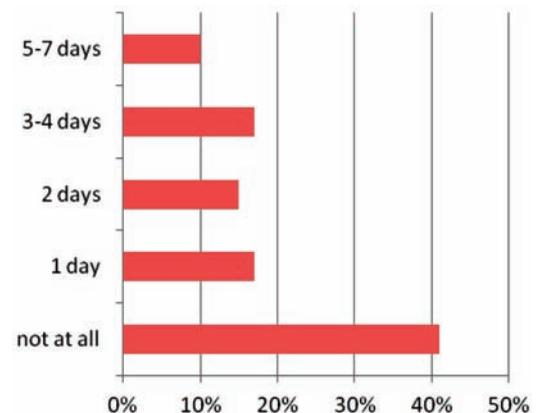
**A1:** 40{31%}, 41-45{29%}, 46-50{22%}, 50-60{10%}, >60{8%}, N=123 (Figure 2).



**Figure 2** – No. of hours/working week

**Q2:** How many times do you engage in work activities in your non-work time weekly?

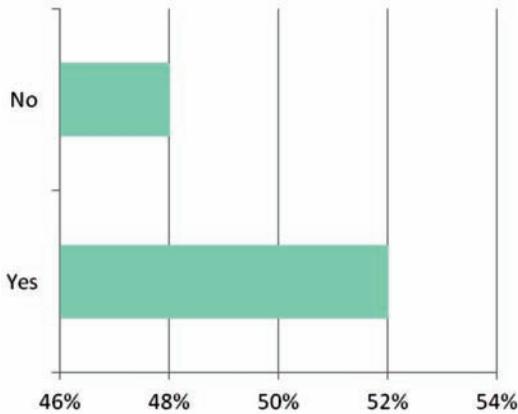
**A2:** not at all {41%}, 1 day {17%}, 2 days {15%}, 3-4 days {17%}, 5-7 days {10%}, N=124. (Figure 3).



**Figure 3** – Work activities in non-work time weekly

**Q3:** Do you also work in your non-work time from home?

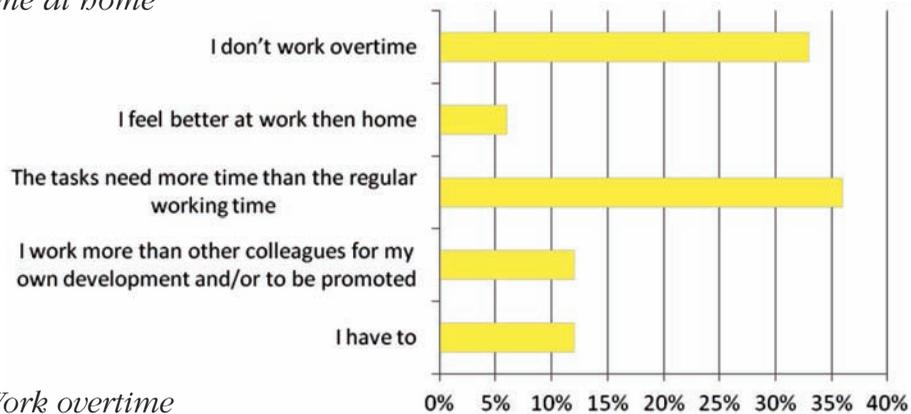
**A3:** yes {52%}, no {48%}, N=124. (Figure 4).



**Figure 4 – Work in your non-work time at home**

**Q4:** Why do you work overtime?

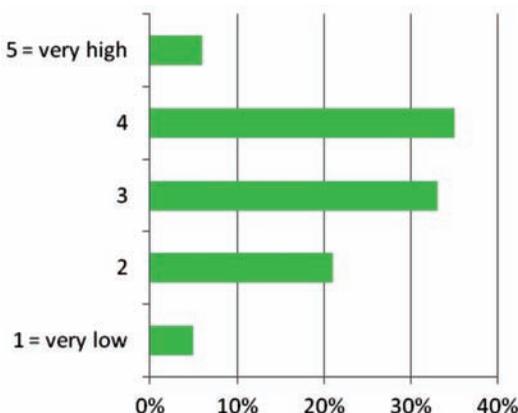
**A4:** I have to {12%}, I work more than other colleagues for my own development and/or to be promoted {12%}, The tasks need more time than the regular working time {36%}, I feel better at work than home {6%}, I don't work overtime {33%}, N=123 (Figure 5).



**Figure 5 – Work overtime**

**Q5:** How do you evaluate the level of work related stress?

**A5:** 1 - very low {5%}, 2{21%}, 3{33%}, 4{35%}, 5 very high {6%}, N=124 (Figure 6).



**Figure 6 – The level of stress**

We can see from the results that the sample contains groups of people that only work during the regular work time, as well as groups with moderate or great overtime, distributed mostly in the regular or moderate scale, both regarding overall time as well as the frequency of working overtime. In cases of overtime, most of the companies offer the possibility to work from home. The main reason for overtime is the duration of the tasks within the job description while some people work because they want to (promotion, running from home), and others work from home because they feel coerced to some degree.

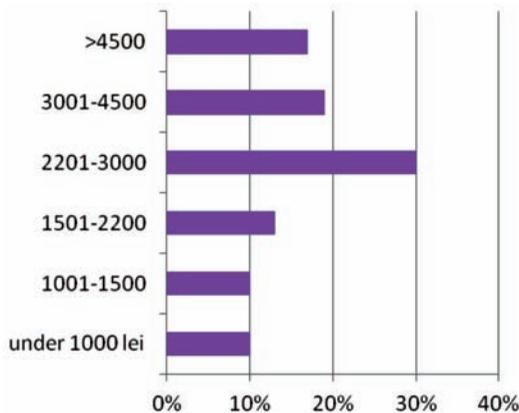
Some of these issues could be solved if the enterprises would hire more people in order to have the tasks covered by the employees using their regular working time, and request them to work in their non-work time only in exceptional cases. This, on the other hand, would require the management and the investors to have a sense of fair play and to take into consideration a decrease in the profits for the company in order to give the employees a fair amount of work, possible to be covered in the regular working time.

#### 4.2. The Income / Benefits Section

The following question were raised:

**Q6:** What is your monthly income after taxes?

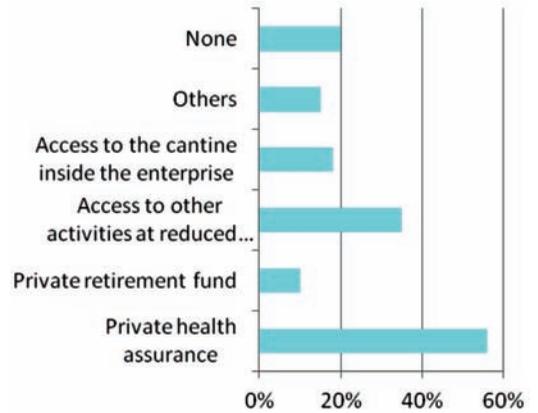
**A6:** under 1000 RON (~222 EUR) {10%}, 1001-1500 RON (~222-334 EUR) {10%}, 1501-2200 RON (~334-448 EUR) {13%}, 2201-3000 RON (~448-612 EUR) {30%}, 3001-4500 RON (~612-918 EUR) {19%}, over 4500 RON (~918 EUR) {17%}, N=123 (Figure 7).



**Figure 7 – Income after taxes**

**Q7:** What other benefits are included by your employer?

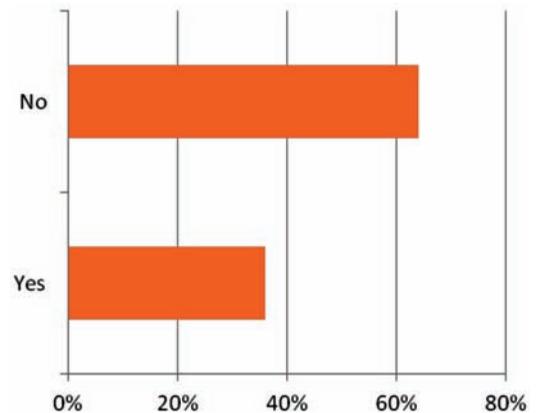
**A7:** Private health assurance {56%}, Private retirement fund {10%}, Access to other activities at reduced costs or free {35%}, Access to the canteen inside the enterprise {18%}, None {20%}, Others {15%}, N=124 multiple choices possible (Figure 8).



**Figure 8 – Other benefits**

**Q8:** Is Overtime paid?

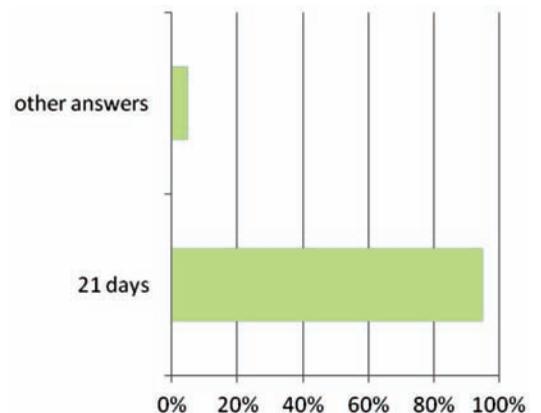
**A8:** Yes {36%}, No {64%}, N=124 (Figure 9).



**Figure 9 – Paid of overtime**

**Q9:** How many vacations days do you have yearly?

**A9:** Free answer N=124. 95% answered 21 days (Figure 10).



**Figure 10 – Vacations days yearly**

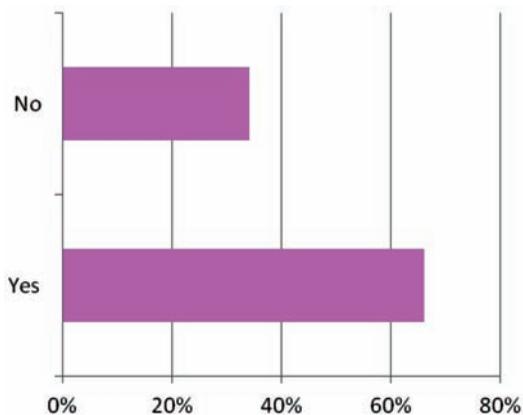
We can conclude that the sample contains a majority of well-paid employees, compared to average payments in Romania explained by the fact that most of them work in multinational companies and have a higher education degree. The enterprises use various extra benefits to keep their employees loyal, but not all enterprises were overtime occurred pay their employees for the extra hours. The net income which is higher than the average income in Romania explains why employees accept unpaid overtime, even if they don't think it is totally fair.

### 4.3. The Personal Life and Health Aspects Section

The following question were raised:

**Q10:** Do you use all your vacation days during the year?

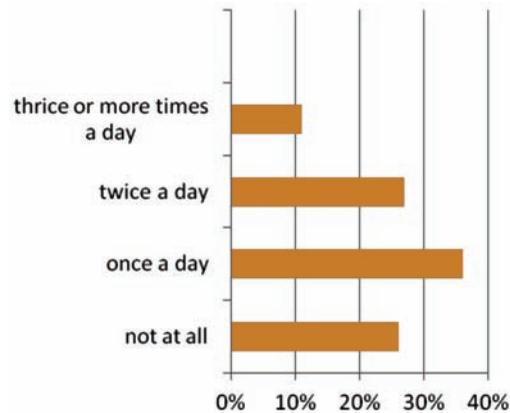
**A10:** Yes {66%}, No {34%}, N=124. (Figure 11).



**Figure 11** – Use all vacation days

**Q11:** How many times do you use coffee or energy drinks daily?

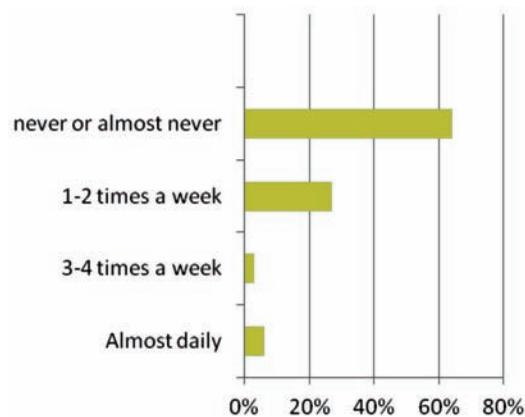
**A11:** Not at all {26%}, once a day {36%}, twice a day {27%}, thrice or more times a day {11%}, N=123 (Figure 12).



**Figure 12** – Use of energy drinks daily

**Q12:** How often do you eat fast food weekly (except shawarma and falafel)?

**A12:** Almost daily {6%}, 3-4 times a week {3%}, 1-2 times a week {27%}, never or almost never {64%}, N= 123 (Figure 13).

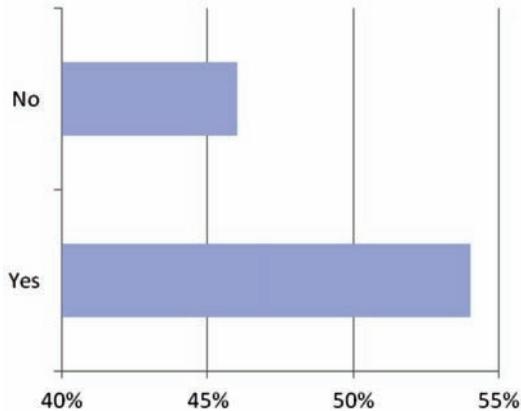


**Figure 13** – Eat fast food weekly



**Q13:** Do you practice some form of sport?

**A13:** Yes {54%}, No {46%}, N=123 (Figure 14).



**Figure 14 – Practice of sport**

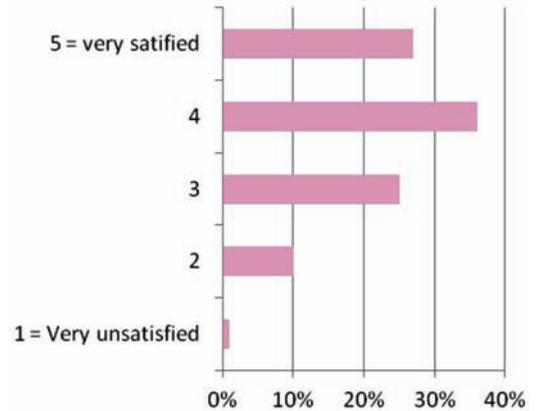
In the authors opinion, it is alarming that 34% of employees from the sample do not use their vacation days. A majority of the sample lives healthy practicing sport (54%), drinking maximum one coffee or energy drink daily (62%) and eating never or almost never from unhealthy fast food (64%). There is a big minority left, that tends to neglect health, including neglecting health at the advantage of work commitment, feeling young and invulnerable, but being endangered on the long term to lose a proper work-life balance and also to experience health problems. In this regard, the solution lies on the individual level, to develop a better awareness of the needs of the body and of the personal life, in order to gain a harmonious equilibrium.

#### 4.4. The Satisfaction Section

The following question were raised:

**Q14:** How satisfied are you with the ratio income free time of your job?

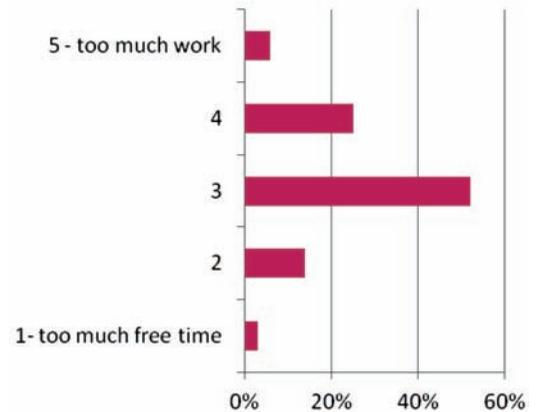
**A14:** 1 – Very unsatisfied {1%}, 2 – {10%}, 3 – {25%}, 4 – {36%}, 5 – very satisfied {27%}, N=124 (Figure 15).



**Figure 15 – Satisfaction offered by income relative to leisure**

**Q15:** How satisfied are you with your job?

**A15:** 1 – too much free time {3%}, 2 – {14%}, 3 – {52%}, 4 – {25%}, 5 – too much work {6%}, N=124 (Figure 16).



**Figure 16 – Satisfaction offered by job**

It can be observed that a significant majority is satisfied with their job and their choices.

## Conclusions

There is much potential for improvement at all levels regarding the work-life balance. Lawmakers could set fair boundaries to enterprise workplace policies, in order not to suffocate enterprises with too many regulations, but also not to leave employees unprotected when dealing with

opportunistic employers. At this level, strong unions could make a positive (unfortunately also a negative) impact using their lobby. Enterprises could use the framework of Integral Human Resource Management in order to develop a good working force and use the human potential at its maximum (in a qualitative, not a quantitative way). Employees could use the same concept to trace for themselves directions of development towards a fulfilled life, in both work and personal life.

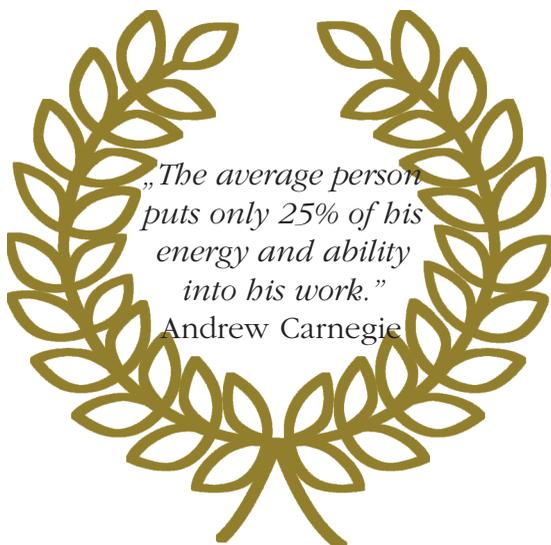
As directions for further research, it would bring an improvement to repeat the survey on the same sample after several years, in order to see how satisfaction and priorities change in time. In this case, the survey cannot be completely anonymous. Another direction to continue the research would be to apply the framework of the Integral Human Resources Management for solving specific work-life balance problems within specific enterprises as case studies, in order to find the correct diagnosis and to develop solutions for each case.

## REFERENCES

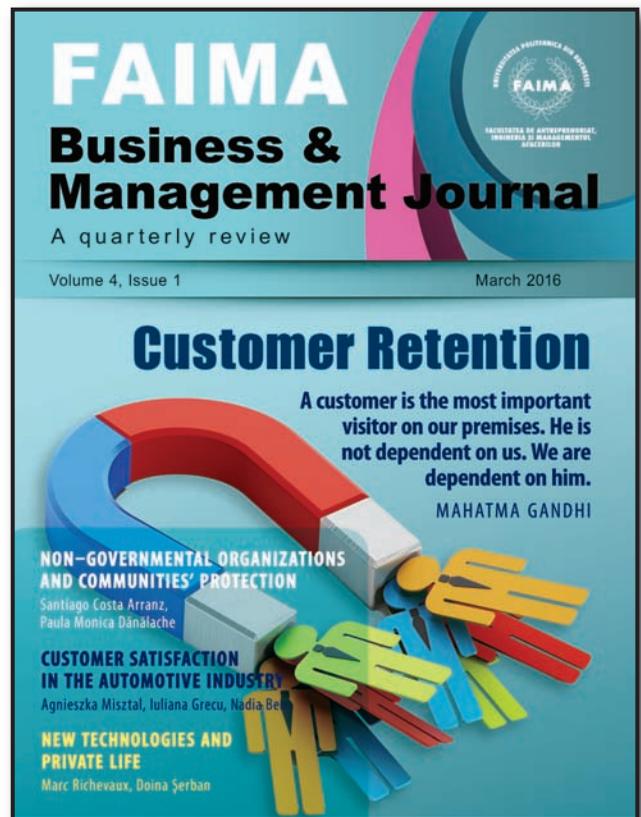
1. Alexe C.G., Alexe C.M., Popescu C.A. and Niculescu C. (2011) Improving internal communication at the company's level. *Proceedings: The 5<sup>th</sup> International Conference of Management and Industrial Engineering*. Bucharest. October 20-21. pp. 248-256.
2. Alexe, C.G. (2012) *Inovarea afacerii*. (In English: *Business Innovation*). Bucharest: Politehnica Press.
3. Alexe, C.G., Scarlat, C. and Alexe, C.M. (2010) Improving the Innovation Management in Romanian SMEs. *Proceedings: The 5th International Conference Business Excellence*. Bra[ov. October 15-16. 1. pp. 10-13.
4. Barker, J. (1993) Tightening the Iron Cage: Concertive Control in Self-Managing Teams. *Administrative Science Quarterly*. 38. pp. 408-437.
5. Boswell, W.R. and Olson-Buchanan, J.B. (2007) The Use of Communication Technologies After Hours: The Role of Work Attitudes and Work-Life Conflict. *Journal of Management*. 33(4). p. 592.
6. Caproni, P.J. (1997) Work/Life Balance, You can't Get There from Here. *Journal of Applied Behavioral Science*. 33(1). pp. 46-56.
7. Garhammer, M. (2003) *Auswirkungen neuer Arbeitsformen auf Stress und Lebensqualität*. (In English: *Impact of New Forms of Work on Stress and Quality of Life*). In Badura, B., Schnellschmidt, H., Vetter, C. (Ed.). *Fehlzeitenreport 2003, Wettbewerbsfaktor Work-Life-Balance*. (In English: *Absence Rates Report 2003, Competition Factor*). Berlin.
8. Gerbert, F. (2010) Wenn Arbeit krank macht – Burn-out – das Leiden einer modernen Gesellschaft. Warum die Zahl der Ausgebrannten wächst (In English: *When Work Makes You Ill – A Modern Society Suffering of Burnout. Why The Number of Burned Grows*). *Focus*. 10. pp. 92-103.
9. Hoobler, J., Wayne, S., Lemmon, G. (2009) Bosses' Perception of Family-work Conflict and Women's Promotability: Glad Ceiling Effects. *Academy of Management Journal*. 52(5). pp. 939-957.

10. King, E. (2008) The Effect of Bias on the Advancement of Working Mothers: Disentangling Legitimate Concerns from Inaccurate Stereotypes as Predictors of Advancement in Academe. *Human Relations*. 61. pp. 1677-1711.
11. Meckel, M. (2010) *Brief an mein Leben – Erfahrungen mit einem Burnout*. (In English: *Letter to my life – Experiences with a Burnout*). 1<sup>st</sup> Ed. Hamburg: Verlag.
12. Mumby, D. K. (1998) *Communication and Power in Organizations: Discourse, Ideology, and Domination*. Norwood: Ablex Publishers.
13. Mustățã, C. (2012) Integral Management – an Answer to the Need of Change in the Way of Doing Business in the 3rd Millennium. *Proceedings: First Scientific Conference on Lean Technologies*. Novi Sad. September 13-14. pp. 147-151.
14. Pfeffer, J. (2010) *Power: Why Some People Have It and Others Don't*. New York: Harper Business.
15. Reynolds, J. (2004) When Too Much Is Not Enough: Actual and Preferred Works Hours in the United States and Abroad. *Sociological Forum*. 19(1). pp. 89-120.
16. Reynolds, J. (2005) In the Face of Conflict: Work-Life Conflict and Desired Work Hour Adjustments. *Journal of Marriage and Family*. 67 (5). pp. 1313-1331.
17. Scarlat, C., Alexe, C.G. and Alexe, C.M. (2009) Assessing the Firm's Innovation Capability. *Proceedings: The 5th Balkan Region Conference on Engineering and Business Education & 2nd International Conference on Engineering and Business Education*. Sibiu. October 15-17. 1. pp. 139-143.
18. Tracy, S. (2000) Becoming A Character for Commerce. *Management Communication Quarterly*. 14(1). pp. 90-128.
19. Van Knippenberg, D. (2006) Organizational Identification versus Organizational Commitment: Self-definition, Social Exchange, and Job Attitudes. *Journal of Organizational Behavior*. 27(5). p. 571.
20. Weinert, A.B. (2004) *Organisations und Personalpsychologie*. (In English: *Organisational and Personnel Psychology*). Weinheim.
21. Williams, J. (2000) *Unbending Gender: Why Family and Work Conflict and What to do About It*. New York: Oxford University Press.

22. Williams, J. and Boushey, H. (2010) *The Three Faces of Work-Family Conflict. The Poor, the Professionals, and the Missing Middle Center*. [Online]. Available from: <https://www.americanprogress.org>. [Accessed: 8<sup>th</sup> March 2016].







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