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Croatia and the SET-Plan: Intents and Results*

Ljerka Cerovic, Dario Maradin, Ivana Ilijasic Versic
University of Rijeka, Rijeka, Croatia

Energy efficiency and environment protection are the international concern. European Union, under its energy and climate policy, adopted goals of reducing greenhouse gas emissions by 20%, and increasing the proportion of European energy which comes from renewable sources up to 20% by 2020. Until 2007, the development of these technologies in the European Union (EU) was undertaken in a dispersed, fragmented, sometimes even competing way. The Strategic Energy Technology Plan (SET-Plan) is the pillar of the EU’s energy and climate policy aiming at development of affordable, clean, efficient, and low emission energy technologies through coordinated research. Croatian accession to the EU required meeting the main challenges as the other member states, involving increase in energy efficiency and renewable energy used as some of the basic components of sustainable development. Funding projects in the area of ecology and energy preservation, odds and prospects for public bodies and Environmental Protection and Energy Efficiency Fund (FZOEU) involvement in financial support of the projects, additional sources of funding etc., are some of the numerous questions this paper is aiming to address in order to assess the Croatian absorption capacities for the SET-Plan as one of the most important EU strategies.

**Keywords:** European Union (EU) accession, SET-Plan, energy efficiency, challenges, Croatia, policies and programmes

**Introduction**

With the ongoing climate change, the need for tackling an effective low-carbon policy and efficient energy technologies becomes a prerogative. The European Union (EU) is addressing the challenge under its energy and climate policy (Commission of the European Communities, 2007) whose target is the transformation of the entire energy system, with far-reaching implications on how the energy is sourced and produced, transported and traded, and how it is used. Adopted goals underline the reduction of the greenhouse gas emissions by 20%, and increasing the proportion of European energy which comes from renewable sources to 20% by 2020. One way essential to the achievement of the goals set out under the energy and climate policy is the development of low carbon technologies, but it also ensures Europe’s future competitiveness. The rationale behind this target is a market choice; low-carbon technologies should be affordable and competitive (Commission of the European Communities, 2009). Therefore, EU endorsed the European Strategic Energy Technology Plan (SET-Plan) as a means of accelerating the development and large scale deployment of low carbon technologies that builds upon

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Ljerka Cerovic, Ph.D., Associate Professor, Faculty of Economics, University of Rijeka.
Dario Maradin, M.A., Research Assistant, Faculty of Economics, University of Rijeka.
Ivana Ilijasic Versic, M.A., Head of the Science Office, Faculty of Humanities and Social Sciences, University of Rijeka.
Correspondence concerning this article should be addressed to Ljerka Cerovic, University of Rijeka, Faculty of Economics, Ivana Filipovica 4, 51000 Rijeka, Croatia. E-mail: cerovic@efri.hr.
the current research and development (R&D) activities and scientific results in Europe. It proposes a new innovation model based on research, development, and demonstration planning and implementation within a large scale programmes (Edenhofer & Stern, 2009).

Republic of Croatia adapted legislative in accordance with the relevant directives of the EU; therefore energy efficiency is the key part of the strategic national documents such as strategy of energy development, master plan of the energy efficiency, energy efficiency national programme, and the first national action plan on energy efficiency. While special regulative and laws have been put in motion, many of the proposals are still in queue for adoption and conduct.

Weaknesses and Obstacles in Energy Innovation

Since the oil price shocks in the 1970s and 1980s, Europe had inexpensive and sufficient energy supplies. The availability of resources, no carbon constraints and the market have not only left Europe dependent on fossil fuels, but also tempered the interest for innovation and investment in new energy technologies. Shortly, there is no natural market demand or a short-term business benefit for such technologies (Joint Research Centre, 2007a). Public intervention to support energy innovation was necessary. The energy innovation process from conception to market also has its specific structural weaknesses; it is characterised by long lead times to mass market due to many different investments required and the technological and regulatory inertia typical for contemporary energy systems. New technologies are in overall more expensive than those they are replacing, and are usually not providing a better energy service.

Key Technology Challenges for the Next 10 Years

Achieving the 2020 targets requires the simple conditions; research has to lower costs and improve performance. Pro-active support measures have to create business opportunities, stimulate market development and address the non-technological barriers that discourage innovation and the market deployment of efficient and low carbon technologies. To achieve the further, 2050 vision, which aims to completion of decarbonisation, the new generation of technologies is needed. The major organisational and infrastructure changes have to be planned. Key EU technology challenges for the next 10 years to meet the 2020 targets (Joint Research Centre, 2007c):

- Make second generation bio-fuels competitive alternatives to fossil fuels, while respecting the sustainability of their production;
- Enable commercial use of technologies for CO₂ capture, transport and storage through demonstration at industrial scale, including whole system efficiency and advanced research;
- Double the power generation capacity of the largest wind turbines, with offshore wind as the lead application;
- Demonstrate commercial readiness of large-scale Photovoltaic (PV) and concentrated solar power;
- Enable a single, smart European electricity grid able to accommodate the massive integration of renewable and decentralised energy sources;
- Bring to mass market more efficient energy conversion and end-use devices and systems, in buildings, transport and industry, such as poly-generation and fuel cells;
- Maintain competitiveness in fission technologies, together with long-term waste management solutions.
Key EU Technology Challenges for the Next 10 Years to Meet the 2050 Vision

EU has the precise vision of the technology innovations that are to meet even further challenges of the distant future vision (European Commission, 2008):

- Bring the next generation of renewable energy technologies to market competitiveness;
- Achieve a breakthrough in the cost-efficiency of energy storage technologies;
- Develop the technologies and create the conditions to enable industry to commercialise hydrogen fuel cell vehicles;
- Complete the preparations for the demonstration of a new generation (Gen-IV) of fission reactors for increased sustainability;
- Complete the construction of the ITER fusion facility and ensure early industry participation in the preparation of demonstration actions;
- Elaborate alternative visions and transition strategies towards the development of the Trans-European energy networks and other systems necessary to support the low carbon economy of the future;
- Achieve breakthroughs in enabling research for energy efficiency: e.g., materials, nano-science, information and communication technologies, bio-science, and computation.

The European Strategic Energy Technology Plan (SET-Plan)

EU energy research budgets have declined since the 1980s and the energy technologies that have been developed have not been widely picked up, often due to cost and to lesser performance (Joint Research Centre, 2007d). The need to move to a post-carbon society and economy, and the commercial opportunities offered by the emissions trading scheme and other policies designed to improve energy security and fight climate change mean that the moment here is to make a more sustained and integrated effort to develop the EU’s capacity for innovation in energy technologies. With the strategic energy technology plan, the European Commission proposes various ways in which the EU as a whole (institutions and member States) can work together and create the best conditions for industry and society in general to use research, development, and innovation to drive down the cost of existing energy technologies and to develop the next generation of technologies for the sustainable energy system of the future.

In order to do so, the SET-Plan is aiming at establishment of large scale programmes (such as the European Industrial Initiatives—EIIs) that bound industry, research community, the Member States and the Commission in risk-sharing and introducing the public-private partnerships aiming at the rapid development of key energy technologies at the European level. In short, EIIs are industry-led and aim to strengthen the industrial participation in energy research and demonstration, boost innovation, and accelerate deployment of low-carbon energy technologies.

SET-Plan Initiatives

The SET-Plan includes six priority technologies that have already been identified as the focal points of the first EIIs (Joint Research Centre, 2007b): wind, solar, electricity grids, bio-energy, carbon capture and storage, and sustainable nuclear fission. A further initiative on energy efficiency in cities (the Smart Cities Initiative) is also proposed. In parallel, the European Energy Research Alliance (EERA), which brings together key European research organisations, has been working since 2008 to align their individual R&D activities to the needs of the SET-Plan priorities and to establish a joint programming framework at the EU level.
The European industrial bio-energy initiative. The European industrial bio-energy initiative addresses the technical and economic barriers to the further development and accelerates commercial deployment of selected state-of-the-art bio-energy technologies. This is with a view to achieving greenhouse gas emission savings of 60% for bio-fuels and bio-liquids under the sustainability criteria of the EU Directive on renewable energy.

The European CO$_2$ capture, transport, and storage initiative. A large demonstration programme aiming at the construction and operation of up to 12 industrial-scale CCS projects by 2015. Each project will integrate and test the existing components of CCS, demonstrating the feasibility of the concept and generating knowledge that will help to reduce costs, orientate further R&D and increase public awareness about the benefits of the technology.

The European electricity grid initiative. The European industrial initiative on the electricity grid looks to develop, demonstrate, and validate, at scale, the technologies, system integration and processes to:
- Enable the transmission and distribution of up to 35% of electricity from dispersed and concentrated renewable sources by 2020 and make electricity production completely decarbonised by 2050;
- Further integrate national networks into a truly pan-European, market based network;
- Optimise the investments and operational costs involved in upgrading the European electricity networks to respond to the new challenges;
- Guarantee a high quality of electricity supply to all customers and engage them as active participants in energy efficiency;
- Anticipate new developments such as the electrification of transport.

The Fuel Cells and Hydrogen (FCH) joint technology initiative. This European industrial initiative is working to speed up the development of hydrogen-supply and fuel-cell technologies to enable the industry to take the large-scale commercialisation decisions necessary for mass market introduction in the timeframe 2015-2020.

The sustainable nuclear initiative. The European sustainable nuclear industrial initiative will demonstrate the long-term sustainability of nuclear energy. The initiative will design and construct demonstration reactors of a new generation of nuclear technology—so-called Generation IV—based on fast neutron reactors and closed fuel cycles. Compared with current nuclear plants, this advanced technology will make 50-100 times more efficient use of uranium resources, will generate less long-lived radioactive waste and will reduce proliferation risks. It will also have favourable safety characteristics by maximising inherent and passive safety features. The first demonstration reactors are expected to come into operation from 2020. The operational experience gained should then pave the way for the commercial deployment of this technology from 2040.

Energy efficiency—the smart cities initiative. The smart cities initiative aims to improve energy efficiency and to step up the deployment of renewable energy in large cities going even further than the levels foreseen in the EU energy and climate change policy. This initiative will support cities and regions that take pioneering measures to progress towards a radical reduction of greenhouse gas emissions through the sustainable use and production of energy. It will make the cities involved in the forefront of the development of the low-carbon economy. The initiative will be underpinned by concrete activities being prepared at the time of publication.

The solar Europe initiative. The European industrial initiative on solar energy focuses on PV and
concentrating solar power (CSP) technologies. The objective is to make these technologies more competitive and to facilitate their large-scale penetration in urban areas and green-field locations as well as their integration into the electricity grid.

**The European wind initiative.** The European wind initiative aims to make wind energy more competitive, to harness the potential of offshore resources and deep waters, and to facilitate grid integration of wind power.

**Energy Efficiency in the Republic of Croatia: Current Position and Expectations**

Economic burden brought by the increase in energy expenditure, price growth of the energy-generating products, and exhaustion of the fossil fuels, along with the rising awareness of sustainable use of natural resources and environment protection are some of the most important themes of contemporary time in Croatia and the world.

Although energy expenditure decreased after 1990 due to the deindustrialization, and energy intensity is not as high as in the other members of the EU, Croatia is facing the substantial problems aroused from the increasing energy needs and almost 50% dependence on energy import.

Given the circumstances, the question imposed is how to promote sustainable development, and secure added value creation and responsible trade marked by the environment care. Energy efficiency (EnE) is being widely considered as the basic assumption for the sustainable energy development. Therefore the EnE has to be the key role in general national energy politics.

**Incentives for Development of Energy Efficient Projects in the Republic of Croatia**

Energy expenditure increase and the first energy crises created the need for the energy projects development which was to result in energy expenditure decrease and, given the rational time line, secure the return on investment. Regardless of high return on investment rate, adoption of energy efficient technology was and still is low due to the insufficient knowledge on advantages that such technology can produce information asymmetry and other market failures. In every way, the EnE is the less expensive option compared to ecological and other benefits it offers (i.e., decrease in energy production and use, and consequently reducing greenhouse gas emissions).

Market potential for EnE projects in Croatia is huge and still rising. Reasons are overarching; from the need to protect environment and secure the energy supply, to stimulating the economic recovery and growth, as well as fulfilment of related international obligations:

1. Environment protection and energy supply safety.
   - EnE is the most efficient and cost effective way of accomplishing the goals of sustainable development, bearing in mind that EnE projects have the strongest impact on promotion of the energy triad (Regionalni centar zaštitne okoliša, 2010), emphasizing the decrease of energy needs, increase of renewable energy sources use (RES), and finally, the use of fossil fuels in cleaner production. Mentioned triad has an impact on the decrease of energy depend on the state, namely, supplying safety, decrease in negative environment effects (first of all reductions of the greenhouse gas emissions), and consequently slowing the process of climate change and the rising awareness of sustainable energy use on every level.

2. Economic recovery and growth.
   - EnE projects have direct impact on competitiveness’ increase in national economies:
     - Through reduction of energy costs (implies the overall reduction in energy expenditure which results in
lesser need for energy production, reduced prices of industrial products, services and transport and life expenses). Energy costs in Croatia are substantial and amount up to 20% GDP, mostly comprising of the building sector (40% of energy). Furthermore, Croatia is spending 12% more of the primary energy by the GDP unit than the EU-27 average, and even 20% more than the EU-15 average, therefore, the Croatian potential for improvement of the EnE is huge (Domac-Šćulac, 2009);

- Through job creation (EnE projects market is large and it can absorb a huge number of employees of different profiles and by that significantly decrease the unemployment rate). The greatest potential is in the building sector where it is expected that the application of energy efficiency measures on 20% of the overall amount of the residential units in Croatia during the next 10 years will result in an increase of the total investments for 2.8 billion USD, creation of 7,000 direct “green” job posts per year and at least that amount of non-directly created job posts (UNDP, 2010);
- Through support for social programmes (primarily in the framework of the educational media campaigns on EnE).

(3) EU accession process and fulfilment of international obligations.

Agreement on energy charter was signed by Croatia in 1994, and ratified in 1997. In 1996 Croatia ratified the UN Framework Climate Change Convention (UNFCCC), while in 1998 the Protocol on Energy Efficiency and Related Environment Aspects (PEEREA) is ratified. By this Croatia overtook the obligation to adopt the strategy of EnE and related strategic goals, to create the related legislative frameworks, to define the concrete programme for the promotion of efficient energy use, and the programme for reduction of negative effects of energy sector on environment. Croatia, as EU accession country, adopted the agreement on energy community and in 2007 signed and ratified the Kyoto protocol, along with the UNFCCC, by which it overtook the obligation of reducing the greenhouse gas emission by 5% during the 2008-2012 period.

Constant environment protection care, the increase of the EnE and RES is one of the key components of sustainable development and use of natural resources in Croatia, as well as important factor in EU accession process. In the pre-accession period Croatia overtook the obligations formulated in the package of measures known as the EU Directive “20-20-20 until 2020” aiming at the following (Balabušić, 2009):

- Reduce greenhouse gas emission by 20% without endangering the economic growth, competitiveness, and quality of life of its citizens;
- Reduce energy usage by 20%;
- Increase the portion of RES by 20% by using the energy of wind, sun, water, bio-mass, bio-fuel, and geothermal energy.

Strategy of energy development of the Republic of Croatia in the domain of EnE and RES until 2020 is in accordance with the goals and time line of the EU strategic documents required for the adoption of EU Directives in Croatian national legislative.

**Strategic, Legislative, and Institutional Framework for Energy Efficiency in the Republic of Croatia**

Key factor for EnE project realization is defining its strategic, legislative, and institutional framework.

(1) Strategic framework.

EnE as a necessary and acceptable way of completing the energy needs is the important part of the key Croatian national documents, i.e., Strategy of Energy Development, Master Plan on Energy Efficiency, National Energy Efficiency Programme, and The First National Energy Efficiency Action Plan.
Strategy of Energy Development in the Republic of Croatia until 2020. Strategy is adopted by the Croatian government in the end of the 2009. It foresees the investment of about 15 billion euro in energy until 2020, as well as portion of that sector in the increase of the Croatian GDP with about 1%-2% per year (Ministry of Economy, Labour and Entrepreneurship, 2008).

Strategy, apart from that, also foresees the building of two thermal power plants powered by gas, and two powered by imported stone coal, as well as the hydroelectric power plant. It is also planned to build the Liquefied Petroleum Gas (LPG) terminal, networking of the Croatian and Hungarian gas systems, investments in underground gas storages, finalizing the modernization of refineries, securing the oil reserves until 2012, etc.. These plans are based on the assessment that energy usage increase in Croatia will amount up to 3.1% per year until 2020, electric energy by 4.3%, and gas fuel energy by 4.7% per year (Ministry of Economy, Labour and Entrepreneurship, 2008).

Master plan of Energy Efficiency in the Republic of Croatia. Aiming at the creation of the detailed expert background for the adoption of the overall strategy for efficient energy usage in Croatia, UN Development Programme (UNDP) and Croatian Ministry of Economy, Labour and Entrepreneurship (MINGORP) launched the project of drafting the Master Plan of Energy Efficiency in the Republic of Croatia. The project started in April, and ended in October 2007. The Croatian government adopted the Master Plan as the national programme which is completely compatible with the EC Directive 2006/32/EC on energy efficiency and services. Master Plan defines the goals of improvement of EnE, as well as the mechanisms and measures for their conduct.

Master Plan offered the background for the two further important strategic documents; Energy Efficiency Programme 2008-2016, and the First National Energy Efficiency Action Plan of the Republic of Croatia 2008-2010 which enabled Croatia to have clear and defined politics on EnE.

National Energy Efficiency Programme of the Republic of Croatia 2008-2016. Programme adopted by the Croatian government is technically and professionally drafted according to the EC template for related Directives on EnE, which defines the goal of energy savings until 2016, usage of the defined methodology, conduct measures and stakeholders, but it does not include the financial projections. Croatian national interest includes conduct of EnE measures and decrease of immediate energy expenditure by 9% in the period from 2008 to 2016, according to the EC Directive 2006/32/EC (Mladineo, 2009).

The First National Energy Efficiency Action Plan of the Republic of Croatia 2008-2010. During the EU accession process, Croatia is bound to translate the requirements of the Directive to the national legislative and draft the First National Energy Efficiency Action Plan for the period from 2008 to 2010. Again, it is the Croatian government programme which meets requirements set by the EC Directive 2006/32/EC. Division of national goal by the sectors is based on the portion of each sector in immediate energy usage, potential for improvement of energy efficiency, and possible level of intervention by the EnE politics in the sector. The division by the sectors, given the goal of 9% or 19.77 PJ¹ energy savings until 2016, is as follows: households 34% or 6.72 PJ, transport 30% or 5.93 PJ, services 19% or 3.76 PJ, and industry 17% or 3.36 PJ (Raguzin, 2010).

(2) Legislative framework.

The development of the EnE depends on legislation, directives, action plans and guidelines, different tax

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¹ Energy unit PJ (petajoule) is the equivalent for about 30 million of kWh.
appropriations and reimbursements set by the governments, etc.. In legislative framework it is important to highlight the Energy Law (NN 68/2001, 177/2004, 76/2007, and 152/2008) and Law on Efficient Energy Usage in Immediate Use (NN 152/2008). Energy Law defines measure and safe and reliable energy supply and its efficient production and usage; its articles define the conduct of energy politics and planning of the energy development, practice of energy services on the market or as public services, as well as the basic issues of energy services practice with respect to the environment protection measures. Law on Efficient Energy Usage in Immediate Use has overtaken the acquis, namely, the requirements of the EC Directive 2006/32/EC with respect to the Croatian interests. It defines the area of efficient energy usage in immediate use, adoption of programmes, and plans for EnE improvement and their conduct, and particularly the practice of energy services, obligations of public sector, and large consumers regarding the energy management, consumer rights in EnE measures’ conduct, development of EnE projects market, etc..

(3) Institutional framework.

The role of certain public bodies and institutions in strategy, plan, and programme of the EnE in Croatia is different. EnE policies lie within the responsibility of two Croatian ministries: MINGORP is for the energy issues and the Ministry of Environmental Protection, Physical Planning and Construction (MZOPUG) are for the environment protection issues. Guidelines conduct of labelling the EnE household supplies lies within the responsibility of the State Inspector’s office, while the responsibility for the establishment and conduct of minimal regulations on EnE and eco-design is divided by the both ministries. The Climate Change policy, in which the EnE is one of the key buffering factors, is the responsibility of the Ministry of Environmental Protection, Physical Planning and Construction. Ministry of the Sea, Transport and Infrastructure (MMPI) is responsible for the EnE issues within the transport sector. On execution level, the key role in financing, drafting, development and implementation of the EnE, RES, and environment protection projects has the Environmental Protection and Energy Efficiency Fund (FZOEU), namely, it enables the financial and institutional support to the EnE development in Croatia. Other public institutions actively participate in the EnE implementation, i.e., Energy Institute Hrvoje Požar, leader of all national EnE programmes since 1997, and the only public body with the right to make the energy balance sheet of the Republic of Croatia. Initiatives and counselling in the EnE domain are also provided by different academic institutions. In part of the business sector, some of the largest state companies are also very active in the EnE related issues (HEP, ESCO, Croatian Institute for Construction, Croatian Cleaner Production Centre, etc.). The rising engagement of the Non-governmental organizations (NGOs) in the promotion of environment protection and EnE has to be mentioned. Nevertheless the key bodies for implementation of the EnE policies in Croatia are the FZOEU and the MINGORP.

Funding of Energy Efficiency in the Republic of Croatia

Key factor for the realization of the EnE projects and meeting the requirements of the EU Directives is availability of funding sources. As mentioned before, strategy of energy development of the Republic of Croatia foresees the investment in energy of about 15 billion Euros until 2020; therefore, it is crucial to secure the financial support for investments in EnE in public and private sector. Possible sources of funds in Croatia involve state budget, dedicated funds (FZOEU), incentives, grants and other international assistance programmes, loan programme of the Croatian Bank for Reconstruction and Development (HBOR), commercial funding programmes, EU funding programmes (FP7, IPA, IEE, etc.), public-private partnerships, etc. (UNDP Croatia, 2008a).
Nevertheless, the most important incentives for the EnE projects come from the FZOEU. It is the structured out-of-the-state-budget fund which covers funding of the three basic types of practices: environment protection, EnE, and the usage of RES. Established in 2003 by the Law on Environment Protection and Energy Efficiency Fund (NN 107/2003), based on the Environment Protection Law (NN 82/94, 128/99) and Energy Law (NN 68/2001, 177/2004), and by the joint efforts of the responsible ministries (MINGORP and MZOPUG). Fund’s area of work is expanded in 2006, by the Waste Law and in 2008, by the Law on Efficient Energy Usage in the Immediate Use, which enabled the Fund to gradually download the functions and responsibilities of the energy efficiency executive agency.

The priorities of the Fund in enforcing the Law on Efficient Energy Usage in the Immediate Use are drafting and conduct of the sector programmes on efficient energy usage (industry, households, transport, public, and commercial service sector) and coordination of inter-sector policies implementation, procedures, monitoring and evaluation of energy savings system establishment, as well as establishment of the unique informational system for EnE savings monitoring.

**Croatian Energy Projects Overview**

Aiming at encouraging the EnE, the number of projects, programmes, and campaigns is launched in Croatia, i.e., “Promotion of energy efficiency in Croatia”, “Systematic management of energy in towns and counties of the Republic of Croatia”, and energy management project named “Getting own house in order”, as well as numerous educational media campaigns, etc..

**“Promotion of energy efficiency in Croatia” project (2005-2009).** This energy efficiency project was launched in 2005 by the UNDP and the MINGORP in cooperation with the FZOEU and Global Environment Fund. The aim of the project was to raise the awareness of efficient energy usage, as well as stimulate the implementation of cost-effective and energy efficient technologies and measure through consultations, seminars, and workshops. Target groups of the project, representing more than 40% of total energy expenditure in Croatia, were the households, services, and public sector. FZOEU almost completely finances the campaign of this project with more than nine million of Croatian kuna (UNDP Croatia, 2005).

The huge success of the above mentioned energy efficient project resulted with Croatian government two new activities: project “Systematic management of energy in towns and counties of the Republic of Croatia” involving all objects owned by the towns and counties, and an energy management project named “Getting own house in order” which involves systematic energy management in the objects owned by the Croatian government. After a few years of a project’s duration, 80 out of 127 cities, 19 out of 20 counties, and 13 out of 16 Croatian ministries, actively engaged in both projects with 8,000 evaluated public buildings (out of 10,000 total) which entered the systematic energy management system (UNDP Croatia, 2008b). Expected financial benefit from both projects was saving around 700 million kuna (Mladineo, 2009). FZOEU was financing both projects with more than 70 million kuna totals (UNDP Croatia, 2005).

**“Systematic management of energy in towns and counties of the Republic of Croatia” (2007-2009).** Main goals of the SGE project were the application of the continuous and systematic energy management, strategic planning of energy policy and sustainable management of energy resources on local and regional level, which were to increase the EnE and decrease energy expenditure, and therefore, the greenhouse gas emission in the atmosphere, encouraging the development of new services and entrepreneurship (UNDP Croatia, 2005).

**“Getting own house in order” (2008-2012).** Programme “Getting own house in order” involves state and
local government objects (schools, hospitals, sport facilities, buildings, etc.) owned by the state. Through implementation of this programme, Croatian government gave the good practice example and not suggesting the EnE to anyone else. By this, the expenditure on the basis of operational costs within the state budget is decreased, and saved money is allocated to other priority domains of public interest (Government of the Republic of Croatia, 2011).

**Informational and educational media campaigns.** Education and public informing on EnE issues are few of the key factors of promoting the EnE projects. Citizens’ responsibility in EnE domain is not limited to the individual actions, but it extends on the decisions and activities of the broader community. Main obstacles for the EnE projects are, in fact, social obstacles represented by the lack of knowledge and information, and given the fact that the change of attitudes and habits is a long term process, marked with lack of interest and motivation, and underestimation of the “ordinary people” impact (Kavedžija, 2009).

Within the energy efficiency (EE) project, there are numerous citizens oriented informational and educational campaigns on energy efficient technologies in everyday life. There are continuous efforts aimed at promotional activities on EnE through different national media campaigns, and local activities, as well as presentations, public discussions, expert meetings, and congresses. Communication and public informing on a local level is conducted in cooperation with “the local EE info offices and EE corners” which provide the information on different EE products, technologies, and measures, therefore offering the choice of adequate systematic solution of EE increases in their homes. EE info-spots are opened on 72 places in Croatia (EE info offices, EE info galleries, EE panels, EE info corners, and EE info centres) in 30 cities and 10 counties, and are still opening. According to the opinion polls which are done within the project, public knowledge on “EE measures and products” and “EE products” usage is significantly increased. The number of citizens who believe that they can lower the energy use by the EE measures application has risen from 27.9% in 2007 to 45.1% in 2009 (UNDP Croatia, 2009).

**Market Obstacles and Improvement Measures of Energy Efficiency in Croatia**

The market accomplishment of the EnE is evaluated by the success of development and implementation of the EnE projects in the state’s market economy. Unfortunately, transition countries’ (including Croatia) EnE markets are labelled with the very low level of EE projects’ implementation, as well as the imbalance in their supply and demand. Numerous obstacles are the reason for such EnE market state (Bukarica, 2008), and are manifested on both sides of supply and demand chain. One of the most important is the financial obstacles; they are created on the demand side resulting from the weak purchasing power of consumers and huge investment costs of such projects. Similarly, on the supply side there is still low interest for EE projects, burdened by many administrative, legal and other requirements that have to be met. Furthermore, there is insufficient general level of knowledge on multiple benefits of improved EnE, and consequently, insufficient activity on both sides of the market regarding the EE projects. Finally, there are also the lack of expert and technical knowledge and experience necessary for the realization of the EnE projects.

In eliminating the mentioned obstacles, it is possible to undertake different inter-sector and sector measures and therefore influence the EnE improvement. Inter-sector measures (compatible with the specific measures for each involved sector) of the decrease of energy usage by the end-users include: financial and fiscal support for the EnE projects, technological research and development, participation in Intelligent Energy Europe programme (IEE), empowerment of the EnE in education, public awareness, and inter-sector campaigns,
energy inspection programmes, EnE in buildings, labelling appliances and tools, and energy characteristics standards (Ministry of Economy, Labour and Entrepreneurship, 2008).

On the other hand, sector measures for stimulating the EnE are specific, given that different sectors demand different approaches and incentives for the EnE investments. Reasons for that span from specific interests, different stakeholder structure and inclination to investments, to different shares in total energy usage, etc..

Conclusions

One of the key priorities of the EU development policies and research is the energy efficiency. One track being pursued is the development of low carbon technologies, essential both to the achievement of the goals set out under the Energy and Climate Policy, but it also aims to ensure Europe’s future competitiveness. The SET-Plan, as the main pillar of the EU’s Energy and Climate Policy, proposed concrete actions to build the best conditions for industry and society in general, to use research, development, and innovation to decrease the cost of existing energy technologies, and to develop the next generation of technologies for the sustainable energy system of the future.

The Croatian energy policy is also pursuing the European energy trends, which is evidenced by the numerous projects, laws and regulations in that domain. Mentioned activities are marked, before all, with the Croatian adaptation to the Community legislative (acquis), namely, meeting the requirements of the EC Directives. Croatian potentials for the EnE improvement are substantial; energy intensiveness in Croatia is about 12% higher than the EU-27 average, and even 20% higher than the EU-15 average, which represents the burden to national economy as well as environment protection. Main obstacles to the EnE improvement are, apart from financial ones, the lack of general knowledge on efficient energy use benefits, lack of technical knowledge for EnE projects conduct, and finally, the lack of clearly formulated national strategy. It is necessary to create the integral approach in energy policies planning on national and local government levels, taking into account the possibilities and alternatives, defining the goals and priority domains, drafting the required measures, as well as securing the necessary financial means for execution of the set goals.

References


The Information Content of Environmental Performance of the Companies Listed on Indonesia Stock Exchange Period 2010-2011

Bambang Bemby S, Mukhtaruddin, Abukosim, Sinta Atizah
Sriwijaya University, Palembang, Indonesia

Information content is a meaningful information for users to make decision. If the information is effecting to users’ decision. One of the information is the announcement of the environmental performance. This information is effecting to investor reaction. Indonesia experience many problems of environmental damage. Program Penilaian Peringkat Kinerja Perusahaan (PROPER) or Company Performance Rank Program as an environmental control tool released by Kementerian Lingkungan Hidup (KLH) or Environmental Ministry and government received good response from several parties. However, some research studied about the relationship of environmental performance and economic performance found unexpected result. This research attempts to analyze the effect of environmental performance to abnormal return by event study analysis technique before and after PROPER announcement. The observation period is 2010 and 2011. The sample used in 2010 is 30 companies; while in 2011 are 41 companies. Hypothesis used Wilcoxon Rank test with selected window is five days before and five days after the announcement. The result shows that, without rank categorization, there is no significant difference of abnormal return before and after PROPER announcement in 2010, while there is a significant difference of abnormal return before and after PROPER announcement in 2011. By the rank categorization, in both of observation period, there is a significant different of abnormal return before and after the company received good rank, while there is no significant difference of abnormal return before and after the company received bad rank. Hence, it is recommended to KLH and government to announce louder the PROPER result, mainly for the companies which received bad rank and make this program to be mandatory due to its urgencies.

Keywords: environmental performance, information content, PROPER, abnormal return

Introduction

The increasing of industrialization in large-scale is not harmonized with the concept of sustainable business. To produce massive of products, as an effort to meet the human needs which are diverse increasingly, companies require a lot of resources taken from the environment. In fact, issues of environmental damage were increased as a widespread discussion. Reports stated by the Food and Agricultural Organization (FAO) put
Indonesia in the fifth place out of 10 countries with the largest forest area in the world. From this large of area, Indonesia’s deforestation rate has reached 1.87 million hectares in the period of 2000-2005. It resulted in Indonesia to be ranked second out of 10 countries with the highest of degradation rate in the world (detikNews, 2010). In addition, according to the data served by the Research Department of Forestry in 2004, Indonesia suffered financial loss up to 83 billion rupiah per day due to illegal logging. Several attempts have been made to address these environmental problems. In Indonesia, the government’s seriousness in responding these problems can be seen with the adoption of the Law of the Republic of Indonesia Number 23 Year 1997 on Environmental Management. In addition, the Ministry of Environment (MoE) cooperated with the government, through the Environmental Impact Control Agency (Bapedal), also evaluated the performance of the company by a Program Penilaian Peringkat Kinerja Perusahaan later known as PROPER (Desfita, 2009). As an alternative compliance instrument, PROPER received good response from various parties including the World Bank. PROPER even become one of the case studies at the Harvard Institute for International Development (HIID). Since their development in Indonesia began in 1995, PROPER has been a model in many countries in Asia, Latin America, and Africa as an alternative compliance instrument. In 1996, Zero Emission awarded PROPER an Award of the United Nations University in Tokyo (Retrieved from http://www.kmnlh.go.id). In fact, the implementation of PROPER still considered as not running well. The result shows that the numbers of company received good rank on PROPER are continue to decline since 2006. Management and stakeholder also seems like only give a little concern to this program. It is shown by only 14% of companies listed on IDX in 2011 involve in this program.

Several studies have been conducted to draw conclusions about the relationship of environmental performance with financial performance. Sudaryanto (2011), Rakhiemah and Agustria (2009), Suratno, Darsono, and dan Mutmainah (2006), Pflieger, Fischer, Kupfer, and dan Eyerer (2005), Amalia and Dwi (2007), Teoh and Pin (1998), and Freedman and Jaggi (1992) stated in their conclusion that environmental performance significantly influences the economic performance. In fact, some companies experiencing things that are not consistent with these results. PT. Bakrie Sumatra Plantation (UNSP), PT. Surabaya Agung Paper (SAIP), and PT. International Nickel Indonesia (INCO) got black rank in 2004, 2005, and 2006. But these companies receive positive economic performance and stock return in those periods. On the other hand, PT. Timah (TINS), PT. Sumalindo Lestari Jaya (SULI), Indah Kiat Pulp & Paper (INKP), and PT. Medco Energy International (MEDC), which are got blue rank on PROPER, experienced negative economic performance and stock return.

**Literature Review**

**Signaling Theory**

The principle of signaling theory stated that every action will contain information because the existence of asymmetric information. For example, the management of a company has more information compared with investors in the capital market. Information received may respond differently by investors. The announcement of the ranking of the company’s environmental performance is an example of the delivery of information through signaling. According to the signaling theory, KLH and Bapedal, PROPER release the results to get back the appropriate signal from investors and prospective investors. Interpret a positive signal that companies with good environmental performance also have good prospects in the sustainability of its business so as to improve the welfare of investors. In contrary, companies with poor environmental performance will not get the optimistic public on sustainability efforts and its ability to investor welfare.
**Stakeholder Theory**

Stakeholder theory says that the company does not operate only to meet their own needs, but also to its stakeholders. Basically, these stakeholders have the powers to control or influence the use of the resources or input used in operations. This will cause the company to produce a harmonious relationship with its stakeholders (Ghozali & Chariri, 2007). To build a harmonious relationship, the company needs to gain the trust of stakeholders. This trust is obtained by some efforts related to the increase of a company’s performance. Received good rank on PROPER means the company has a good environmental performance, which further affects the sustainability aspect of their operation. This act is expected to gain positive responses from their stakeholders.

**Environmental Performance**

Environmental performance is the relationship between the company and the environment, including environmental effects of resources consumed, impacts of the organizational process, implications of its products and services, recovery and processing of products and meeting the requirements of law (http://www.epaw.co.uk). One method used to measure and calculate the value of environmental performance based on a policy which was run by a state is through the environmental performance index (EPI). This index was introduced in 2002, and was originally developed to support the achievement of the millennium development goals particularly in the environmental aspects (Wikipedia, 2012). Indonesia got EPI’s rank 74 from the 132 countries that participated in 2012, which this rank classified as modest performance (Yale Center for Environmental Law and Policy, 2008).

PROPER is not a substitution for the conventional arrangement of existing instruments such as the enforcement of civil and criminal environmental law. This program is complementary synergy with the arrangement of the existing instrument. Thus, efforts to improve the quality of the environment can be done more efficiently and effectively. PROPER’s scope covers four main activities. This activity is an integrated step in implementing the Environment Law No. 23 of 1997 on Environmental Management became the legal basis. As an alternative compliance instrument, PROPER received good response from various parties including the World Bank. PROPER even became one of the case studies at the HIID. In 1996, Zero Emission PROPER awarded Award of the United Nations University in Tokyo. The successful implementation of PROPER will provide many value added. The value added of the most prominent is the efficiency of time and cost needed for structuring the arrangement of the company compared to other instruments, such as environmental enforcement. In addition, the success of PROPER will provide benefits to several parties, including government, company, investors, consultants, suppliers, and society.

To become more informative to users, PROPER performance ratings are grouped in five-color rating. Expected to rank in colors form will be more easily understood and remembered by the public, while providing an incentive and disincentive effects of reputation for each company. Here is the explanation of the color ranking is used:

- **Gold**: Given to companies that have consistently demonstrated excellence in the environmental performance of production processes and/or services, conduct business ethically and responsibly in the community;
- **Green**: Given to companies that have made environmental management more than required under the regulations through the efforts of the 4Rs (Reduce, Reuse, Recycle, and Recovery) and social responsibility efforts;
• Blue: Given to companies that have attempted environment process that has been required in accordance with the provisions and regulations;
• Red: Given to companies that perform environmental management efforts that do not match those required by the rules and regulations;
• Black: Given to companies that intentionally commit any act or omission that resulted in contamination and/or environmental damage and violations of laws or implement administrative sanctions.

Abnormal Return

Abnormal return or excess return is the excess of actual return to normal returns. Normal return is the return expectations (return expected by investors). Thus, the abnormal return is the difference between the actual return and the expected return (Jogiyanto, 2000). If the market average performs (after adjusting for beta) better than the individual stock then the abnormal return will be negative (Wikipedia, 2012). Abnormal returns are sometimes triggered by events. Events can include mergers, dividend announcements, company earnings announcements, company’s performance announcement, interest rate increases, lawsuits, and other related which can contribute to an abnormal return.

Theoretical Framework

Environmental conservation efforts undertaken by the company will bring a number of benefits, including avoiding the cost of legal cases and government claims, streamline operating costs, and support the concept of sustainability. These efforts will be assessed through PROPER organized by the Ministry of Environment. Companies that have good environmental performance will have a good ranking in PROPER, and vice versa. Investors and prospective investors are one of the stakeholders in the procurement arrangement PROPER. They will give an active response to this result. The response of investors and potential investors is reflected through the company’s stock price fluctuations. If investors and potential investors respond positively, then the company’s stock price will be high, and vice versa. Here is the theoretical framework of this research:

Proper announcement

![Figure 1. Theoretical framework.](image-url)
Hypothesis
Fundamental theory, literature review, several previous researches explain that the environmental performance which peroxide by PROPER announcement has a significant effect to the stock prices. The hypotheses formulated for this research were (see Figure 1):

Ha₁: There is a significant difference of abnormal return before and after the company receives good rank on PROPER announcement.

Ha₂: There is a significant difference of abnormal before and after the company receives bad rank on PROPER announcement.

The Methodology and Model

Population and Sample
The population of this research is all of the companies involved in PROPER 2010 and PROPER 2011. Sampling method used is purposive sampling in order to obtain a representative sample in accordance with specified criteria. Criteria used for selection of these samples are as follows:

(1) Criterion I: Has only one type of rank, weather from only one head office, or one branch, or several branches with the same type of PROPER rank.
The objective of this selection is to avoid the bias rank used in the analysis.

(2) Criterion II: Companies listed on IDX and provided daily stock prices.
The objective of this selection relates to the calculation of abnormal return variables.

(3) Criterion III: There is no important event that can influence the stakeholder decision along the research period (November 16th 2010-December 2nd 2010 for the observation on 2010 and November 22nd 2011-December 7th 2011 for the observation on 2011).
The objective of this selection is in order to avoid the confounded effect from another important event.

The sampling process results in 71 final sample that used as data for this research. It consists of 41 companies for 2011 observation and 30 companies for 2010 observation.

Data Collecting Method
Data collection method used in this study is the documentary method which is the kind of secondary data. The nature of the data used in this research is a time series, which means that it is observed during certain period. Data obtained from Ministry of Environment site, IDX Statistics on 2010 and 2011. It consists of:

* Company’s rank on PROPER 2010 and 2011;
* Daily closing stock prices of the company that involve in PROPER 2010 on five days before \((T-5)\) until \((T-1)\) and five days after \((T+1)\) until \((T+5)\) November 25th, 2010, and five days before \((T-5)\) until \((T-1)\) and five days after \((T+1)\) until \((T+5)\) November 30th, 2011;
* Daily IHSG of the company that involve in PROPER 2010 on five days before \((T-5)\) until \((T-1)\) and five days after \((T+1)\) until \((T+5)\) November 25th, 2010, and five days before \((T-5)\) until \((T-1)\) and five days after \((T+1)\) until \((T+5)\) November 30th, 2011.

Variables and Measurement
This research consisted of one independent variable with two categories and one dependent variable. The independent variable is the abnormal return of the company before and after PROPER announcement, while the dependent variable is the event of PROPER announcement.
Independent Variables

This research uses abnormal return as independent variable. Abnormal returns to be chose because it is the most suitable variable use in event study analysis to examine the trend of company’s stock prices. Expected return reflects the normal return of the stock. The amount is equal the investor’s return expectation for a stock. But this amount was sometimes not equal to the actual return. This results in abnormal return for the stock, the occurrence of abnormal return triggered by an event. Thus, for an event study analysis, abnormal return can reflect the effect of an event to the stockholder’s response.

In addition, it is prefer to use narrow window, using abnormal return is more suitable than average abnormal return (AAR), cumulative abnormal return (CAR), or cumulative average abnormal return (CAAR) in order to avoid bias on daily abnormal return (Strong, 1992). The data can be examined in IDX statistics. This independent variable then classified into two categories, named abnormal return before the announcement of PROPER and after the announcement of PROPER.

The calculation of abnormal return can be formulated as follows:

$$AR_{it} = R_{it} - R_{mt}$$

where:

- $AR_{it}$: abnormal return of stock $i$ on day $t$;
- $R_{it}$: actual return of stock $i$ on day $t - 1$;
- $R_{mt}$: market return on day $t$;

Actual return is the difference between the daily closing stock prices of a day with the stock price of the day before. The calculation of actual return can be formulated as follows:

$$R_{it} = P_{it} - P_{it-1}$$

where:

- $R_{it}$: stock return on day $t$;
- $P_{it}$: stock price of $i$ on day $t$;
- $P_{it-1}$: stock price of $i$ on day $t - 1$.

Expected return is calculated using adjusted market model. In this model, the expected return is the stock return measured using Index Harga Saham Gabungan (IHSG). The calculations can be formulated as follows:

$$R_{mt} = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}}$$

where:

- $R_{mt}$: market return;
- $CPI_t$: IHSG on day $t$;
- $CPI_{t-1}$: IHSG on day $t - 1$.

Dependent Variable

The dependent variables used in this research is PROPER announcement. The result of PROPER then classified to be the announcement of good rank (gold, green, and blue rank), which is will be tested as Ha1, and bad rank (red and black rank), which is will be tested as Ha2. This variable is non-metrical.

Technique Analysis

Data analysis used in this research is the event study analysis. The objective is to examine the difference of stock prices before and after PROPER announcement. The window used for this research is five days before ($T - 5$ until $T - 1$) and five days after ($T + 1$ until $T + 5$) of the event. This window is the kind of narrow
window, which is decided in order to show the occurrence of gain signals in short term caused by PROPER announcement.

**Normality Test**

Data normality test aims to test whether the regression model, independent variables both have a normal distribution or not. A normality test used in this study is Kolmogrov-Smirnov. The test will be seen from the probability. By knowing the normality of a data then will be able to know what the best statistical tools are used. The normality of the distribution of decision-making guidelines is:

1. If the significance or probability < 0.05, then the distribution is not normal;
2. If the significance or probability > 0.05, then the normal distribution.

In order to make data normally distributed, it can be used square root and log natural. The urgencies of this test are to determine the kind of test needed then. If the data are normally distributed then tested the hypothesis testing using parametric statistical tests are paired \( t \) test (paired sample \( t \) test) whereas if the data being tested has a distribution that is not normal then the testing of hypotheses using non-parametric statistical tests are marked with Wilcoxon rank test (Wilcoxon signed ranks test).

**Hypothesis Test**

Hypothesis test the difference of stock prices before and after PROPER announcement. According to Ghozali (2011), if there is one dependent variable consist of one metrical scale and one independent variable consist of non-metrical scale with two categorizes, the suitable statistic test used is a different \( t \) test. In addition, the variable of this research is the differences of related two sample average, so the suitable test used is paired sample \( t \) test. In addition, if data are not distributed normally, the test can be selected is Wilcoxon Rank Test.

To estimate the abnormal return, the model used is the market adjusted model. Consideration of the selection model is:

- The model does not require an estimation period as the other models;
- The capital market in Indonesia is still in the emerging markets. At this stage, most of the stocks traded in the capital market transactions that are not liquid so the stocks are rarely traded. As a result, there are shares that yield return zero for no transaction.

Referring to the model mentioned, hypothesis test can be done by these following steps:

- Determine the period of observation or event window. The window used for this research is five days before \((T - 5)\) and five days after \((T + 1)\) the event. This window decided in order to show the occurrence of gain signals in short term caused by PROPER announcement. If the selected window is more than 11 days, the potency of confounding effect occurrence will be higher. In contrary, less than 11 days of observation period, the potency of market failed to absorb the information will also increase. Thus, 11 days (five days before the announcement, the announcement day, five days after the announcement) is an ideal window for an event analysis (Kurniawati, 2006);
- Calculate the average of abnormal return of the companies for whole rank in each observation period: (1) Do normality test by Kolmogorov Smirnov test; (2) Do paired sample \( t \) test (in the level of significance as \( \alpha = 0.05 \)) if the data are normally distributed, or Wilcoxon rank test if the data are not normally distributed; and (3) Interpret the result;
- \( H_{a1} \) Test: There is a significant difference of stock prices before and after the company receives good rank on PROPER announcement. \( H_{a1} \) can be tested by this following steps: (1) Calculate the average of abnormal
return of the company receive good rank for five days before and five days after in each observation period; (2) Do normality test by Kolmogorov Smirnov test; (3) Do paired sample t test (in the level of significance as $\alpha = 0.05$) if the data are normally distributed, or Wilcoxon Rank test if the data are not normally distributed; and (3) Make decision:

- Accepted H0 if sig. > $\alpha$ significance (0.05);
- Rejected H0/Accepted Ha if sig. < $\alpha$ significance (0.05).

• Ha2 Test: There is a significant difference of stock prices before and after the company receives bad rank on PROPER announcement. Ha2 can be tested by this following steps: (1) Calculate the average of abnormal return of the company receive bad rank for five days before and five days after its announcement; (2) Do normality test by Kolmogorov Smirnov test; (3) Do paired sample t test (in the level of significance as $\alpha = 0.05$) if the data are normally distributed, or Wilcoxon Rank test if the data are not normally distributed; and (4) Make decision:

- Accepted H0 if sig. > $\alpha$ significance (0.05);
- Rejected H0/ Accepted Ha if sig. < $\alpha$ significance (0.05).

The Finding

Statistic Descriptive of Observation on 2010

Description of abnormal return related to data of observation on 2010 statically. It presented in two groups named, abnormal return of the company samples before the announcement of PROPER in 2010 which shown by before 2010, and abnormal return of the company samples after the announcement of PROPER in 2010 which shown by after 2010. Refers test result for part of before 2010, the mean of data is -0.000483, which is indicated the value of actual return is less than expected return for about 0.0483%. The standard deviation is 0.075282, which is indicated that the deviation of data span from -0.075282 to 0.075282. The minimum value of abnormal return before the announcement of PROPER is -0.0124, which is means that the expected return is more than actual return for about 1.24%. This value is owned by PT. Asahimas Flat Glass, Tbk (AMFG). While, the maximum value of abnormal return of the observation on 2010 before the announcement of PROPER is 0.0222, which is means that the actual return is more than the expected return for about 2.22%. This value is owned by PT. Suparma, Tbk (SPMA). In the part after 2010, the mean of data is 0.002890, which is indicated the value of actual return is more than expected return for about 0.2890%. The standard deviation is 0.0100208, which is indicated that the deviation of data span from -0.0100208 to 0.00100208. The minimum value of abnormal return of the observation on 2010 after the announcement of PROPER is -0.0075, which is means that the expected return is more than actual return for about 0.75%. This value is owned by PT. Suparma, Tbk (SPMA). While, the maximum value of abnormal return of the observation in 2010 after the announcement of PROPER is 0.0489, which is means the actual return is more than the expected return for about 4.89%. This value is owned by PT. Tifico Fiber Indonesia, Tbk (TFCO).

Statistic Descriptive of Observation on 2011

Description of abnormal return related to data of observation on 2011 statically. It presented in two groups named, abnormal return of the company samples before the announcement of PROPER in 2011 which shown by before 2011 and abnormal return of the company samples after the announcement of PROPER in 2011 which shown by after 2011. Refers to test results for the part of before 2011, the mean of the data is -0.004485, which indicated that the value of actual return is less than expected returns for about 0.4485%. The standard
deviation is 0.008259, which is indicated that the deviation of data span from -0.008259 to 0.008259. The minimum value of abnormal return before the announcement of PROPER is -0.0227, which means that the expected return is more than actual return for about 2.27%. This value is owned by PT. PT. Charoen Pokhpand Indonesia, Tbk (CPIN). While, the maximum value of abnormal return of the observation on 2011 before the announcement of PROPER is 0.0251, which is means that the actual return is more than expected return for about 2.51%. This value is owned by PT. LIPPO Cikarang (LPCK). In the part after 2011, the mean of data is -0.000068, which indicated that the value of actual return is less than expected return for about 0.0068%. The standard deviation is 0.0120908, which indicated that that the deviation of data span from -0.0120908 to 0.0120908. The minimum value of abnormal return of the observation on 2011 after the announcement of PROPER is -0.0315, which indicated that that the expected return is more than actual return for about 3.15%. This value is owned by PT. Surabaya Agung Paper, Tbk (SAIP). While, the maximum value of abnormal return of the observation on 2010 after the announcement of PROPER is 0.0484, which indicated that the actual return is more than expected return for about 4.84%. This value is owned by PT. Benakat Barat Petroleum (BIPI).

Normality Test of Observation on 2010

The objective of normality test is to examine the nature of data distribution. Further, it will be used to determine the type of hypothesis tests. If the data are normally distributed, the hypothesis test used is Paired Sample $t$ test. Instead the data are not normally distributed, the hypothesis test used is Wilcoxon rank test. Normality test will be done by Kolmogorov-Smirnov test, which the result can be seen that the significant value before 2010 is 0.002 which is less than 0.05, while value after 2010 is 0.001 which is also less than 0.05. It is indicated that data observation on 2010 are not normally distributed. By this result, the appropriate hypothesis test used is Wilcoxon rank test. This condition is quiet reasonable. According to Manurung (2012), data served by the Indonesia capital market are not reflected normally distributed data. It is because that the Indonesia capital market is still developing, whereas only there is a few number of the company’s share that actively traded. The rest of other share, which is not actively traded, will have no actual return. This none of actual return still should be reduced by market expectation of return. In the end, there will be many of companies’ shares having negative abnormal return. Negative data often evaluated as not normally distributed. Although it can convert into the positive one in order to make the data normally distributed, it is still debatable. It is considered as the practice of designing data.

Normality Test of Observation on 2011

Using the same objective and assumption as the previous test, the result of normality test of observation on 2011 can be seen the significant value of before 2011, which refers to the condition before the announcement of PROPER 2010, is more than 0.05, while the significant value after the announcement of PROPER 2010 is less than 0.05. It means that the abnormal return data before the announcement of PROPER on 2010 is normally distributed, while the data after the announcement of PROPER on 2010 is not normally distributed. This condition is quiet reasonable refers to the assumption of Indonesia’s developing capital market which had been explained previously. Although data observation before the announcement of PROPER 2011 distributed normally, in order to harmonize it with the other one, hypothesis test used will be Wilcoxon rank test. This test not required data should be normally distributed or not to be operated.
Hypothesis Test

Hypothesis Test of Observation on 2010

Hypothesis test used to examine the significant differences of abnormal return before and after the PROPER announcement. The general effect of PROPER announcement can be examined without categorized into good rank and bad rank. The result can be seen significant value is 0.136, which is bigger than 0.05. It means that, without rank categorization, there is no significant difference of abnormal return before and after the PROPER announcement in 2010.

Ha₁: There is a significant difference of abnormal return before and after the company receives good rank.

By the result of normality tests previously served, test selected for Ha₁ is Wilcoxon rank test. Rank resulted from this observation can be seen that there are 18 companies received positive rank and six companies receive a negative rank. In other words, it means that there are 18 companies have bigger abnormal return after the PROPER announcement compare than before, while there are six companies have abnormal return before the PROPER announcement which bigger than after the PROPER announcement. Refers to the rank received on PROPER, there are six companies received unexpected result. PT. LIPPO Cikarang, Tbk (LPCK), PT. Kalbe Farma (KLBF), PT. Fajar Surya Wisesa, Tbk (FASW), PT. Citra Turindo, Tbk (CTBN), LapindoBrantas, Inc (LAPD), and PT. International Nickel Indonesia (INCO) are the six companies who had good rank on PROPER but received negative abnormal return. The factors affect this unexpected result was caused by the failure of market to absorb this information. According to Strong (1992), it needs at least three days for market to absorb information in capital market, but will perfectly absorb on 11 days. It means, in the determined window as five days after the announcement, still there is a possibility that the investor of the related companies do not get this news yet, which at the end result unexpected decision.

The significant differences of abnormal return before and after the companies receive good rank can be tested by Wilcoxon rank test. The result can be seen as the significant value is 0.028, which is less than 0.05. It means that there is a significant difference of abnormal return before and after the companies received Good Rank on PROPER 2010. This result indicates that the announcement of Good Rank on PROPER accepted by the investor as good news. In the end there is a gap between actual and expected return, whereas most of the companies received good rank get the actual return more than the expected.

Ha₂: There is a significant difference of abnormal return before and after the company receives bad rank.

By the result of normality tests previously served, test selected for Ha₂ is Wilcoxon rank test. Rank resulted from this observation can be seen that there are two companies received positive rank and four companies receive a negative rank. In other words, it means that there are two companies have bigger abnormal return after the receive bad rank on PROPER announcement, while there are four companies which received bad rank have smaller abnormal return after the PROPER announcement. Refers to the rank received on PROPER, there are two companies received unexpected result. PT. Surabaya Agung Paper, Tbk (SAIP) and PT. Gajah Tunggal, Tbk (GJTL) are the two companies who had bad rank on PROPER but received positive abnormal return. The factors affect this unexpected result was caused by the failure of the market to absorb this information. As mentioned before, it needs at least three days for market to absorb information in capital market, but will perfectly absorb on 11 days. It means, in the determined window as five days after the announcement, still there is a possibility that the investor of the related companies do not get this news yet, which at the end result unexpected decision.
The significant difference of abnormal returns before and after the companies receive bad rank can be tested by Wilcoxon rank test. The result can be the significant value is 0.136, which is more than 0.05. It means that there is no significant difference of abnormal return before and after the companies received bad rank on PROPER 2010. This result indicated that the announcement of bad rank on PROPER cannot be well accepted by the investor as bad news. By the same factors mentioned in unexpected rank of some companies, this unaccepted may cause by the failure of investor in absorbing information served in capital market, because of limited observation period.

Hypothesis Test of Observation on 2011

Hypothesis test used to examine the significant differences of abnormal return before and after the PROPER announcement. The general effect of PROPER announcement can be examined without categorized into good rank and bad rank. The result can be seen as significant value is 0.042, which is smaller than 0.05. It means that, without rank categorization, there is a significant difference of abnormal return before and after the PROPER announcement in 2011.

Ha₁: There is a significant difference of abnormal return before and after the company receives good rank.

By the result of normality test previously served, test selected for Ha₁ is Wilcoxon rank test. Rank resulted from this observation can be seen that there are 26 companies received positive rank and seven companies received negative rank. In other words, it means that there are 26 companies which have bigger abnormal return after the PROPER announcement compare than before, while there are seven companies have abnormal return before the PROPER announcement bigger than after the PROPER announcement. Refers to the rank received on PROPER, there are seven companies received unexpected result. PT. Kalbe Farma (KLBF), PT. Suparma, Tbk (SPMA), PT. Gajah Tunggal, Tbk (GJTL), PT. PelatTimah Nusantara (NIKL), PT. Gunawan Dian Jaya Steel, Tbk, PT. Unitex, Tbk (UNTX), and LapindoBrantas, Inc (LAPD) are the seven companies which had good rank on PROPER but received negative abnormal return. The factors affect this unexpected result is caused by the failure of market to absorb this information. According to Strong (1992), it needs at least three days for market to absorb information in capital market, but will perfectly absorb on 11 days. It means, in the determined window as five days after the announcement, still there is a possibility that the investor of the related companies do not get this news yet, which at the end result unexpected decision. In addition, three from those seven companies which received unexpected result, got bad rank in previous PROPER announcement. Logically studied, this situation may disturb investor’s confident to the related companies. As the effect, investor’s response would not be so flexible in facing company’s increased performance.

The significant differences of abnormal return before and after the companies receive good rank can be tested by Wilcoxon rank test. The result shows that the significant value is 0.002, which is less than 0.05. It means that there is a significant difference of abnormal return before and after the companies received good rank on PROPER 2011. This result indicate that the announcement of good rank on PROPER accepted by the investor as good news. In the end there is a gap between actual and expected return, whereas most of the companies received good rank get the actual return more than the expected.

Ha₂: There is a significant difference of abnormal return before and after the company receives bad rank.

By the result of normality test previously served, test selected for Ha₂ is Wilcoxon rank test. Rank resulted for this observation can be seen that there are two companies received positive rank and six companies receive negative rank. In other words, it means that there are two companies which have bigger abnormal return after
the receive bad rank on PROPER announcement, while there are six companies which received bad rank have smaller abnormal return after the PROPER announcement. Refers to the rank received on PROPER, there are two companies received unexpected result. PT. International Nickel Indonesia, Tbk (INCO) and PT. GudangGaram, Tbk (GGRM) are the two companies which had bad rank on PROPER but received positive abnormal return. The factors affect this unexpected result was caused by the failure of market to absorb this information. As mentioned before, it needs at least three days for market to absorb information in capital market, but will perfectly absorb on 11 days. It means that in the determined window as five days after the announcement, still there is a possibility that the investor of the related companies do not get this news yet, which at the end result unexpected decision.

The significant difference of abnormal returns before and after the companies receive bad rank can be tested by Wilcoxon rank test. The result can be seen that the significant value is 0.161, which is more than 0.05. It means that there is no significant difference between abnormal return before and after the companies received bad rank on PROPER 2011. This result indicated that the announcement of bad rank on PROPER cannot be well accepted by the investor as bad news. By the same factors mentioned in unexpected rank of some companies, this unaccepted may cause by the failure of investor in absorbing information served in capital market, because of limited observation period.

Summary and Conclusion

The increase of industrialization affects the increase of environmental damage. Indonesia faces many problems related to the high rate of forest degradation, illegal logging, and types of pollution. PROPER is an environmental control tool released by Kementrian Lingkungan Hidup (KLH) and Indonesia’s government. This program received several good responses by World Bank, Harvard Institution International Development, and Tokyo University. In fact, there still occurred some problems in the implementation related to the small number of participate company and decrease number of the participation which received good rank.

Some studies had been conducted to examine the effect of environmental performance to economic performance, which the result is still inconsistent. This research had been examined the effect of environmental performance to abnormal return of the company and the result had been discussed in the previous chapter. Based on the analysis and discussion, the conclusion can be drawn as follows:

- Hypothesis test done by Wilcoxon rank test for all of the sample companies on PROPER 2010, which consist of 30 companies. The result found that the significant value is 0.136, which is bigger than 0.05. It means that there is no significant difference of abnormal return before and after the announcement of PROPER 2010;

- Hypothesis test done by Wilcoxon rank test for sample companies which received good rank on PROPER 2010, which consist of 24 companies. The result found that the significant value is 0.028. It means that there is a significant difference of abnormal return before and after the companies receives good rank on PROPER 2010. Compared to the rank received on PROPER, there are six companies experience unexpected result;

- Hypothesis test done by Wilcoxon rank test for sample companies which received bad rank on PROPER 2010, which is consist of six companies. The result found that the significant value is 0.136. It means that there is no significant difference between abnormal return before and after the companies receives bad rank on PROPER 2010. Compared to the rank received on PROPER, there are two companies experience unexpected result;
Hypothesis test done by Wilcoxon rank test for all of the sample companies on PROPER 2011, which consist of 41 companies. The result found that the significant value is 0.042. It means that there is a significant difference of abnormal return before and after the announcement of PROPER 2011;

Hypothesis test done by Wilcoxon rank test for sample companies which received good rank on PROPER 2011, which consist 33 companies. The result found that the significant value is 0.002. It means that there is a significance different of abnormal return before and after the companies receive good rank on PROPER 2011. Compared to the rank received on PROPER, there are seven companies experience unexpected result;

Hypothesis test done by Wilcoxon rank test for sample companies which received good rank on PROPER 2011, which consist of eight companies. The result found that the significant value is 0.161. It means that there is no significant difference of abnormal return before and after the companies receives good rank on PROPER 2011. Compared to the rank received on PROPER, there are two companies experience unexpected result.

The conclusion stated that in some period, PROPER announcement will be well-responsed by investors, while in other some period, it is not. Good rank announcement in both of observation period gave the significant difference of abnormal return, in contrary, bad rank announcement in both of observation period does not give significant difference. It means that there is a problem in delivering signals to the investor about this result. Theoretically, the company will deliver good achievement to gain trust of investor and vice versa. Thus, it is recommended to government and KLH to get this program in more serious level. The result should be announced loudly in mass media. It will make investors easier to access the information that may hided by the management of the company. In the end, if bad rank announcement gave a significant difference of abnormal return, the related companies will try to fix their problem. To increase environmental performance, companies will increase their attention to environmental aspects in the operation. Regarding the number of participate companies which only 14% from the total of companies listed on IDX, this research recommend to make PROPER as mandatory. The bigger number of participate in PROPER, the bigger number of companies will force to increase their environmental performance to attract investors.

There are some limitations of this research that may affect the result. The limitations are as follows:

- This research took place in Indonesia, whereas the capital market is still developing. It resulted the data which are not normally distributed and select Wilcoxon rank test. It makes there a possibility to have different result if the data are normally distributed and used the other test.
- The window selected is 11 days, while the observation can select period from 7 to 23 days. It makes there a possibility to have different result if this research select another type of window.

From these limitations, it suggests the next researcher to take place in another country and select a different type of window. In that case, PROPER also had been implemented in some countries in Asia, Latin America, and Africa.

References


Comparison of Russian (FSB and Old KGB) and Turkish Secret Services (MIT) as an Intelligence Dimension*

Elnur Hasan MIKAIL
Kars Kafkas University, Kars, Turkey

In this study Russian Federation’s current president Vladimir Putin period has been investigated from all aspects. Russian-Turkish relations have a high impact factor from all dimensions for these two countries. Also the secret services of Turkey as Turkish National Intelligence Organization (MIT) and Russia’s old Committee for State Security (KGB) and today’s Federal Security Service (FSB) are really famous intelligence services as well. KGB was a famous and super power Union of Soviet Socialist Republics (USSR)’s intelligence service until 1991. After 1991 USSR was collapsed and then new Russian secret service by the name of FSB has been created. Today’s Russia’s president Vladimir Putin was a technological intelligence agent in the Democratic Germany in the USSR period with the colonel degree. In this article we have investigated and researched until the USSR’s collapsing date and since that date until today those two countries: Turkey and Russia’s secret service’s comparison. Also we should take away that the USSR was an empire and Turkey was just a third country as a gendarmerie of USA’s in the Middle East as a North Atlantic Treaty Organization (NATO) member. This strategic collaboration has been clarified from all aspects.

Keywords: Erdoğan, Intelligence Services, Putin, Russia, The Committee for State Security of USSR (KGB), Turkey, Turkish National Intelligence Organization (MIT), USA

The Rise of Putin

Vladimir Putin takes his first step to become “the only leader” of the country under circumstances which we tried to outline in upper lines. When Boris Yeltsin appointed this old KGB member whose name had never been heard in national policy in 16th August, 1999, his politic life is thought to be finished in a couple of months later like many other “President of Yeltsin” before him too. According to the comments which took place nowadays in Russian media, Putin’s most vital personality was his loyalty and Yeltsin chose him completely because of that reason (Yeltsin, 2000).

His aim was to make his personal defraudation and his dirty jobs not to be irritated after his expiring government. In the following days, it was understood that the mentality represented by Putin was much more

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Elnur Hasan MIKAIL, Ph.D., Assistant Professor, Head of Department of International Relations, Faculty of Economics and Administrative Sciences, Kars Kafkas University.

Correspondence concerning this article should be addressed to Elnur Hasan MIKAIL, Head of The Department of International Relations, Faculty of Economics and Administrative Sciences, Kars Kafkas University, Central Campus 36100, Kars/Turkey. E-mail: emikail@turansam.org.
than that (Lepper, 1976).

The thing which made Vladimir Putin’s star shine was the Chechnya problem which had prepared many organizer politicians’ political death. In the same month when Putin became president, Shariatic Vahhabi Operation which got Saudi Arabia’s and Pakistani’s assistance directly and USA’s assistance indirectly made a critical movement and entered their neighbour country Dagestan. The declared aim was uniting Chechnya and Dagestan under Sharia’s flag and ran away after the Russians founding the Independent Islamic Government. This group which did not hesitate to show Chechnya people’s national demands to the western imperialists for the sake of their benefit was expecting that the corruption seen in all fields in the last period of Yeltsin in Russia would be beneficial for their case and after 1994-1996 war Russian army would hesitate to embark a second Chechnya adventure (Lewis-Beck & Tom, 1992).

Yet Vahhabi’s Dagestan attack meant the “last drop” in Caucasus for Russian imperialism. First of all, the oil pipeline between Baku (Azerbaijan) and Supsa (Georgia) was opened again with the support of USA. After that event, Azerbaijan and Georgia signed an agreement for Baku-Ceyhan pipeline. The usage of these two pipelines which were planned to be secured by North Atlantic Treaty Organization (NATO) meant that even a gram of oil would not drain from the Russian land. If the Vahhabi attack directed towards Dagestan meant the Chechnya’s first step of gaining independence from Russia, the same thing could happen in this area too. Russia was under threatened of losing North Caucasus. The bombs which exploded in Moscow and the other big cities respectively and which caused approximately 300 civilians’ death helped to Putin’s government to manufacture public opinion for a counter attack. The Russian attack which still continues was started in September 1999 (Mansur, 1999).

Russia’s first military success conducd to shine Putin’s star. With the contribution of “the independent media” which was under Kremlin’s control this old spy who was seem insignificant a few months ago was propagated as “the iron fist which Russia needs” (Retrieved from http://www.mid.ru).

Yeltsin, with a last movement, suddenly resigned on December 31 in 1999 and assigned his place to Putin until the election. The three months time after the resignation which caught the outs unawares would be enough to ensure success for Putin in the election (Ul’yanovsk Oblast Committee of State Statistics, 2000).

Especially after the Sochi Summit between Vladimir Putin and Recep Tayyip Erdogan, some interpretations of that sort had been also made in Turkey. Authorities, who had decoded the game of Putin, which consists in using the difficulties that Erdogan had lived through in the United States as a trump and thus having Turkey on Russia’s side in the Middle East and the CIS region, also uttered their anxieties about the fact that in Sochi, hours long discussions had been made without taking minutes. The same authorities seem to struggle devotedly in order that the “ex-KGB man” will not deceive the Turkish Prime Minister (Key, 1966).

This funny wolf-lamb fable apart, there are many problems in the Turkish-Russian relations that should be seriously pondered on. To understand what economic gains would bring such reflections to Turkey, it is enough to look upon the mutual trade course of the last years. Turkey has to take more profit from this giant potential that is Russia in the name of its own national interests. All the same, that must not be an alternative and/or a threat to the United States or the European Union. Thus, Turkey, which has strong relations with its neighbours, will be able to act more confidently in its relations with its western interlocutors (Retrieved from http://www.axisglobe.com/article.asp?article=312).
Toward a New Geopolitics

Russia has a regional profile and is sensitive about losing its influence in ex-Soviet territories. Since 1991, Turkey has emerged as a significant regional player, pursuing a special relationship with the E.U. and paying serious attention to building good relations in the Caucasus and Central Asia. How closer Turkish-Russian relations will be interpreted in Brussels and Washington is another important question (Zharmukhamed, 2004).

The U.S. military deployment in different parts of Eurasia, the pro-Western change in domestic landscapes of Georgia and Ukraine, the U.S. wars in Afghanistan and Iraq are, among others, the developments that have paved the way for the emergence of a new geopolitics in Eurasia. The European and U.S. expansion into former Soviet territories influences Russian policymakers to seek new alliances in Asia. Russian rapprochement with Iran, China, and India are examples of this new policy. In this sense, the new developments in the aftermath of the 9/11 attacks are bringing together the policies of not only Russia and other major Asian powers, but also of some critical European states such as France and Germany (Sezer, 2001).

After receiving a negotiation date for E.U. membership, Turkey is emerging as a European actor in the region. However, Turkey’s new orientation was tested during the subsequent domestic transformations of Georgia and Ukraine. Turkey adopted a low-profile attitude toward the Russian policies vis-à-vis Ukraine and Georgia, and sensitively displayed a constructive outlook by pointing to the relevant international norms and agreements as the way to resolve the crises. Ankara tries to avoid taking sides in any “Russia versus the West” struggles, while developing its own relations with Moscow.1

One other important area of contention is Turkish-Armenian relations, which are held hostage to historical enmities and Turkey’s pro-Azerbaijan policies in the Caucasus. Currently, Russia is the main ally of Armenia, and possible Russian mediation between Turkey and Armenia on a number of issues can be expected. Following recent positive developments on this front, there may be Russian-Turkish joint attempts to solve the Armenian-Azerbaijani conflict.2

The Weakest Link of Turkish-Russian Relations

The authors attended an important meeting in Moscow at the President Hotel last week which happened in winter of 2006. The 2006 Awards of Merit were handed out at the ceremony sponsored by the Association for Business and Friendship between the Russian Federation and Turkey (RUTID).

The jury picked important figures and institutions that made significant contributions to the reinforcement of Turkish-Russian friendship in the fields of economy, art, sports, and media. Both Zaman and Russia’s prominent daily Izvestia were given awards in the media category. Turkish and Russian intellectuals and businessmen gave short speeches on furthering bilateral relations and friendship. The authors had the opportunity to gather together with a number of Russian colleagues. The authors overall impression of contacts there is that two historically hostile countries that fought numerous wars in the past are now maintaining friendly relations for the first time in their histories. This is a unique development. Of course there are many

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1 During then Prime Minister Demirel’s visit to Moscow, Boris Yeltsin said, “Russia and Turkey will regard each other as friendly states and will go for a full-blooded dialogue and cooperation in all areas”, ITAR-TASS, 25 May, 1992.

2 Report drafted by Dr. Bulent Aras; The Power and Interest News Report (PINR) is an independent organization that utilizes open source intelligence to provide conflict analysis services in the context of international relations. PINR approaches a subject based upon the powers and interests involved, leaving the moral judgments to the reader. This report may not be reproduced, reprinted or broadcast without the written permission of enquiries. PINR reprints do not qualify under Fair-Use Statute Section 107 of the Copyright Act (Retrieved from http://www.pinr.com/report.php?ac=view_printable&report_id=265&language_id=1).
factors that contributed to the improvement of bilateral relations. For instance, the collapsed blocs after the end of the Cold War created an appropriate environment for rapprochement. People who opted to remain distant until the collapse because of ideological differences today develop sympathy. In summer times, Antalya, a city in the southwest of Turkey, becomes a Russian town where the Russian tourists find inexpensive and high-quality resorts as well as warmth and attention. Russians shift their interest from Antalya to Erzurum in the winter. More importantly, today there is no longer any reason for the enmity between the two countries, expected to last forever, to continue.\footnote{“Turkish influence in CIS countries on rise” Nezavisimaya Gazeta, December 27, 1995, in FBIS-Central Eurasia-Daily Report, March 1, 1996.}

The visible improvement in commercial activities is another solid indication as regards the betterment of bilateral relations between the two countries. A significant portion of the huge buildings in Moscow was constructed by Turkish contractors. Turkish giants such as ENKA, Rönesans, Nurol, Alarko, and Gama maintain a line of quality beyond their European competitors. Strong ties were also established in Russia in sectors like tourism, textile, and retail.

Both parties are pleased with the rapprochement. They have every reason to be pleased given that bilateral relations have caused nothing but constant enmity up until recently. They were people of both countries who had to suffer from the deteriorated relations; they remained concerned about a probable state of warfare all the time. Today the situation is very different. Of course Turkish Prime Minister Tayyip Erdoğan and Russian President Vladimir Putin have done much to improve bilateral relations. The leaders created a miracle. Ten years ago it was impossible to imagine that Turkish and Russian leaders would come together for cooperation. However, today both leaders exert their utmost effort to improve commercial and cultural relations. Furthermore, the strengthened ties do not bother other major world political players, including the US and the EU. There is no doubt that this is a huge diplomatic success. The Turkish public’s good feelings for Putin and the Russian Public’s sympathy toward Tayyip Erdoğan is just like a dream (FBIS-SOV, 1996).

The positive bilateral relations notwithstanding, Turkish and Russian intellectuals or businessmen ask this question in large gatherings: is there any chance that something would break this historically important and solid friendship? In other words, will this friendship be replaced by the old concerns? The commonly held view is “no”. There is no going back in Turkish-Russian relations. Above all remarkable bridges were built between the two countries; authorities from both countries who overcame huge obstacles in the fields of education, economics, and culture made enormous progress by which their people were pleased. For this reason state figures would by no means take any step that could be regarded as a retreat from the current situation since such a move would be disruptive to historical friendship (Logan, 1977).

This is the general view. However everybody sees the weakest link of Turkish-Russian friendship. This link is more visible in Turkey. Groups and individuals who were hostile to the opposite camp during the Cold War era are uneasy with the current situation. They do not openly acknowledge their dissatisfaction; however they try to sabotage the friendship between the two countries. Those who can understand Turkey best are able to see the saddest part: A small and marginal group tries to present itself as a friend of Russia but actually has a hidden agenda to sabotage the Turkish-Russian friendship. They engage in disruptive activities relying on the state apparatus and hiding their former identities as intelligence agents (Tidmarch, Lisa, & Jill, 1984).

The presence of this seemingly friendly group is the weakest link of Turkish-Russian relations. Hopefully this risk does not exist in Russia. But even if it does, the best thing to do at this stage is to keep the bridges...
between the two countries alive and intact. This is the wish commonly expressed by the people of both countries; besides, the interests of Russia and Turkey require the continuation of good relations. The progress made so far is a success story for both countries; a story that should not be sacrificed to the concerns of the Cold War era (Retrieved from http://www.todayszaman.com/tz-web/yazarDetay.do?haberno=113726; http://www.deik.org.tr/councils_eng.asp?councilId=61).

**Relations With Russian Federation**

There was a flurry of visits between Russia and Turkey soon after the collapse of the USSR. These included the visit of Foreign Minister Hikmet Çetin to Moscow on 20-22 January, 1992, and a reciprocal visit to Ankara by Russian Foreign Minister Andrei Kozyrev next month in February, 1992. During Prime Minister Süleyman Demirel official visit to Moscow on 25-26 May, 1992, the “Treaty on the Principles of Relations between the Republic of Turkey and the Russian Federation” was signed replacing an earlier but similar treaty bearing the same title. This treaty established the legal basis of the relations between the two countries and also confirmed the willingness to improve their relationship.4

Russian President Boris Yeltsin was in Istanbul on 25 June, 1992, for the first summit meeting of the Black Sea Economic Cooperation (BSEC). Foreign Minister Çetin paid another official visit to Moscow on 1 March, 1993, while Prime Minister Tansu Çiller made an official visit on 8-9 September, 1993. During the visit, the Joint Transportation Committee and a Working Group in the fields of telecommunications, industry, and transfer of high technology were established (De Figueiredo Jr., & Weingast, 2001).

Russian First Deputy Prime Minister Oleg Soskovets paid an official visit to Ankara on 15-20 July, 1994, and signed two Protocols on bilateral economic relations and debt rescheduling related to the Turkish Eximbank loans extended during the Soviet Union period. Tansu Çiller visiting Moscow on 9 May, 1995, for the ceremony to commemorate the 50th anniversary at the end of the World War II, held official talks with Russian Premier Chernomyrdin. As President, Demirel visited Moscow on October 25, 1996, to attend the third summit meeting of BSEC (Miszkiewicz, 1997).

Prime Minister Chernomyrdin’s visit to Ankara on 15-16 December, 1997, was the first visit of a Russian Premier since the collapse of USSR in 1991. Prime Minister Ecevit was in Moscow on 4-6 November, 1999. A Joint Declaration on Cooperation in the struggle against Terrorism, Agreements on Abolition of Visas for Diplomatic Passports, Cooperation in the Veterinary Field and a Protocol on Cooperation in the field of Information were signed during the visit. The Protocol on Joint Economic Commission provided the framework for bilateral economic cooperation (Remmer, 1991).

During Russian Prime Minister Mikhail Kasyanov’s visit on 23-25 October, 2000, when he was accompanied by Ministers of Energy, Public Property and Industry, Science and Technology and other high ranking officials, agreements including the formation of a Joint Committee on Cooperation in Defense Industry, were signed. During Russian Foreign Minister Igor Ivanov’s visit to Ankara on 7-8 June, 2001, a Cultural Exchange Program for 2001-2003 was signed. Mr. Ivanov and his counterpart also held consultations on possible areas of cooperation in Eurasia (Zhuravskaya, 2000).

In early 2004, Turkish Foreign Minister Abdullah Gul visited Moscow after a gap of eight years. The two sides discussed accusations by the other side of harbouring hostile and terrorist groups, like Chechen and other

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4 OzgurUlke, 4 (Turkish Secret Published Newspaper’s name).
groups by Turkey and Kurdish groups by Russia. PKK, a Marxist Kurdish rebel group had support from the USSR and its proxy Syria, but Syria was forced to shut down its operations in 1999. Russia has also taken some steps against the Kurds (Schmitter & Karl, 1994).

But the Chechen led violent actions in Moscow and elsewhere in Russia and terrorist acts in Istanbul have brought realism to their view on international terrorism. This is a major problem worrying Moscow and Ankara. But any agreement after Gul’s visit remained unknown. Many Chechen leaders including Akhmed Zakayev, a representative of the so-called president of Ichkeria and Aslan Maskhadov, lived in Turkey. Russians complain that while the activity of the followers of the pan-Islamic, pan-Turkic Nurcular organization, is banned in Turkey, they carry out a wide variety of intelligence service related tasks in Russia (Downs, 1957).

At a press conference, Gul responded that Moscow had supplied Turkey with “a list of Turkish citizens involved in terrorist activity” and that it would be thoroughly studied. He agreed that some of the fighters killed in Chechnya might be Turkish citizens and declared: “Terrorist acts have occurred in Istanbul, and their perpetrators also hold Turkish passports”. As for funds collected for humanitarian purposes in Chechnya they are handled by the Turkish Red Crescent, he added. Gul said that Turkey had demanded that “Russia declare PKK, now called Kong La as a terrorist group”. The Russians had promised to study the question, the minister added (Seligson & Miguel, 1989).

Contacts at military level have also been established after the signing of the “Framework Agreement on Cooperation in the Military Field and Agreement on Cooperation of Training of Military Personnel” in January 2002 during the visit of General Kvashnin, Chief of Staff of the Russian Federation to Ankara. Chief of staff of Turkish General Hüseyin Kivrikoglu returned the visit in June 2002. The first meeting of the Joint Military-Technical Cooperation Commission was held in September 2002 in Ankara and the second meeting in November 2003 in Moscow. Relations have also been established at the level of the parliaments. During the visit of the Speaker of the Turkish Grand National Assembly (TGNA) Mustafa Kalemli to Moscow on 14-18 July, 1996, a “Protocol on Cooperation between the TGNA and The Federal Assembly of the Russian Federation” was signed (Moe, 1990).

**Russia’s “Kurdish Card” in Turkish-Russian Rivalry**

When Boris Yeltsin proclaimed the “five principles of Russia’s Caucasus policy” at the Kislovodsk meeting with the Transcaucasian heads of state and leaders of the republics of the North Caucasus on June 3, 1996, he pointed out that cooperation and stability in the Caucasus were a must for Russia’s normal development. According to his view, cooperation in the region “under a strong joint control” could only be done by way of strengthening “federalism”, and therefore Russia “intended to continue to carry out its peacekeeping functions” to maintain this process.

In fact, while Yeltsin was proposing this cooperation concept based on Russian hegemonic leadership, he was representing the majority view in Russia which believes that the best way to unite and inspire Russians today is the unification of Russia’s people for the purpose of its revival as a “great power”. It is not an unwarranted conclusion to link this phenomenon to the imperial explanations of some politicians and elements of the old communist apparatus. Russia appears determined to take initiatives to maintain its “big brother” role in the region and also to take every precaution to meet any challenge from other regional powers to prevent its
hegemonic policies. During the early years of the post-Communist period, while Iran’s “pariah” position generally excluded it from filling the vacuum in Caucasian and Central Asian politics left by Russia’s “temporary departure”, the US and its western allies quickly appealed to their North Atlantic Treaty Organization (NATO) ally Turkey to represent the secular and democratic role model for the newly emerging states. With its cultural and ethnic ties to the region’s people, Turkey was prepared psychopolitically for the role, and rushed to fill it.

President Turgut Ozal, who was personally interested in Turkic and Islamic ties, traveled to the area many times and signed numerous agreements. Having strengthened his personal friendship with President Bush by supporting America in the Gulf War, he helped to build up the image of an emerging “Turkic world” stretching from the Adriatic to the Great Wall. Until 1993 Turkey took an escalating role in the Caucasus and Central Asia as the “western choice”.

As Russian authorities began recovering from the destabilizing affects of the rapid change, and realized there was little to be gained in Eastern Europe, they turned their attentions to the south as Peter the Great had done centuries before. At that time, the Russian Empire’s challenge to the south brought a long front stretching from the Balkans to the Caucasus, a “competition line” along which it met with the Ottoman Empire. During that period before the time of nation states and through 13 major wars, this competition line determined the character of conflict in Turkish-Russian relations. It also created a culture of skepticism regenerated by domestic conservative elements which even today poisons the chances for constructive cooperation. With Moscow’s renewed perception of Turkey as a major threat to Russian interests in the Caucasus and Central Asia, the Kremlin began conducting a unilateral and exclusionary policy at practically every point in its relations with Turkey, indicating a defection from their promises of cooperation. Given the history of competition, such a defection was not unexpected.

After mid-1993 Russia’s unilateralism in its relations with Turkey would be very evident. Russian authorities charged that the Minsk Group which includes Turkey and the US aims simply to sabotage Russian interests. Aleksei Arbatov, Russia’s director of the Center for Geopolitical and Military Forecasts, has described Turkey as a military adversary of the near future. Long before these academic analyses, radical Russian politicians mentioned “wiping out Turkey in the process of re-creating the Russian Empire”. It was even said that the 1992 Agreement on Friendship and Cooperation between Russia and Turkey was the result of rumors leaked that Turkey was planning to intervene in Azerbaijan. Russia’s unilateralism was a natural output of its Caucasian policy which saw “any attempts to encircle its southern borders” as a direct threat to its security, and led a unilateral, Russian-dominated joint action, and hegemonic stability in the region.

The separatist movement in Chechnya, attempts to exclude Russians from Azerbaijani Caspian oil reserves, and the involvement of the “third” parties, mainly Turkey, Iran, and multinational corporations backed by western powers, presented a threat to Russia’s integrative policies towards the Caucasus. Since regional interests were categorized as being of vital interest to national security, the response would include every means available. Turkish attempts to broaden its presence in the Transcaucasus and Central Asia, and Russian apprehension that Turkey might now fill the role of “big brother” meant that Turkey fell into this threat category.

While Russia was desperately trying to crush the separatist movement in Chechnya to secure its interests
in the Caucasus, the impression that Turkey was somehow supporting Chechen guerrillas provided a perfect counterattack platform to pacify Turkey not only in the Chechen issue but in overall Turkish foreign policy towards Caucasian oil issues and Central Asia. This platform was the “Kurdish card”.

Long before the current post-Soviet rivalry began, there was concern about Russian/Soviet involvement in the Kurdish issue. An article from a July 1946 issue of Foreign Affairs stated that the Kurdish independence movement was considered the most dangerous of all Middle East troubles because of the support it got from Soviet Russia, and that the Kurds’ “grievances, ammunition, and fighting nature could make them players in a Soviet game”.

The PKK (Kurdistan Workers’ Party) became active in the early 1970s as a Marxist-Leninist organization, and was a natural target for Soviet agitation which Turkey, as a NATO country, attracted. After the 1980 military coup in Turkey, the PKK survived as the only anti-establishment terrorist organization in the country, this time as a rural insurgency movement beginning to concentrate on Kurdish nationalism along with its Marxist ideology. Since then Turkey has spent approximately $6-7 billion annually in this struggle which has claimed the lives of more than 10,000 Kurdish and Turkish civilians.

Most of the terrorist activity has occurred in southeastern Turkey, through which the projected Baku-Ceyhan pipeline will run. A Kurdish threat against a proposed pipeline was discussed in August 1995 when Ahmad Dere, the Kurdistan National Liberation Front spokesman in the CIS, spoke of the Kurdish leadership’s intention to obstruct construction of a pipeline for shipping Caspian oil across Turkey. Thus Russia discovered the “Kurdish Card”, which could be used against Turkey’s rising influence in CIS countries.

The first sign of playing the Kurdish card came with a conference entitled The History of Kurdistan held in Moscow in February 1994, and organized by the Kurdistan Committee and the Kurdistan Liberation Front, both of which were affiliated with the PKK. After the Turkish press discovered that the Russian Ministry of Nationalities and Regional Policy was the co-organizer of the conference, the Turkish Foreign Ministry sent a protest to the Russian Ambassador, and received a response denying all allegations. It went on to say that they would not allow similar conferences to be held in the future, but warned that Turkey should be very careful not to play similar trump cards, such as a Turkic-Muslim Chechen republic. A report published in Nezavisimaya Gazeta some time before the incident, suggested that Moscow might consider using the PKK to exert pressure on the Turkish leadership as a counterweight to Ankara’s alleged support for Chechen leader Dudayev. It was also reported by the Turkish press that the Russian Foreign Ministry had started to work on formulating a clear policy on the Kurdish problem in early 1994.

While Kurdish groups from Turkey were exploiting the growing rift between Turkey and Russia, a convention of Kurdish organizations from the CIS ended on October 31, 1994, in Moscow with a decision to establish a “Kurdish Union”, with the PKK as its nucleus. The PKK had chaired the three-day convention. It was noteworthy that Moscow refrained from any action against the gathering despite the fact that the organizers themselves acknowledged the PKK link.

Turkish Foreign Ministry Undersecretary, Ozdem Sanderk, flew to Moscow to discuss the matter, but again the Russians denied the PKK link. During the same period that the representative of Kurdistan’s National Liberation Front in the CIS was urging the Russian president to act as a “mediator and peacemaker between the Kurdish movement and Turkey”, he was calling the Caspian pipeline project a “manifestation of pan-Turkic plans”.

At the end of 1994, Turkey was still treating the Chechnya issue as an internal matter of the Russian
Federation, but as the Russians began to intensify the attack in Chechnya and to perform indiscriminate air raids resulting in high civilian casualties, Turkey faced the dilemma of whether or not to speak out. Moscow chose this time to host PKK officials in an effort to draw attention to Turkey’s sympathy for the Chechens and win more support from influential sources in Russia for the separatist Kurdish movement by opening a Moscow bureau. The Russian official response to the Turkish Ambassador in Moscow was that the PKK bureau in Moscow was opened for “Kurdish cultural activities only”.

By early 1995, the PKK-Chechnya circle was becoming more apparent. The Russian Ambassador to Ankara presented Turkish officials with evidence of a flow of weapons to Chechnya via Turkish territory. As the Russians complained about the matter, two former Kurdish members of the Turkish parliament who had fled the country to found the Kurdish parliament in exile came to Moscow to pursue their goals. The Russian Foreign Ministry again denied any affiliation of Russian officials with these attempts, while simultaneously allowing the “Kurdish House”, a Kurdish center under PKK control, to open in Moscow.

Public opinion in Russia was becoming more sensitive about the alleged Chechnya-Kurdish connection, and began blaming the west for being softer on Turkish activities in Kurdistan than on the Russian ones in Chechnya due to overlapping Turkish and Western interests on the “project of the century” on “Caspian oil”. As Turkey began to recognize the seriousness of the situation and of PKK dominance in “cultural activities” in Moscow, officials were sent to Russia, and a “Protocol to Prevent Terrorism” was signed. Moscow would forbid the PKK in Russia.

This first agreement marked the initiation of a cycle of the PKK or Kurdish-related activities in Russia followed by Turkish protests, and Russian denials of any official responsibility but tacit approval of their continuation. Turkey’s extreme sensitivity on the issue meant that subsequent negotiations would eventually end with oral or written agreements for Turkey’s not getting involved in the Caucasus in general, and Chechnya in particular. Russia had found Turkey’s most vulnerable side.

At the end of January 1995, Russian officials visiting Turkey repeated that Russia would not allow the Kurdish House and the PKK in Russia, in turn Turkey appeared to agree to taking a low profile regarding Russian efforts to reassert its presence in the Caucasus.

Within this atmosphere, Russia started to storm Chechnya, and Turkey made only empty and weak protests. Russia even conducted joint military maneuvers with Armenia near the Turkish border, demonstrating the seriousness of its intentions in the Transcaucasia. On the other side, Turkey was trying to fold up its six-week-old cross-border operation against PKK separatists in Northern Iraq, with little protest from Russia.

Turkey and Russia reiterated on July 21, 1995, that they would not tolerate separatist movements threatening the other’s territorial integrity. While Turkish officials were assuring that the Chechen organizations in Turkey would not be allowed to engage in activities, Albert Chernyshev, former Russian Ambassador to Turkey and later Deputy Foreign Minister, having said previously that Russia considered the Kurdish problem to be Ankara’s “internal affair”, was saying, “we must understand each other. People who live in glass houses should not throw stones”. Chernyshev might well have been describing the hub of Turkish-Russian relations with a realistic approach. This speech also marked the fact that Russia’s Kurdish card was operating still, and would be one of the strongest leverages of Russian foreign policy strategists to pacify Turkey and to thwart Turkish desires to become a regional power in the Caucasus.

Towards the end of 1995, Russia would play the card further. Members of the Russian Duma agreed to host the third international conference of the Kurdistan Parliament in exile. The Russian executive branch
blamed the Duma, but Turkey remained unconvinced, and the act was publicly considered as one of “Russian treachery”. Russia was also ignoring the Conventional Forces Reduction Agreement in which it had agreed to reduce its forces on NATO’s northern and southern flanks. Turkey’s already intimidated position could not meet this challenge of Russian unilateralism.

In 1996 Russia applied to the Kurdish card repeatedly, placing Turkey in a defensive position which was often at the expense of the dynamism of its policies towards the Caucasus and Central Asia. The year witnessed a heavy diplomatic traffic to repair the wounded relations between the two countries.

The January 1996 seizure of the Avrasya sea ferry by the pro-Chechen terrorists escalated already tense communications between the parties. Yeltsin showed his dissatisfaction with the handling of the crisis, claiming that Turkey had delayed liberating the hostages in order to keep international attention on the Chechnya issue. In March, the undersecretary of the Turkish Foreign Ministry conducted official talks in Moscow calling for a “new era in ties”, and stated that the Russians had prevented the setting up on Russian soil of a radio station operated by the PKK. The Russians, having secured the early Azerbaijani oil flow through the northern route as opposed to the Turkish route, were saying that they were satisfied with Turkey’s position on the Chechen crisis. Despite the rhetoric, Russia appeared determined to use the PKK card. At a meeting with the PKK and Aleksandr Nezverov, a department head of the ministerial-level Internal Intelligence Service, Russian government officials openly declared that the PKK was not a terrorist organization, and that Russia should use the Kurdish issue to pressure Turkey. In July, the Turkish Parliament Speaker was told by the Russian Prime Minister that he did not have specific information about PKK activities, but he would have the matter investigated.

Shortly thereafter, Russian and Turkish journalists discovered a Kurdish camp, administered and sponsored by the PKK. This camp had been used in part as a clinic to treat wounded PKK members and was located within a three hour drive of the Kremlin. The correspondent of the Russian daily Komsomolskaya Pravda ironically mentioned the similarity between this incident and the “Chechen guerrillas lick[ing] their wounds with the help of the Crimean Turks”.

Despite Turkey’s continued passive position on Chechnya and the Caucasus, Russia had become less conciliatory, deeming it unnecessary even to verbally support Turkey against the PKK. Turkish plans to set up a security zone in northern Iraq to prevent PKK attacks received stern warnings from Moscow.

In October 1996 Turkish President Demirel met with Russian Premier Chernomyrdin following meetings of the Black Sea Cooperation Organization. Chechnya and the PKK were the major topics of discussion at this high level meeting. Once again Chernomyrdin promised the administration would stop any “political” PKK activities in Russia. So far, an intimidated Turkish foreign policy caused by the cycle has helped Russia to gain time for dealing with the Chechnya problem, and to obtain one of the two early oil routes for Caspian oil. When Viktor Ustinov, Chairman of the Committee for Geopolitics of the State Duma of Russia called on the Kurds and Russians for “joint work” to create an independent Kurdish state, it was clear that the separatist PKK organization was playing a sizable role in frustrating practical realization of the pipeline project’s “Mediterranean option”.

In December 1996, Deputy Prime Minister Ciller paid a visit to Moscow to discuss PKK/Chechen affairs with the hope of normalizing relations. Again the Russians made mention of arms shipments from Turkey to Chechnya, a charge which Turkey denied. In turn Turkey brought up the PKK issue and was met with firm denials. The visit seems destined to become another in the cycle of failed diplomatic rhetoric.
The skeptical and chaotic character of five centuries of Turkish-Russian relations continues to prevail and to promote defection from any cooperation in the Caucasus and Central Asia. In the current era, the syndrome of fear of being divided inherited from the collapse of the Ottoman Empire, forces Turkey to try and stop the Russians from playing the Kurdish card at any cost. To do so they must stay away from Russia’s hegemonic policies in the Turkic world of the Caucasus and Central Asia. There is no doubt that Russia has played the Kurdish card effectively, and the challenge of the PKK has severely restricted Turkey’s ability to play a strong role not only in the Caucasus and Central Asia but also in the Balkans, in particular the Bosnian conflict. The Kurdish card has given Russia unprecedented leverage in its relations with Turkey. Unless Turkey is able to find a solution to its PKK problem, it seems likely that Russia will continue to use the Kurdish card to secure its strategic interests (Retrieved July 24, 2007, from http://ourworld.compuserve.com/HOMEPAGES/USAZERB/232.htm).

Conclusions

By looking at the current developments, it can be concluded that Turkish-Russian relations will improve in the political, economic, and security realms. However, the relations are not free from a number of serious problems that could threaten to derail these growing ties; both countries have converging and conflicting interests in neighboring regions, and this status makes Turkish-Russian relations promising yet difficult. Turkey and Russia are two influential actors in the Eurasian geopolitics and their relations have implications for the whole Eurasian region. Because of this, internal and external players in Eurasian geopolitical gambling will keep an eye on this growing relationship.

This book examines the increasing and intensified cooperation between Russia and Turkey as a central feature of Central Eurasia’s post-Cold War restructuring, and seeks to explain their cooperation with reference to major theories of international relations. It argues that the diminution of the Russian threat is what allowed for the possibility of Turkish-Russian cooperation.

Rapidly developing economic cooperation remains a backbone of mutual relations and simultaneously, promotes political rapprochement. With the realization of large joint projects in the sphere of heavy industry, electric power industry, aviation and a railway communication, food and the building industry, the military sphere and tourism, so will a Russian influence on the Turkish economy and foreign policy inevitably increase. Taking into account Turkey’s rapidly growing dependence on deliveries of Russian natural gas and projects in the energy sphere, this influence can lead to the changes in the political priorities of Ankara. The concept of this Euroasian cooperation in both countries is based on economics, but it can also find a political expression.

In such a case, if the tendency for economic rapprochement leads to coming together political interests, Turkey will gradually and inevitably leave the American sphere of influence. Economic cooperation with Turkey strengthens Russian political position in the area, particularly, in Caucasus and in Central Asia. This leads to the concealed division of the spheres of influence between Moscow and Ankara aimed to prevent US penetration in the region. The countries in the area will be inevitably involved in joint Russian—Turkish economic projects and consequently, involved into a political orbit of Russian influence.

Turkey’s dependence on the Russian energy carrier’s deliveries is gradually rising. Despite the US negative attitude towards projects of Russian oil deliveries by pipelines to the Mediterranean Sea (since it will strengthen Russia and will reduce deliveries of oil through the BTC), Ankara is ready to participate in them.

Evidently this supports a viewpoint that Turkey hopes to take into account the interests of its northern
neighbor at the expense of the traditional union with America. The increasing dependence of Turkey on deliveries of Russian gas, and joint projects with Russia in the field of energy and power will inevitably increase the growth of Ankara’s political dependence on Moscow.

At the time when Russia and Turkey are exchanging diplomatic visits at the highest level and when mutual trade and investment continues to grow at unprecedented levels, it is difficult to understand how Turkey’s willingness to extradite a notorious but relatively minor Chechen figure could further improve those relations. Aside from the occasional low-level attempt at scandal, such as the recent release of an FSB propaganda film conveniently portraying the Turkish National Intelligence Organization (MIT) as a candidate to replace the CIA as a threat to Russia in the wake of Putin’s support for America’s war on terrorism, Russia has not given any significant indication of displeasure with Turkey’s stance on Chechnya.

Unless Moscow chooses to pose a direct challenge to Turkish security by, for example, reactivating contacts with the PKK, there is no reason to expect Turkey to reverse course and begin assisting the Chechens as it did in the first war. The September 11 attacks only heightened the Turkish security establishment’s determination to quash Islamic radicalism, and it will continue to regard with great suspicion all causes associated with that movement, including the Chechen cause. Active support for Chechnya in Turkey will remain restricted to a badly split Diaspora community, a dispirited and embattled Islamist movement, and thoroughly marginal political figures such as Besim Tibuk.

Given the sharply circumscribed nature of the support, the Turkish contribution to the ability of the Chechens to resist can only be negligible. Those who believe that Chechnya can be pacified by cutting outside sources of supply would do well to consult the archived debates of the Cheka, the forerunner to the KGB, regarding its attempts to pacify Chechnya in the 1920s. While some Cheka officers preferred to rage about suspected aid trickling in from “bourgeois Georgia”, others more soberly observed that the Cheka’s own brutality had given the region’s inhabitants no choice but to fight. If Russia hopes to defeat radicalism in Chechnya today, it would do better to curb the atrocities of its own forces than fulminate about foreign sources of aid.

Turkey and Russia are two countries which have several economic relationships come from the history. Aside from the political disputes that arise from time to time between countries, trade and economic relations are constantly developing. Indeed, of Turkey and the Russian Federation are the two major trade partners. Turkey imports a significant amount of goods from the Russian Federation. The Russian Federation is also an important export market in Turkey. In the same way, Russia is exporting a significant amount of goods and services to the Turkey, and Turkey also imports large quantities of goods and services.

The fact that the two countries are geographically close ranks is an advantage in trade relations. It is important to develop trade and economic relations between the two countries. Outside of the traditional textile and natural resources trade, other goods and services trade must be developed. In particular, it should cooperate in the fields of tourism, health, banking, and transportation. In addition, to cooperate in terms of education will contribute to the development of human capital in the future.

Turkey should give importance to the quality of products which exports to the Russian Federation. In fact, Turkey is faced with competition with its European rivals, especially in this area. Russia should diversify their export product to Turkey.
References
Creativity and Innovation as Strategic Resources in International Business Markets*

Maria Rosaria Marcone
Polytechnic University of Marches, Ancona, Italy

This study focuses on Medium-Sized Multinationals (MSMs) that belong to the sectors of mechanics and electronics, and that operate in dynamic international business markets. This work aims to investigate how international marketing strategies are based and maybe in some cases actually heavily dependent on the capacity to form and enhance skills in design, engineering, and production activities, and on the propensity to invest more resources in research and development (R&D) activities as well as in activities that are more strictly speaking production based (manufacturing). Undoubtedly, in a global and dynamic business, creative knowledge is one of the key resources that firms must possess in order to take up international strategies successfully. Creativity and innovation are strategic resources for all firms, including those of a medium size and even more for those that belong to the so-called “traditional sectors”. This study also has the objective of examining the influence of the structure and composition of a technological MSMs international alliance portfolio in order to understand which forms of international collaboration are more opportunities for firms that aspire to increasing their know-how and taking up new and more sophisticated forms of exploratory innovation. The present work highlights the results of an empirical research that were carried out during the years 2000-2009. The research involved more than 80 firms of the mechanical and electronics department in the Marche region in Italy.

Keywords: technological assets, international business markets, international knowledge flows

Introduction

This study focuses on Medium-Sized Multinationals (MSMs) that belong to the sectors of mechanics and electronics, and that operate in dynamic international business markets.

This work aims to investigate how international marketing strategies are based and maybe in some cases actually heavily dependent on the capacity to form and enhance skills in design, engineering, and production activities, and on the propensity to invest more resources in research and development (R&D) activities as well as in activities that are more strictly speaking production based (manufacturing).

Undoubtedly, in a global and dynamic business, creative knowledge is one of the key resources that firms must possess in order to take up international strategies successfully (Kogut & Zander, 1992; Grant, 1996; Conner & Prahalad, 1996; Doz & Hamel, 1998; Nickerson & Zenger, 2004; Lavie & Miller, 2008). Creativity

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Maria Rosaria Marcone, Associate Professor, Department of Management, Polytechnic University of Marches.

Correspondence concerning this article should be addressed to Maria Rosaria Marcone, Department of Management, Polytechnic University of Marches, P.le Martelli, 8, 60121, Ancona, Italy. E-mail: m.r.marcone@univpm.it.
and innovation are strategic resources for all firms, including those of a medium size and even more for those that belong to the so-called “traditional sectors”.

Within this framework it is managerial ability (Penrose, 1959; Kelly, 2009) that makes a difference in determining the quality of the process of technological knowledge absorption, much more than the entity of the resources invested in R&D activities.

The present work also highlights how in the current business environment, that is characterized by growing complexity and triggered by hyper-competition and globalization (Knight, 2000), entrepreneurial behaviour finds fertile ground. The field of international entrepreneurship has so far focused on the speed of the firm in adapting to the international market. International entrepreneurial firms are considered to be those smaller firms that from the inception go abroad (Oviatt & McDougall, 2005; Keupp & Gassmann, 2009).

In order to capture the entrepreneurial orientation of internationalised MSMs in this research has been noted that entrepreneurial orientation depends on the attitude towards risk-taking, being proactive in relation to opportunities and autonomy, and demonstrating a will to compete in an aggressive manner.

This study also has the objective of examining the influence of the structure and composition of a technological MSM’s international alliance portfolio in order to understand which forms of international collaboration are more opportunities for firms that aspire to increasing their know-how and taking up new and more sophisticated forms of exploratory innovation (Johanson & Vahlne, 1990; Wright, Westhead, & Ucbasaran, 2007; Wincent, Ortqvist, Eriksson, & Autio, 2010).

Recent globalization and increased competition have forced firms to re-evaluate their current configuration and location activities. Recognition of knowledge sources that are far more spread around the globe has induced firms to re-think their configuration of knowledge-based activities, such as manufacturing and R&D.

The paper also seeks to analyse the way in which the transfer of knowledge takes place between elements of the same company that has localized production and research activities in different foreign markets. More and more often we can see that the complex process of knowledge transfer occurs as a part of strategic alliances that involve medium firms and big multinationals and research institutions.

The training and the acquisition of the most advanced technological knowledge by medium enterprises are deeply connected to their ability to improve internal managerial skills, integrating them with those present on a global scale in the firms of the competition, in the firms of the partners, and even in the firms abroad that have the same ownership.

Technological knowledge, that external subject (enterprises, universities, research structures, etc.) mature and incorporate in terms of services and products offered, is an indispensable resource for MSMs that pursue the growth of their technological legacy with continuity and aspire towards the accumulation of a modern managerial culture aimed at knowledge management.

As far as the methodology adopted in the development of the research is concerned, both inductive and deductive methodologies are used, principally adopting a “positive-interpretative” approach. In contrast to many extant studies of MSMs, both survey and objectively measured data are combined, and because the secondary data collected contain both resource-level (input) data and subsequent one-year financial data, a higher level of confidence may be attributable to our findings.

The present work highlights the results of my empirical research that was carried out during the years 2000-2009. The research involved more than 80 firms of the mechanical and electronics department in the Marche region in Italy. The study is particularly based on the empirical analysis of the most representative
business cases among those analysed in the mechanical and electronic areas of the Marche region, that represent a privileged research laboratory. Empirical data were collected following a multiple case-study design with replication logic.

As far as the structure of this work is concerned, in the first part a deeper analysis of the international management literature is carried out, in order to place the study within the framework of the main research threads. Some hypotheses for research that we are studying are also formulated. These hypotheses concern the most representative business cases, among those analysed, in the mechanical and electronic sectors that represent a privileged research laboratory. Following this, the results that emerge from the empirical research are highlighted. In essence, they regard as the strategies of internationalization of production and R&D activities. The complex strategies of multi-positioning in international value chains that MSMs find themselves involved in are particularly focused, another area focused on regards the impact of innovative activities that production plants have on the performance of the subsidiaries. Finally, a particular emphasis is placed on headquarters-subsidiary relationships, the entrepreneurial best practices that have been identified, and the appropriation of research carried out by foreign units.

**Theory and Hypothesis**

The objective of this study is to empirically validate the positive effect of collaborative process competence and the level of engagement on the operational and relational success of a collaborative effort. In the end, we will show that collaborative process competence mediates the relationship between new technological processes and collaborative engagement, and positively influences both operational and relational outcomes.

Building from two theoretical foundations, the knowledge-based (KBV) (Kogut & Zander, 1992) and relational view (RV) of the firms, we view collaboration as a mechanism to combine and deploy external and internal knowledge and skills, and examine how a specific capability—collaboration process competence—positively influences the operational and relational outcomes of such contractual collaborative initiatives.

KBW suggests the role of the firm is to create, acquire, and deploy organizational knowledge (Nonaka, 1994). Other authors note the importance of customers and suppliers as sources of external knowledge that complement an organization’s own internal knowledge (Paulraj, Lado, & Chen, 2008; Schiele, Horn, & Vos, 2011; Tallman & Chacar, 2011).

RV theory has historically focused on strategic alliances and long-term relationships. Historically, collaboration research has focused on long-term collaborative relationships (Dyer & Singh, 1998; Oetl & Agrawal, 2008). Currently, firms who invest in long-term relationships to combine resources in unique ways have not been able to realize a competitive advantage and there are not any “relational rents”. A long-term relationship orientation is an important precursor to building relational competencies that improve collaborating firms’ performance. Yet many collaboration efforts are episodic in nature, focused on episodic contractual initiatives, with a defined beginning and end, occurring in a limited timeframe, and taking place between specific organizations (firms, research groups, universities, government authorities, etc.) or teams within firms.

This research makes several empirical contributions to the existing literature. Finally, we offer suggestions for managers to improve the effectiveness of inter-firm collaboration initiatives and discuss future research opportunities.
To meet the complex challenges presented by globalization and technological change, managers must adopt an entrepreneurial mindset and emphasize both exploration and exploitation type-opportunities (Hitt, Ireland, Camp, & Sexton, 2001; Gedajlovic, Cao, & Zhang, 2012; Gupta, Smith, & Shalley, 2006; Shane & Venkataraman, 2000).

It is argued that when entrepreneurial firms decide to internationalise their production and R&D areas through foreign direct investment (FDI) high or full equity they are torn between being different and being the same. Some firms are capable of differentiating competitively by improving the production processes of the foreign plant and connecting forms of technologically-based cooperation, in order to take up new business opportunities in foreign markets that are experiencing strong growth. This improves innovative performance significantly. However, in a few cases one can come across situations in which internationalisation bases itself on the replication of the domestic plant, having the objective of both meeting an expanding demand and exploiting on a wider scale the resources employed in R&D processes (internationalisation asset exploitation).

Entrepreneurial firms thus face the tension between strategic conformity and differentiation1.

In this article we have applied a process view to the internationalisation actions of given activities in internationalisation strategies of medium multinational enterprises (MNEs) and explored management issues and the entrepreneurial role in relation to this process. Drawing on insights from entrepreneurial-oriented literature, the concept of entrepreneurial orientation suggested in this paper focuses on the analysis of corporate entrepreneurship, or widespread entrepreneurship in a form of corporation that allows for the entrepreneurial actions of employees.

Thus, entrepreneurial orientation refers to the positive bias of the company to new business opportunities. Entrepreneurial orientation is essential for the creation and development of initiatives and competences in subsidiaries (Birkinshaw & Hood, 1998), but it involves more than just the creation of a new business or new production method. It involves credibility and freedom in taking risky decisions and indicates a company’s willingness to act proactively in the face of a risky decision-making environment.

Thus, one expects multinationals fostering an entrepreneurial spirit to be concerned with the development of innovations in their subsidiaries because the entrepreneurial stimulus is an important mechanism for the development of novel competitive advantages (McGrath, MacMillan, & Venkataraman, 1995). The subsidiaries that act more independently are seen as those with the highest degree of entrepreneurship; they thus generate a greater number of initiatives (Verbeke & Yuan, 2007).

H1: The support and experience of members of the owner-family and of senior management are fundamental in increasing the capabilities focused on the development of innovation activities.

This study aims to understand what factors allow subsidiaries of emerging medium multinationals to develop innovation through an increasing internationalisation of production activities and the consequent increase in the decentralisation of R&D (Rugman & Verbeke, 2001; Shotter & Beamish, 2011; Borini, Oliveira, Silveira, & Concer, 2012)2.

Today, technology transfer occurs in several directions that are contrary to traditional directions: from

1 It is a question concerned with both entrepreneurship research and strategic management literature: whether entrepreneurial firms should conform to prevailing practices or deviate through innovation (Amason, Shrader, & Tompson, 2006; J. E. Jennings, P. D. Jennings, & Greenwood, 2009; Tan, Shao, & Li, 2013). It is argued that firms gain competitive advantages by being different (Barney, 1991; Porter, 1991), whereas they obtain legitimacy by being similar (Pfeffer & Salancik, 1978; Scott, 1995).

2 Outsourcing knowledge and innovation activities offer cost savings and superior performance, but can also put a firm’s unique resources and capabilities at risk.
developing to developed countries and from subsidiaries to the parent company. Corroborating this idea, the authors argue that the main reason for the existence of medium-sized multinational corporation is its capability to internalize resources and transfer knowledge and technology within its network more effectively than market mechanisms can (Dunning, 1980; Foss & Pedersen, 2002; Meyer, Mudambi, & Narula, 2011; Mudambi & Swift, 2011; Bhupatiraju, Nomaler, Triulzi, & Verspagen, 2012)³.

Whereas the home-country subsidiary is perceived as scoring high on trust and in need of less checks and controls, the headquarters is currently involved in an organizational change process within the foreign subsidiary where trust and control are explicit issues. A recent development in this debate is the duality perspective proposed by Möllering (2005). Others stress that relational governance functions, but formal contracts, are complementary to trust, coexisting, and jointly contributing to the development of a relationship (Poppo & Zenger, 2002; Håkansson & Ford, 2002; Ness & Haugland, 2005).

H2a: The reverse transfer of innovation relies on a strong integration (communication) between the parent company and its subsidiaries.

H2b: The relationship between management support and innovation performance is more positive under low rather than high levels of risk control.

In acquisition-focused literature, some authors distinguishes strategic from organizational fit, arguing that strategic fit, which refers to similarities in technology, products, and markets, is distinct from organizational fit, or similarities in terms of organizational processes, such as culture and human resource policies (Jemison & Sitkin, 1986; Nielsen & Gudergan, 2012)⁴. Existing fit constructs in alliance literature tend to focus on either resource-based matching of capabilities or strategic congruence (inter-partner compatibility or complementarity, inter-firm diversity, etc.). In the case of the former profile, consistent with the resource-based view (RBV), alliances allow firms to trade strategic resources across their boundaries. When these resources are complementary, desirable performance arises due to synergistic effects.

Smaller firms can leverage corresponding advantages in alliances. Among these, a smaller firm’s flexibility and ability to recognize and act on business opportunities quickly have been acknowledged as important in the innovation process (Maskell & Malmberg, 1999; Thorgren, Wincent, & Håkan, 2012).

Developed hypotheses are built on the argument that smaller firms are more inclined to adjust to their partners and conform to the cooperative informal norms. This behavior subsequently becomes a useful way for small firms to be innovative in terms of the number of new design-engineering-production processes they develop in many international business markets.

H3: The technical capacities of the partners act as a positive and significant influence on the flexible governance of the alliance.

Recent literature on the multinational corporation (MNC) has emphasized the role of knowledge in creating a competitive advantage (Bartlett & Ghoshal, 1989; Grant, 1996; T. Ambos & B. Ambos, 2009). Knowledge flows between the headquarters and subsidiaries provide opportunities to distribute best practices (Kogut & Zander, 1992), to learn from offshore affiliates or to create completely new sources of competitive

³ Reverse innovation has been proposed by Hakanson and Nobel (2001) who show the importance of reverse technology transfer associated with the characteristics of technology, innovativeness, integration and external network embeddedness. Reverse innovation enables access to a variety of local knowledge and facilitates the coordination of a global strategy, the creation of new products, the improvements of production processes, and the increase of international business markets opportunities.

⁴ Regarding contingency theory (Lawrence & Lorsh, 1967; Miles & Snow, 1978).
advantage (Doz, Santos, & Williamson, 2001; Ambos & Schlegelmilch, 2007).

Internal knowledge transfer is defined as specific, purposeful, directed projects between two or more corporate units, delimited in time and effort, with the explicit aim that the recipient subsidiary will use the transferred knowledge (Szulanski, Cappetta, & Jensen, 2004). This definition implies that transfer performance relate to both efficiency and effectiveness.

The foreign subsidiary is more likely to depend on its local suppliers to gain access to needed information and resources in that it is unfamiliar with the local environment. Based on transaction cost theory, the pure market contract incurs higher mal-adaptation cost when the dependence of both parties increases. In this regard, closer relationships rather than pure market contracts will be preferred. Thus, both parties invest efforts in maintaining the relationship and attain to higher adaptation.

H4: For a medium multinational subsidiary acting as a buyer, a higher degree of adaptation will lead to higher performance.

Two characteristics of firm-level capability are relevant to the cost of integrating the knowledge process: the tacitness of the technology involved in the process, and the human asset specificity of the process.

H5a: The more a knowledge process requires task integration (partner-specific resource adaptation), the more likely it is that it will be organized as an institutional alliance.

H5b: In addition, the more tacit are knowledge processes, due to their customized or specialized nature, the more investments in inter-firm relationship are required to make partnership effective.

The medium-sized firm’s internationalization has been a prominent phenomenon for a long time now, and this situation has increasingly attracted attention from the academic community. See Figure 1, which highlights a structural model of the research.

**Figure 1.** Structural research’s model. Source: Our elaboration.
Research Method

An interpretative, qualitative approach—utilizing selected multi-case study interviews (Yin, 2003; Eisenhardt & Graebner, 2007) such as the primary data collection method—is chosen because it helps to navigate and understand the complex issues that are associated with the data quality concept, and its relation to the factors involving managerial practices to implement facilities in design and marketing activities. Case studies investigate the issue within a real-life context, drawing on the reviews of a number of sources and provide the means to review the theory and practice iteratively. Multiple cases ensure that common patterns are identified rather than generalized from what might be change occurrences (Eisenhardt, 1989; Janesick, 2000).

The qualitative case study has been defined as an empirical research that primarily uses contextually rich data from bounded real-world settings to investigate a focused phenomenon (Meredith, 1998; Stuart, McCutcheon, Handfield, McLachlin, & Samson, 2002; Eisenhardt & Graebner, 2007).

To reduce any potential sources of bias, multiple data sources were used (multiple interviews, review of internal documents, and e-mails, etc.) to minimize interpretative problems. In-depth interviews and data collection were performed over a 10-year period (from 2000 to 2009).

We have adopted several data sources: semi-structured interviews (the interview tool is updated based on emerging data), observations (plant tours, attendance at meetings), and archival sources (documents, production, and marketing statistics, etc.).

This study surrounding the relationship-building approach and the international marketing strategies adopts a multi-phase methodology. It is divided into research stages of pilot investigation and empirical model validation, conducted in sequential order during a multiyear period. Such an arrangement helps to integrate and reconfigure a variant view in relevant studies, proposing a framework to be verified in the samples representing different fields of the firm. The pilot investigation phase, comprising an initial exploration and small-scale survey, entails the conceptual framework of relationship-building in international knitwear supply chains. The empirical model validation phase, using data obtained from wider surveys, completes the empirical verification of new cycles of international business for the management of international strategies.

Multi-plant Production System and Knowledge Process Decentralization

In a globally competitive environment, the generation and transfer of knowledge are keys to sustainable competitive advantage, and knowledge management is fundamental to firm survival and growth (Foss & Pedersen, 2002; Grant, 1996; Mudambi & Tallman, 2010).

This study examines whether and to what extent medium multinational enterprises use outward foreign investment both in emerging-markets and in developed markets, to capture knowledge spillovers so as to improve their technological capabilities at home\(^5\).

In the next section we consider specific theoretical perspectives (resource-based theory (RBT), TCE, and transactional value) that have been applied to both production internationalization and to foreign alliance

\(^5\) The knowledge seeking motivation for outward foreign direct investment (OFDI) is particularly emphasized by the literature on the internationalization of firms from emerging and developing markets (Chen, Li, & Shapiro, 2012).
structures in order to better understand the use of different governance forms in knowledge process growth.

RBT (Barney, 1991; Peteraf, 1993) emphasized the value of leveraging scarce firm-specific resources through business relationships. Complex, tacit, embedded, and diffuse firm-specific knowledge is generally the key to sustainable competitive advantage in RBT.

RBT as applied to the use of alliances offers an internally consistent, comprehensive theoretical explanation for this decision. As such, RBT can also be used to explain the decision to move from in-house knowledge sourcing to a knowledge process outsourcing alliance.

Alliance theory suggests that alliances can be structured to reduce transactional uncertainty and therefore encourage transaction-specific investment by both vendor and industrial clients in the customization of their processes to each other’s needs (Hennart, 1988; Williamson, 1991; Parkhe, 1993; Grimpe & Kaiser, 2010).

It has been affirmed that different actors, especially headquarters and new venture (subsidiary) managers, will have divergent ideas as to how attention should be optimally allocated, creating a non-trivial matching problem of attention seekers and providers in the organization. The headquarters, for their part may want to support subsidiaries’ operations, transfer knowledge, ensure coordination or strengthen their control and limit disruptive behavior. Subsidiaries, on the other hand, are competing for headquarters’ attention to acquire resources, to augment their market mandate, to increase their bargaining power, or try to avoid intervention (Ambos & Birkinshaw, 2010). In the cases that have been studied we have observed that this dichotomy of objectives emerges from the very outset, in spite of the substantial absence of a foreign management that is well-structured and autonomous.

Our definition of knowledge processes does not include highly standardized or codified processes that simply can be purchased in an arm’s length transaction.

International knowledge processes have a number of distinctive characteristics, including: high levels of risk and uncertainty regarding outcome; information asymmetry in relation to judgments of information quality; co-production of knowledge by the client firm and the supplier; potential impact in medium-sized multinational’s core competencies and capabilities; difficulty of reversing the sourcing decision due to technical capacity; relative uniqueness of each information exchange; and the tacit nature of the information exchange.

In this study we investigate the influence of subcontracting in production-related jobs, outsourcing and collaborations with non-supply chain partners on small subsidiaries’ operational innovation.

The internationalization of R&D is increasingly recognized as an important strategy for firms to foster their technological capabilities and result in better competitive advantages. The actions of R&D internationalization by firms may focus on creating knowledge across national boundaries. Today, firms dispersing their knowledge of R&D activities but also build up a learning network which can explore and exploit knowledge on a global scale.

Absorptive capacity is composed of three elements (Cohen & Levinthal, 1990): the recognition of the value of new information, accumulation (internalisation, acquisition) of information, application, and employment of information for commercial purposes. This vision emphasizes the importance of external knowledge, rather than that of internally created knowledge. Lane, Koka, and Pathak (2006) defined absorptive capacities as being the ability of a firm to utilize knowledge that is present externally through four sequential
processes:

- Recognition and comprehension of new knowledge, that is potentially marketable, that is external to the firms, through processes of explorative learning;
- Assimilation of new knowledge (of the type that is positively valued) through learning processes that in some cases, if required prove to be efficacious if they are modified appropriately;
- Employment of externally assimilated knowledge in internal innovative processes, with the aim of creating and exploiting new knowledge;
- Constitution of organizational learning process that is efficient and capable of prolonging the long-term commercial performance of output (firm products) (exploitative learning)\(^6\).

Lane et al. (2006) introduced some factors firm-based (or internal drivers) that significantly influence the ACAP (absorptive capacities) of an organisation. These internal drivers are characteristics that are pertinent at the components and structure of an organization (the mental model of the members, characteristics of the structure and of the processes of the firm, and strategic direction of the firm)\(^7\).

The governance of decentralized high-value knowledge processes is typically managed through extended internal-contacts (among managers, members of the entrepreneurial nucleus, and heads of department) requiring mutual commitment and resource specialization. Moreover, alliances constituted by plants of foreign subsidiaries with foreign partners (competitors, buyers, suppliers of technologies, research institutions, etc.) bring specific benefits and limitations to transacting partners.

Tallman and Shenkar (1994) suggested that alliances can supplant failed markets when there is a need for transaction-specific investment in order to protect shared tacit resources, and alliances can replace failed internal expansion for non-core activities involving complementary assets that the firm does not own or control.

**Multi-plant research Activities: Opportunity for Growth**

The ultimate objective for medium-sized multinationals as regards knowledge-seeking investments in emerging business markets is to improve their technological capabilities. The literature provides some explanations as to why this is the case. In this study at least two of these explanations are verified. Firstly, medium-sized multinationals often wish to reduce their reliance on foreign technologies, and to develop “indigenous knowledge” and “indigenous innovation”. Secondly, most medium-sized multinationals still lack the capability to coordinate global R&D activities, and they renounce the option of concentrating technological development processes at home (Luo & Tung, 2007; Marcone, 2012).

In the following matrix (see Figure 2), two forms of internationalisation are identified, that have been in the main adopted by the firms investigated. Such forms have been identified on the basis of variables, such as the knowledge of foreign business markets and the necessity/will put into practice specific research activities to check them.

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\(^6\) For organizational barriers to learning (Schilling & Kluge, 2009).

\(^7\) In a recent contribution, the following have been identified: indicators to measure the quality of learning processes, that are geared towards exploration, transformation, and exploitation of technological and market knowledge, and towards evaluating the effects produced on the technological assets of the firm, as well as market performance.
In the top right quadrant the foreign subsidiaries are highlighted, the consequence of FDI high equity that adds to a firm’s product diversification and that has a great chance to survive. Regarding parent firm characteristics, empirical studies observe lower rates for firms that possess host country experience and technological advantage (Delios & Beamish, 2001). The presence in this group of many of the subsidiaries that have been analysed, strengthens the theoretical construct regarding the operational flexibility of medium-sized multinationals (Fisch & Zschoche, 2012). The concept of operational flexibility states that a primary advantage of multinational corporations is the flexibility to transfer resources, e.g., production capacity, between locations in different countries as a reaction to environmental changes.

In the second quadrant one can insert forms of internationalization that are exclusively commercial, taken up by those medium-sized multi-nationals that decide to utilize domestic know-how (asset seeking internationalization), with the aim of increasing the commercial presence in the business markets of emerging nations (with a strong growth in demand), and in which significant experiences of marketing have been developed.

Many of the medium-sized multinationals investigated have set up forms of internationalisation, of both a production-based and commercial nature, and therefore are present in the two quadrants on the right (in the first and second quadrant). A differentiation between subsidiaries which are the sole investment and subsidiaries which are not the sole investment in a country clarifies that, according to the logic of operational flexibility, location characteristics of the production network are only relevant to the decision of investment.

Our empirical study demonstrates that international exploration studies with “embedded subsidiaries” and international exploitation strategies with “sales subsidiaries” are separate (though not necessarily antithetical) strategies with different antecedents and performance consequences. Even if both are necessary for long-term competition, they remain fundamentally different because they require substantially different structures, processes, strategies, capabilities, and cultures and effect firm adaptation and performance differently (O’Reilly & Tushman, 2008; Nielsen & Gudergan, 2012).

Only in some sporadic cases have the MSMs analysed exported in new and unknown markets, carrying out production and research activities, in other words, the entire process of design-engineering-production internally (quadrant III).

Regarding heterogeneity, few studies so far (Salomon & Jin, 2010) had addressed firm heterogeneity in learning from exporting.
As is well known, the risks of innovative activities are determined in mainly by the two following aspects: firstly by the uncertainty that regards both the future development of technology and its potential application in intermediate (business) and final (consumer) markets; secondly, by the effect of cannibalization that innovative investments almost always exert on prior investments. Moreover, some of the firms investigated tend to enhance their dependence on other firms to acquire needed resources, and thus to develop a close relationship (Skarmeas & Robson, 2008). However, this type of relationship is preferable to market contracts because it favours reciprocal adaptation without opportunist practices.

We can further distinguish what has been described as the co-specialized knowledge process (Doz et al., 2001; Mudambi & Tallman, 2010). In this case, in order to maximize joint production of a knowledge process, the partner firms share the risk by specializing and adapting its processes to the needs of the other.

Many studies assume that the productivity of researchers depends positively on domestic and foreign inter-temporal knowledge spillovers and negatively on market size measured by the number of consumers buying each product (Rivera-Batiz & Romer, 1991; Dinopoulos & Unel, 2011).

They find that intensity (strength) of international knowledge spillovers increases the productivity of researchers engaged in the discovery of new varieties and accelerates long-term growth. They also affirm that quality uncertainty implies that firms engaged in R&D activities to discover new products are not aware of their exporting status in advance, which depends on the quality of their products. This is because trade liberalization, measured by a reduction in trade costs or a decline in foreign market entry costs, generates a reallocation of resources from low-quality in high-quality products and leads to the exit of inefficient firms.

Thus the entry into the innovation process depends inversely on the level of expected instantaneous costs required to enter the domestic and foreign markets. Many medium-sized enterprises must invest resources in new, complex, and co-managed R&D activities, while a great number of markets are liberalized (one can think of China): Only in this way can they increase the quantity of products and the qualitative level of new products offered in international business markets.

**Multi-positioning in International Value Chain**

Following a knowledge spillover literature, we suggest that by locating in foreign business markets, subsidiaries of MSMs can benefit from knowledge spillovers (e.g., technology and know-how spillovers) from local companies in the host markets (Atkinson & Stiglitz, 1969; Mansfield & Romeo, 1980). Knowledge can be spilled over to subsidiaries of MSMs through several channels.

First, the subsidiaries can acquire knowledge by participating in the local supply chain. Studies have shown that knowledge spillovers are associated with purchases and usage of high-technology intermediate products made by local suppliers.

In this study we have investigated the influence of subcontracting in production related outsourcing and collaborative partnerships of small subsidiaries with firms outside the local firms’ supply chain (Frohlich & Westbrook, 2001; Oke & Kach, 2012). In this sense, small subsidiaries take up forms of collaboration with new supply chain partners. They position themselves within multiple international supply chains. The problems and

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8 That is, value maximization comes not just from the joint application of superior processes to the needs of the others in the process of task integration, creating what Madhok and Tallman (1998) called collaboration-specific quasi-rents based on partner-specific investments in the transaction.

9 However, there is evidence that exporters are more productive than non-exporters (Garcia, Avella, & Fernández, 2012).
the opportunities that collaboration with non-supply chain partners has on the operational innovation of non-supply chain partners seem evident.

Secondly, the subsidiaries can access and assimilate advanced technologies and know-how by interacting with local technological and innovative leaders such as workers in local companies which engineer like capabilities, research labs, and universities. The know-how and the assimilation of new technologies enable the small subsidiary to focus better on its core competencies. Furthermore, they provide the subsidiary with an opportunity to be exposed to new and different learning experiences\(^{10}\). Undoubtedly, the subsidiaries that act more independently are seen as those with the highest degree of entrepreneurship. They therefore generate a greater number of initiatives.

**The Impact of a Subsidiary’s Operational Innovation on Its Performance**

Operational innovation is a result of how well a firm can combine internal and external knowledge to develop innovative processes and methods (Oke & Kach, 2012). Such abilities to sense, respond, and leverage the environment should enhance financial performance. Indeed, the pursuit of an innovation in smaller organizations is typically justified by its perceived impact on financial performance (Freel, 2000; Wolff & Pett, 2006). More specifically, operational innovation can enhance a firm’s financial performance directly through increased revenues. Furthermore, improvements in manufacturing capabilities allow for reduced costs, improved quality, and a reduced cycle time. For instance, operational innovation leads to improvements in manufacturing capabilities, which may lead to superior market performance.

Although foreign direct investment enables small subsidiaries to access external knowledge, as posited by the KBW, the subsidiary’s operational innovation can act as a conduit for this external knowledge to be better leveraged.

This research however, highlights how, in the case of small subsidiaries, there is a very strong connection between the capacity to acquire know-how externally and the improvement of financial performance. The bond between the value of acquired know-how and the entity of resources (material and immaterial resources) actually invested in internal operational innovations seems to be less significant.

**Headquarter-Subsidiary Entrepreneurial Relationships**

Product market and technological innovation have long been known to contribute to firm success. Correspondingly, top-level managers are increasingly recognizing the need to respond to the entrepreneurial imperatives created by their competitive landscapes. However, managers at all levels of the organization can be instrumental in fostering entrepreneurial activity leading to productive innovation results (Kuratko, Ireland, & Hornsby, 2005; Hornsby, Kuratko, Shepherd, & Bott, 2009; Ireland, Covin, & Kuratko, 2009; Goodale, Kuratko, Hornsby, & Covin, 2011). Recognizing the role of an organization’s broad membership in the perpetuation of innovation, the concept of corporate entrepreneurship-as-strategy represents a really entrepreneurial orientation and an entrepreneurial opportunity.

The support and the experience of “expatriate entrepreneur” (a member or owner family nucleus) senior management in entrepreneurial activities in subsidiary are more and more important in creating and stimulating the organizational environment for new business ideas and practices. Naturally, the relationship between

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\(^{10}\) This is particularly true for small firms because such firms may lack the capabilities and resources to pursue broad strategies.
entrepreneurial orientation and the development of capabilities requires the constant rebuilding of businesses and processes in a continuous and emerging manner.

It has recently been suggested that control can produce trust when not denying or eliminating the other agents. However, many studies highlight how controls which restrain the freedom of others may be compatible with trust. Control activities explained by environmental risks rather than relational risks can seemingly restrain the other’s freedom of action without a negative impact on trust (Hagedoorn & Duysters, 2002; Huemer, Boström, & Felzenstein, 2009). In particular, both formal forms of behaviour control, output control, or socialization processes can be regarded as sources of information used to support the initiatives taken, with the aim of taking advantage of business opportunities, even with partner auxiliaries, rather than being used to contrast strategic initiatives abroad (it is even considered to represent an attack/as being offensive). Trust can be viewed as an appropriate mechanism to facilitate the adaptation process.

Conclusions

In today’s dynamic environment, firms embedded in more and more diversified international supply chains must collaborate with other firms to pursue episodic initiatives, whether or not a formal alliance or long-term relationship exists. The resolution of a significant quality problem, a supply chain collaboration redesign, contingency planning, or a new product launch is examples.

This research, based on two theoretical foundations, the KBV, and RV of the firm, design and builds a framework of management practices in order to facilitate the collaborative relationships among medium-sized Italian firms that operate in international business markets and frequently vary their positioning in international supply chains.

This study also based on embeddedness theory and transaction cost theory, explores the influence of innovation and adaptation, which benefit from a quality relationship between subsidiaries of foreign medium multinationals and local partners (suppliers, innovative industrial clients, other institutions, etc.) and on the corporate performance of foreign subsidiaries.

This study highlights how smaller firms gain advantages through exchange strategies in alliances. A specific type of alliance, namely, multi-partner alliances engages small subsidiaries in multiple and diversified value-chain activities, such as collaborative research, development, or sourcing of technologies. The most significant result that would merit being followed up in future research is the progressive presence of medium-sized Italian firms within a plurality of demand chains, in the international business market, headquarters of FDI high or full equity.

Therefore, the results demonstrate that a careful management of diffusing knowledge, related to intra- and inter-firm relationships is a relevant task when firms internationalise product activities.

The paper provides many implications for management practice and avenues for future academic research. It would be worthwhile at this point to focus on some of the most poignant conclusions that have emerged from the research.

1) Based on knowledge transfer literature, it is possible to observe that medium Italian multinationals tend to increase their R&D spending level, increasing the number of productive plant in foreign business markets. At the early stage of R&D internationalization, firms act to decentralize and implement diverse search and option.

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11 Transaction cost theory’s notion of asset specificity, which refers to investments that are idiosyncratic to a focal relationship, is related closely to the concept of adaptations.
seeking activities. However, the absorption knowledge transferred from subsidiaries, as well as to combine it with their existing knowledge to innovate, they are marginal processes, or even absent: The increased R&D spending for these two purposes enhances parent firms’ technological capabilities only minimally.

Our new conceptualization provides an integrated perspective on resource integration and transaction specificity in the knowledge governance decision. The paper illustrates the dynamics and learning involved in knowledge outsourcing by identifying distinct paths to international research-based alliances.

(2) Knowledge process projects, through direct internationalization of productive activities can be considered as the outsourcing of firm activities that directly involve the production of knowledge and innovation, and that involve some degree of firm-specific capabilities.

The resulting conceptual model and propositions raise important issues regarding organizational competence and organizational design for monitoring and coordinating knowledge transfer.

(3) Knowledge spillovers are necessary for medium-sized parents to benefit from “foreign knowledge”, but they are not sufficient. For the parent to benefit, knowledge spillovers in the host markets must be accompanied by internal transfer mechanisms in order for there to be a positive reverse spillover effect.

The foreign subsidiary’s relationship with the local supplier could serve as a navigator to adapt better to the local market. This has been proved by this study.

(4) This research highlights how important it is for small subsidiaries to acquire knowledge continually through innovating operations, and how this link has had a positive impact on financial performance. In effect, the success of industrial marketing strategies is based on the strategic competitiveness of operations. It is precisely the importance of innovation in operations, both for the parent firm and for the foreign subsidiary that explains the competitiveness of medium-sized Italian multinationals that are notoriously unprotected by patents (regarding both products and processes).

The ulterior contribution is in highlighting the importance of the presence of a growing number of small innovative subsidiaries in international supply chains. The importance of de-specialization in the supply chain management and with collaboration strategies suggest focusing on a multiplicity of activities that may be related to the organization’s goals that are in a state of continual change.

(5) This study shows that a new international firm which has a high level of strategic choice and receives attention from the headquarters, in the sense that the summit powers (both entrepreneurial and managerial) is the same, perform better than other equity international cooperative forms. More specifically, it has been found that the interactions of subsidiaries’ autonomy, inter-unit power, and initiatives with attention increase subsidiary performance.

Corporate entrepreneurship refers to the pursuit of entrepreneurial actions and initiatives that transform the established organization through strategic renewal processes and extend the firm’s scope of operations into domains, that is, new product-market business segments or technological arenas.

References


Measuring the Quality of Life in the Workplace (QLW) Through Job Diagnostic Survey (JDS): Comparative Study on Two Legal Nature Differentiated Organizations

Luiz Augusto de Carvalho Francisco Soares, Afrânio de Amorim Francisco Soares Filho, Luis Cláudio de Jesus Silva, Aristides da Rocha Oliveira Junior, Ricardo Jorge da Cunha Costa Nogueira, Paulo César Diniz de Araújo

Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

The article presents a theoretical-empirical reflection about concepts, models, and practices of Quality of Life at Work (QLW) in organizations of different legal nature. The initial proposition of the research suggested that private organizations, that are more susceptible to competitive pressures in the market for resources and the uncertainties regarding the employability tend to have worse indicators of QLW than the public organizations that exhibit greater control over their influx of resources and greater stability in jobs that are offered. The literature review included the concepts and models of QLW as well as the characteristics and application methodology of the Job Diagnostic Survey (JDS), and your score on Task Motivational Potential (TMP), as instruments of evaluating the dimensional indicators of QLW in organizations. In methodological terms, we proceeded to a multiple case study comparative, supported by the application of the reduced version of JDS, through its questionnaire that has already been validated in previous studies in two organizations, a private foundation supporting university and a public company of electricity supply, both located in the State of Amazonas-Brazil. The research findings using the JDS instrument indicated failed to detect significant differences between the scores of TMP between the two organizations, nor any robust correlation between their respective legal personalities and environments of institutional performance. Nevertheless, the small differences found suggest a framework of indicators of QLW slightly more favorable to the foundation of university support.

Keywords: quality of life, employability, private foundation, public company, Amazonas-Brazil
COMPARATIVE STUDY ON TWO LEGAL NATURE DIFFERENTIATED ORGANIZATIONS

Introduction

The widespread practice of Quality of Life at Work (QLW) in organizations both public and private is a relevant phenomenon in the last three decades of the century. And early 20th century XXI, on a global scale. The controversy around the conceptual theme, as well as mismatches between the QLW as theoretical ideas and as a set of management practices empirically observed (Ferreira, Alves, & Tostes, 2009) demand, however, the need to deepen the role of variables/dimensions exogenous to the current models for measuring QLW in determining its effectiveness.

An example of exogenous variable to the models of QLW, the subject of research, would be the type of legal organization where QLW is measured by indicators, whether public (government agencies of the direct administration, local authorities, Non-governmental organizations (NGOs), and foundations maintained with public funds, etc.) or private (companies and private legal entities). The theoretical proposition that supports the research of this variable relates to the fact that different types of organization are subject to environmental challenges and pressures of various kinds—some types of companies and private NGOs compete for customers and market resources through the regulatory mechanism price system, the organizational structure of the industry and the scope of the strategies used; public organizations state or non-state actors compete for resources of another order as institutional legitimacy in public policy processes and with civil society, budgetary allocations, etc., are more stable over time, because their existence or continuation is directly threatened by contingencies market (Oliveira Jr., 2002; Serra, 2006).

Due to this differentiation of challenges and environmental pressures, their environments for work tasks as well as motivational factors relating to the performance of these tasks may be impacted, be also different. How does this impact the formulation and measurement of QLW in different types of organization? This text aimed to face this cognitive challenge on an exploratory mode, through a literature review of the concepts and models of QLW, carried out in section two, is the views of the literature to model the Job Diagnostic Survey(JDS), in section three, and its empirical application (as described in sections four—methodological notes and section five—empirical research) as a tool for gathering indicators of QLW in two legally different organizations, both located in the Amazon-Brazil: a private foundation supported by a university and a provider of public electricity company. The results of this comparative study are presented and discussed further in section five, it is followed by a final section containing conclusions and recommendations.

Theoretical Propositions and Models on QLW

The Historical and Contextual Assumptions of QLW

According to Sant’Anna, Kilimnik, and Moraes (2011), the movement around the QLW is due to the instrumental and theoretical systematization of a concern that pervades the history of human labor, with special emphasis from the phenomenon of industrial society, in the context of the first Industrial Revolution and, more particularly, since the foundation of scientific principles of bureaucratic management oriented to modern private and public organizations, with Weber, Taylor, Fayol, etc., these same researchers outline a path context—historical in which the assumptions are part of the development of the principles and models of QLW under administrative theories. Table 1 summarizes this path constructed by the authors of the literature review.
### Table 1

**Historical-Contextual Presuppositions of the Insertion of QLW in Theories of Administration**

<table>
<thead>
<tr>
<th>Historical context</th>
<th>Administrative theory</th>
<th>QLW presupposition</th>
</tr>
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<tbody>
<tr>
<td>The second Industrial Revolution (the middle of the 19th century)</td>
<td>Businessman theory of capitalist enterprises.</td>
<td>'Trade unions’ fight for subsistence conditions, increase of salaries, safety, accident prevention, achievement of social security and retirement, through labor and social policies.</td>
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<tr>
<td>Taylorism and Fordism (the first quarter of the 20th century)</td>
<td>Scientific management (Taylor, Gantt, etc.).</td>
<td>Priority to capitalist prosperity, which would positively affect the remuneration of workers.</td>
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<tr>
<td></td>
<td>Fordist model of organization of production.</td>
<td>Incentives on salary.</td>
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<td></td>
<td>Classic theory (Fayol).</td>
<td>Profit sharing.</td>
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<td>Administrative efficiency.</td>
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<td></td>
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<td>Widespread dissatisfaction of the working class, promoting reactions such as absenteeism, strikes, sabotage, etc.</td>
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<td>Hawthorne experiments (1930s)</td>
<td>School of human relations (Mayo).</td>
<td>Rewards for productivity.</td>
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<td></td>
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<td>Effect of physical environment on productivity.</td>
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<td>Recognition of the social worker.</td>
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<td>Democratic leadership.</td>
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<td>Training.</td>
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<td></td>
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<td>Participation.</td>
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<td>Group moral.</td>
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<td></td>
<td>Theory of open systems.</td>
<td>Hygienic factors (= basic needs at work) and motivational (= those that meet the individual development of their own work).</td>
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<td>Principle of enrichment position (job enrichment).</td>
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<td></td>
<td></td>
<td>Contraposition of Y Theory (= individual can be motivated to work creatively) about Theory X (= individual indolent, dependent on direction, without initiative and focused only on safety).</td>
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<tr>
<td></td>
<td></td>
<td>Work of the individual affected by system factors external to the organization (society, culture, politics, etc.).</td>
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<tr>
<td></td>
<td>QLW concept of Louis Davis</td>
<td>Structuring of the principles of corporate social responsibility.</td>
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<td></td>
<td>Japanese model (Toyotism).</td>
<td>Crisis oil.</td>
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<td></td>
<td></td>
<td>Interaction between production technologies and work organization model.</td>
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<td></td>
<td></td>
<td>Searching for self-fulfillment at work and outside it.</td>
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<td></td>
<td></td>
<td>Encourage self-development and creativity.</td>
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<td>Flexibility in work schedule.</td>
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<td></td>
<td></td>
<td>Establishment of semi-autonomous groups and QCC.</td>
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<td></td>
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<td>Concern for the environment.</td>
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<td></td>
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<td>Reaction to the 1980s workaholic model.</td>
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</tbody>
</table>

**Note.** Source: Adapted from Sant’Anna et al. (2011).

Stands out in this trajectory, the evolution of a general principle of political-ideological (realized in the fight for better working conditions) to a concept and set of practices of management nature embedded in organizations, both private and public, since the last quarter of the 20th century. The Programs of Quality of Life at Work (PQLW) and the proposed QLW versification of the various work environments (such as the JDS model, the subject of discussion, and application in the screen text) proliferate as institutionalized organizational practices so legitimized in the frames of both the intensification of capitalist competition on a global scale which affects
mainly private companies and NGOs that compete for funding from third parties, as of the fiscal crisis of governments of the developed and developing countries (after the oil shocks of the 1970s, the crisis of debt of several emerging nations, etc.), which required adjustments in fiscal policies and the adoption of management models guided by the flexibility of labor relations in the public sector and the tightening of instruments for assessing the performance of public employees.

Both frameworks entail challenges and pressures in their work environments of public and private organizations that require the adoption of policies and compensatory programs that create a chance of a re-signification of the work performed by the employee (private or public) and a possible integration of work and life of the individual in a qualitatively positive way (Ferreira et al., 2009).

**Concepts and Models of QLW**

Common points to all definitions of QLW is the reaction to the rigors of Taylorism and the consequent goal of humanizing the work, increase the well-being and participation of workers in organizations. According to Sant’Anna et al. (2011):

... The key elements of QLW specifically rely on four pillars: (1) solving problems involving members of the organization at all levels (participation, suggestions, and innovations); (2) restructuring the basic nature of the work (enrichment tasks, job redesign, job rotation, autonomous, or semi-autonomous groups); (3) innovation in the system of rewards (financial and non-financial remuneration); (4) improving the work environment (climate, culture, physical environment, ergonomics, and health care). (p. 11)

QLW should not label programs and actions guided by mere marketing or public relations, or just improvements extrinsic conditions to work, because it dispenses the greater involvement of employees, participation, autonomy, feedback, etc. (Vasconcelos, 2001).

In Table 2, we present a summary of this literature review of models, the authors raised and point their groups of dimensions/variables focused.

**Table 2**

**Models of QLW**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Model/dimension/variable component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walton (1973)</td>
<td>Criteria for QLW:</td>
</tr>
<tr>
<td></td>
<td>(1) Fair and adequate compensation: income, equity, foreign, and domestic.</td>
</tr>
<tr>
<td></td>
<td>(2) Health and safety in working conditions: working hours, physical environment safe, and healthy.</td>
</tr>
<tr>
<td></td>
<td>(3) Developing skills: autonomy, task identity and meaning, skills, and feedback.</td>
</tr>
<tr>
<td></td>
<td>(4) Future opportunities for professional growth: career, professional growth, and job security.</td>
</tr>
<tr>
<td></td>
<td>(5) Social integration in the organization: adequate opportunities, relationships, and sense of community.</td>
</tr>
<tr>
<td></td>
<td>(6) Constitutionalism: respect for law and labor rights, personal privacy, freedom of expression, and rules/routines.</td>
</tr>
<tr>
<td></td>
<td>(7) Work and total space of life: role in balancing the work life of the employee.</td>
</tr>
<tr>
<td></td>
<td>(8) Social relevance of work: image, social responsibility services, and employees.</td>
</tr>
<tr>
<td>Belanger (1973)</td>
<td>Dimensions for analysis QLW:</td>
</tr>
<tr>
<td></td>
<td>(1) The work itself: creativity, variability, autonomy, involvement, and feedback.</td>
</tr>
<tr>
<td></td>
<td>(2) Personal and professional growth: training, growth opportunities, relationship at work, and organizational roles.</td>
</tr>
<tr>
<td></td>
<td>(3) Meaningful tasks: tasks complete, increased responsibility, rewards financial/non-financial, and enrichment.</td>
</tr>
<tr>
<td></td>
<td>(4) Functions and structures open: climate and creativity, transfer goals.</td>
</tr>
<tr>
<td>Turner and Lawrence (1973)</td>
<td>Attributes of focus on tasks in relation to the satisfaction with work and levels of absenteeism:</td>
</tr>
<tr>
<td></td>
<td>(1) Autonomy.</td>
</tr>
<tr>
<td></td>
<td>(2) Interaction required.</td>
</tr>
<tr>
<td></td>
<td>(3) Interaction optional.</td>
</tr>
<tr>
<td></td>
<td>(4) Knowledge/skills required.</td>
</tr>
<tr>
<td></td>
<td>(5) Responsibility.</td>
</tr>
</tbody>
</table>
### Table 2 continued

<table>
<thead>
<tr>
<th>Authors</th>
<th>Model/dimension/variable component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hackman and Oldham (1975)</td>
<td>JDS &gt; dimensions of job creating psychological states critical to performance of work:</td>
</tr>
<tr>
<td></td>
<td>(1) Variety of skills (VS): degree to which the job requires a variety of different activities for its implementation through the involvement and use of various skills/talents by the individual.</td>
</tr>
<tr>
<td></td>
<td>(2) Identity of task (IT): degree to which the task requires the execution of a work “full” and identifiable performed from start to finish in order to obtain visible results.</td>
</tr>
<tr>
<td></td>
<td>(3) Meaning of task (MT): degree to which the job has a substantial impact on the lives or work of others, whether they belong to the organization or external environment.</td>
</tr>
<tr>
<td></td>
<td>(4) Autonomy (AU): degree to which the job provides the individual substantial independence and freedom to schedule your work and determining the procedures in their implementation.</td>
</tr>
<tr>
<td></td>
<td>(5) Extrinsic feedback (EF): degree to which the individual receives clear information about their performance by their superiors, colleagues, or clients.</td>
</tr>
<tr>
<td></td>
<td>(6) Feedback own work (FOW): degree to which the actual performance of work activities provides direct and clear information about their performance.</td>
</tr>
<tr>
<td>Lippitt (1978)</td>
<td>Dimensions of QLW:</td>
</tr>
<tr>
<td></td>
<td>(1) The work itself: performance feedback, clear work objectives, controls reduced, greater responsibility, and greater participation decisions.</td>
</tr>
<tr>
<td></td>
<td>(2) The individual: self-image, learning, friendship, consistency between work and life goals.</td>
</tr>
<tr>
<td></td>
<td>(3) The production work: greater responsibility, intergroup collaboration, and complete work units, rewards for quality and innovation, measurable objectives.</td>
</tr>
<tr>
<td></td>
<td>(4) Functions and structure of the organization: climate conducive to creativity, two-way communication, respect for the individual, organizational development and advancement.</td>
</tr>
<tr>
<td>Denis (1978)</td>
<td>QLW subject to physical infrastructure work:</td>
</tr>
<tr>
<td></td>
<td>(1) Focus on prevention of problems in the physical work environment, specifically: heat, noise, vibration, and lighting fails.</td>
</tr>
<tr>
<td></td>
<td>(2) Strengths of prevention programs:</td>
</tr>
<tr>
<td></td>
<td>a. Tangibility and ease of identifying your results by workers and trade unions;</td>
</tr>
<tr>
<td></td>
<td>b. Increasing the credibility of the employees in relation to the company;</td>
</tr>
<tr>
<td></td>
<td>c. The channel dialog that such programs established between employees, unions, and companies.</td>
</tr>
<tr>
<td>Westley (1979)</td>
<td>QLW correction factor as the problems of work:</td>
</tr>
<tr>
<td></td>
<td>(1) Economic injustice (1850-1950): cooperation, division of profits, and productivity agreements.</td>
</tr>
<tr>
<td></td>
<td>(3) Psychological alienation (1950…): enrichment of tasks.</td>
</tr>
<tr>
<td></td>
<td>(4) Sociological anomie (1950…): socio-technical working groups.</td>
</tr>
<tr>
<td>Thériault (1980)</td>
<td>Compensation as a factor of QLW compensation involves:</td>
</tr>
<tr>
<td></td>
<td>(1) Economic transaction: individuals are a factor of production in secondary plan. It is exclusively monetary factors.</td>
</tr>
<tr>
<td></td>
<td>(2) Transaction psychological: represents the compensation for the employee’s psychological contract established with the organization (= certain behaviors and attitudes in exchange for a salary, benefits, and other reasons). The focus is directed to the individual and their relationship with the organization.</td>
</tr>
<tr>
<td></td>
<td>(3) Transaction sociological: the focus is on the interaction between the individual and organization within a specific cultural environment.</td>
</tr>
<tr>
<td></td>
<td>(4) Transaction policy: compensation is defined as the resultant of forces of social factors involved (the organization itself, unions, individuals, etc.). The greater the power of each of these elements, the greater the possibility of changes occur in your benefit.</td>
</tr>
<tr>
<td></td>
<td>(5) Transaction ethics: inserted in all matters relating to remuneration, since it represents a dependency relationship with morality and justice. The remuneration is perceived from the principles of equality, legality, distributism, or satisfaction of individual needs.</td>
</tr>
<tr>
<td>Nadler and Lawler (1983)</td>
<td>Success factors of QLW:</td>
</tr>
<tr>
<td></td>
<td>(1) Perceived needs.</td>
</tr>
<tr>
<td></td>
<td>(2) Focus of the problem highlighted in the organization.</td>
</tr>
<tr>
<td></td>
<td>(3) Framework for identifying and resolving the problem (= theory/model training process and participants).</td>
</tr>
<tr>
<td></td>
<td>(4) Compensation designed to process and outcome.</td>
</tr>
<tr>
<td></td>
<td>(5) Multiple systems affected.</td>
</tr>
<tr>
<td></td>
<td>(6) Wide involvement of the organization.</td>
</tr>
<tr>
<td></td>
<td>(7) Consideration of the various levels of application development projects.</td>
</tr>
<tr>
<td></td>
<td>(8) Changes in the management system and management structure.</td>
</tr>
<tr>
<td></td>
<td>(9) Changes in top management behavior.</td>
</tr>
<tr>
<td></td>
<td>(10) Theoretical foundation and roadmap to support the participants in the examination and understanding of the issues.</td>
</tr>
</tbody>
</table>
(Table 2 continued)

<table>
<thead>
<tr>
<th>Authors</th>
<th>Model/dimension/variable component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nadler and Lawler</td>
<td>(11) Structured processes for troubleshooting.</td>
</tr>
<tr>
<td></td>
<td>(13) Understandings built over processes, based on the results of the activities of QLW.</td>
</tr>
<tr>
<td>Werther and Davis</td>
<td>Factors affecting QLW:</td>
</tr>
<tr>
<td>(1983)</td>
<td>(1) Organizational: purpose, objectives, organization, departments, offices, and activities.</td>
</tr>
<tr>
<td></td>
<td>(2) Environmental: social, cultural, historical, competitive, economic, government, and technology.</td>
</tr>
<tr>
<td></td>
<td>(3) Behavioral needs HR, motivation, and satisfaction.</td>
</tr>
<tr>
<td>Huse and Cummings</td>
<td>(1) Factors of QWL: participation, design positions, innovation reward system, and improvement of the organizational environment.</td>
</tr>
<tr>
<td>(1985)</td>
<td>(2) Impacts on QLW: communication, motivation, and empowerment.</td>
</tr>
<tr>
<td>Moraes and Kilimnik</td>
<td>Motivational potential of task (PMT)—score adapted from Hackman and Oldham (1975) and includes all dimensions of the task, plus two more:</td>
</tr>
<tr>
<td>(1994)</td>
<td>(1) Personal and work outcomes.</td>
</tr>
<tr>
<td></td>
<td>(2) Contextual satisfactions.</td>
</tr>
</tbody>
</table>

Note. Source: Adapted from Sant’Anna et al. (2011).

Despite the models of QLW having advanced significantly, covering so extensive and detailed multiple dimensions and variables that affect the individual’s relationship with their work, have not yet held the intent to erect a definitive construct (Sant’Anna et al., 2011). This is because the objective dimensions that affect the perception of individuals and groups on the qualitative aspects of the work are modified and acquire dynamic nuances, as the context and the specific social, cultural, and psychological personal/collective.

The quality of any phenomenon is by nature a subjective perception (dependent on the psyche of the individual and their values) and inter-subjective (social relationships influence on individual perception). This applies to a product purchased, a work of art, and working conditions. The management of the organization can be successful or not attempting to influence this perception, offering a range of formal and informal tools of motivation, safety, awards, benefits, performance feedback, autonomy, infrastructure, etc.. The success of these interventions appears to be linked to factors and multivariate contingent on the social history and profile of employees. Such complexity, as also suggested by Sant’Anna et al. (2011), can only be faced on a scientifically way more robust to: (1) questioning the depth of socio-political-cultural involving the operation of the organization and relationships interpersonally and inter-organizationally; (2) overcoming the elitism that still involves approaches to QLW (QLW sense of the perspective of individuals); and (3) the integration of research methods’ quantitative and qualitative dimensions can reveal non-perceived the models already constructed and adopted.

**Measuring QLW in Public and Private Organizations Through the JDS**

Under the proposed measurement of QLW indicators summarized in the previous section, we highlight the measuring instrument titled JDS prepared by Hackman and Oldham (1975). In this classic work in the field of organizational behavior, these authors present and discuss: (1) the conceptual basis of the instrument; (2) the characteristics of the instrument itself; (3) the empirical properties of the instrument; and (4) the uses and limitations of the instrument. The authors point to the fact that JDS was not designed as a tool for design/redesign of tasks aimed at raising their motivational potential, but for the diagnosis of motivational properties of work done by individuals and research and evaluation activities/tasks already redesigned. It constitutes, therefore, more a research tool and advice on cognitive planning work than planning labor itself (Hackman & Oldham, 1975).

Regarding the theoretical basis, the JDS stems from a previous model of Hackman and Lawler (1971),
which established a set of relational connections between three major theoretical categories, referred to as “critical psychological states”—significance experienced labour responsibility, experienced results for work and knowledge, results for activity of labour—and that determine personal and professional positive results as high internal motivation, great job satisfaction, high-quality performance, and low levels of absenteeism and turnover. The three Critical Psychological States are thus defined by the researchers Hackman and Oldham (1975):

Experienced the significance of the labor—the extent to which the employee experiences the work, generally as significant, valuable, and meritorious.

Responsibility experienced by the results of the work—the degree to which the employee feels personally responsible for the results of the work he or she performs.

Knowing the results—the extent to which the employee knows and understands, on a continuous basis, how effectively he or she performs the work. (p. 162)

Each of these components is a theoretical construct measured by one or more of seven indicators, called “central labor dimensions” (core job dimensions), the following described by Sant’Anna et al. (2011):

VS: degree to which the job requires a variety of different activities for its implementation through the involvement and the use of various skills/talents of the individual.

IT: degree to which the task requires the execution of a work “full” and identifiable performed from start to finish in order to obtain visible results.

MT: degree to which the job has a substantial impact on the lives or work of others, whether they belong to the organization or external environment.

AU: degree to which the job provides the individual substantial independence and freedom to schedule your work and determining the procedures in their implementation.

EF: degree to which the individual receives clear information about their performance by their superiors, colleagues, or clients.

FOW: degree to which the actual performance of work activities provides direct and clear information about their performance.

Inter-relationship (IR): degree to which the job requires the employee to deal directly with people, including customers. (pp. 24-25)

The connections between the three critical psychological components, the five dimensions of the work related to them and the results are expected labor described by Figure 1.

Regarding the characterization of the instrument itself, the JDS is the lynchpin potential motivational score (MPS), which provides the basis for quantifying the theoretical nexus established between the three critical psychological components and the five dimensions of the central work, the latter being the indicators of the same instrument. Equation (1) is created by the authors for the MPS (Hackman & Oldham, 1975, p. 160):

\[
MPS = \frac{VH + IT + ST}{3} \quad \text{(AU. Feedback)}
\]

The scores for the questions asked and pertinent to each of the dimensions of the task are measured on scales ranging 1-7, and 1 corresponding to the lower degrees of the scale (e.g., “very little”, “rarely”, etc.), and
7 is the greatest degree of intensity of the same scale (e.g., “pretty”, “often”, etc.). Note that the scores on the first three dimensions are measured through a simple arithmetic mean, being correlated to the same state psychological critical (“significance experienced labor”), properly weighted by the impact of the other two dimensions, correlated to the other two components.

Moraes and Kilimnik (1994) (cf. Sant’Anna et al., 2011), working on the model of Hackman and Oldham, further compounded two dimensions of the task—results personal and work context satisfactions and redefining the name of the MPS to “potential motivational the task (PMT)” and changing its mathematical formula late in terms of weighting, etc., enhancements accepted and incorporated by Hackman and Oldham, according to the details described by Sant’Anna et al. (2011):

The first group was incorporated into the model by Hackman and Oldham in order to identify affective reactions or personal feelings that the individual gets to perform the work and deliver results as producing high-quality and low absenteeism and turnover. The variables that make up this group are: (1) Overall satisfaction with work—SG: global mean level at which the employee is satisfied with his work; (2) Internal motivation to work—MIT: degree of motivation, the individual experiences positive internal feelings when effectively performs its task, and negative internal feelings, when the causes poor quality; (3) Production of high quality work—MDT: degree to which work is produced considered high quality; (4) Absenteeism and turnover low—ABR: level of absence and staff turnover.

The second group, in turn, seeks to gauge the degree of well-being of the individual in relation to the satisfaction of the following requirements: SS—satisfaction safety, SC—satisfaction with compensation, SCT—satisfaction with coworkers, SSU—satisfaction with supervision, SPC—satisfaction with possibility of growth. The model also presents another variable, called “need of individual growth”—NIG, which allows to identify the relationship between the characteristics of the task and the individual responses, as individuals come to the organization with different abilities and needs. Accordingly, when individuals have a high need for growth, creativity, challenge, among others, is very likely to respond more positively to jobs that offer more significance, responsibility and knowledge of results than when these needs are not high. The model, through the variable NIG incorporates this fact, showing that the relationship between task characteristics and individual responses are contingent to the growing needs of the individual (...). (p. 25)

The JDS of Hackman and Oldham, with the introduction of PMT and Moraes and Kilimnik thus allows
reconceptualize in a more objective and measurable QLW, as follows: “(...) a resultant direct combination of basic dimensions of task capable of generating psychological states, in turn, result in motivation and satisfaction on different levels and in different attitudes and behavior” (Sant’Anna et al., 2011).

**Methodological Notes**

As for the type and method of research, and on weekends, this research is characterized by being explanatory, quantitative, field, multiple case study, comparative and descriptive. Explanatory, because it seeks to establish explanation to the phenomenon studied applied to populations chosen; quantitatively by using the JDS scale (1-7) for the tabulation of the data in order to obtain their results; count to have had an interview for the empirical application the standardized questionnaire and grouped the responses according to the previously established objectives, multiple case study (Yin, 2010) cover by a single unit of analysis in two cases, or two distinct populations; comparative, for having, as final premise, comparison of results between a public and private foundation and university support; descriptive, to present the characteristics of a given population/phenomenon or even establish relationship between variables.

The objective was to identify the factors that contribute in some way to improving the QLW employees and managers of the two organizations studied. The field is directly related to an empirical research carried out in organizations where phenomena occur under investigation. The comparative study of the cases sought to deepen the analysis and description, considering the changes in managerial function proposed in the literature, the changing organizational technologies in recent decades and the main sources of tension in the workplace that affect the managers of the organizations under study. These changes are responsible for providing a greater or lesser degree of QLW in the organizational environment.

This study has as the unit of analysis the QLW, centered on the measurement of the PMT score and, as a unit of observation, individuals who constitute the management levels of two organizations based in the state of Amazonas-Brazil. These organizations operate in different areas, with FMURAKI (Muraki Foundation), a foundation of Institutional Support and AM_ENERGIA University (Amazonas Energia), a federal public company with expertise in providing services in the electricity sector.

For data collection, we used the questionnaire JDS—reduced version, organized by Federal University of Minas Gerais (UFMG) researchers and adapted for use in academic environments. The instrument sought to detect the main factors impacting QLW in organizations surveyed, measuring quantitatively the degree scale formed by intensity score ranging from 1 (very unsatisfying) to 7 (very good).

Was applied a total of 82 questionnaires, 41 in each organization and, after treatment of the data was decided to exclude, for inconsistency and absent responses, three questionnaires. So the end of the base survey had 78 respondents, 41 of the FMURAKI and 30 of the AM_ENERGIA. The definition of the sample size was based on small populations (M. M. Hill, & A. Hill, 2008), under the rules of thumb for simple analyses, which indicate the minimum size of a sample, from the assumption that the null hypothesis to be tested $\alpha = 0.05$. Thus, it was used up the test for two independent samples that recommended for this type of study, a minimum size not less than 60 cases in total, or, as in this article, 30 in each sample. It is worth noting that if the two samples have different sizes, this should not be large in order to maintain balance.

The application was made on the spot and on a face, with prior appointment, sensitized by previous meeting with managers, aiming to explain the modus operandi of the data collection and request to join the search. Data collection occurred through the self-filling questionnaire with closed questions and scalar numeric
The instrument contained the following sections: (1) consists of questions to be answered on a closed using a scale range 1-7, with 1 being “rarely” and 7 “often” to questions that investigated the interaction, autonomy, identification task objective, the variety of these, its significance, the binding orders and feedback to the performance of the individual; (2) which brought the scale indicated by the individual issues of how to appropriately statements describe your work; and (3) which investigated the degree of satisfaction of these individuals with their respective work.

The questionnaires were administered in paper format by physical, having been delivered to the respondents and accompanied by one of the researchers, who was present and next to answer any questions. After application of the instrument, the data were treated and processed with the aid of software and Excel Sphinx Eureka. For treatment of the results was descriptive analyzes as mean, minimum, maximum, median, and standard deviation, and correlation analysis by Principal Component Analysis (PCA) and Fisher’s test for validation of the data obtained.

**Analysis of Results**

The results followed the guidelines of the method JDS, allowing the survey indices, which were later grouped into two analytical dimensions: core dimensions of job satisfaction and specific. Other dimensions of the JDS could not be reached due to limitations imposed by the restricted version of the collection instrument.

The set of core dimensions of work lists the factors that directly impact the motivation for the task, helping to better understand the work and attitudes of workers to develop it. The specific satisfactions, in turn, are part of the affective reactions and involve a range of factors that are essential to the existence of job satisfaction.

<table>
<thead>
<tr>
<th>Attributes for QLW</th>
<th>Central dimensions of the Labor</th>
<th>Specific satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMURAKI</td>
<td>5.06</td>
<td>5.42</td>
</tr>
<tr>
<td>AM_ENERGIA</td>
<td>4.87</td>
<td>5.02</td>
</tr>
<tr>
<td>Total</td>
<td>4.97</td>
<td>5.23</td>
</tr>
</tbody>
</table>

*Notes. The values in the table are for each criterion and each category, the number of observations excluding non-responses; Results of Fisher’s test, DIMENSIONS OF JOB: $V_{inter} = 0.7, V_{intra} = 0.3, F = 2.4, p-1 = 87.8%$; satisfactions SPECIFIC: $V_{inter} = 1.9, V_{intra} = 0.8, F = 2.4, p-1 = 88.1%$; a An average of the averages of VH, IT, ST, AU, FI, FE, and IR; b An average of the averages of SS, SC, SCT, SSU, and SPC. Source: Research data.*

The results show a relative balance between enterprises surveyed and, with small but noticeable advantage for FMURAKI (5.06, 5.42). By JDS score, the FMURAKI evaluation of the dimensions of work, achieves a status of “satisfactory”, while AM_ENERGIA reaches a status of “neutral”. In specific satisfactions both are framed in the “satisfactory”. In general it should be evaluated each criterion components of such sets, so that they can identify the factors that impacted positively or negatively.

Separately you can analyze it in FMURAKI among the main dimensions of the work (VS, IT, MT, FI, FE, and IR), those that had the highest rates (IR 6.0, with 5.83 MT) are well above the average of the other company (5.29). It can deduce that there is a robust level of impact of the work of individuals in your life and the work of others. Likewise, contact with other people in the course of work, including the relationship with members of external organizations and customers, contributing positively in the perception of the meaning of work in this organization. In contrast, it is clear that the work is not yet seen in a continuous, unfragmented (IT,
4.70), partly explained by the limited autonomy of the function (AU, 4.72). Other variables with indices below the average were the feedbacks (EF 4.78 and IF 4.87), indicating that the level of obtaining direct feedback and goal supervisors and colleagues regarding their job performance are in a “neutral”. Although the central dimensions of the task AM_ENERGIA, like the FMURAKI, got their best levels in ST (5.77) and IR (5.71), as well as the worst in IT (4.51) and AU (4.66). In this dimension the two organizations were very close to the results.

Table 4
Attributes for Correction of the JDS Questionnaires

<table>
<thead>
<tr>
<th>Companies</th>
<th>Attributes for correction of the JDS questionnaire</th>
<th>General medium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VH  IT  ST  AU  IF  EF  IR  SS  SCT  SSU  SPC  PMT*</td>
<td></td>
</tr>
<tr>
<td>FMURAKI</td>
<td>5.29  4.70  5.83  4.72  4.78  4.87  6.00  4.71  5.57  5.63  5.67  5.51  121.14</td>
<td>5.29</td>
</tr>
<tr>
<td>AM_ENERGIA</td>
<td>4.79  4.51  5.77  4.66  4.81  4.71  5.71  4.78  4.55  5.75  4.86  5.17  116.68</td>
<td>4.79</td>
</tr>
<tr>
<td>Medium by attributes</td>
<td>5.06  4.61  5.80  4.69  4.79  4.79  5.87  4.74  5.09  5.68  5.29  5.35  119.02</td>
<td>5.06</td>
</tr>
</tbody>
</table>

Notes. The values in the table are for each criterion and each category, the number of observations excluding non-responses; PMT—motivational potential the task, VS—variety of skills, IT—identity of the task, MT—meaning of task, AU—autonomy, IF—intrinsic feedback, EF-extrinsic feedback, IR—inter-relationship, SS—satisfaction safety, SC—satisfaction with compensation, SCT—satisfaction with coworkers, SSU—satisfaction with supervision; Results of Fisher’s test, VS: V_inter = 5.7, V_intra = 0.8, F = 7.2, p-1 = 99.1%, IT: V_inter = 0.5, V_intra = 1.1, F = 0.4, p-1 = 48.3%, MT: V_inter = 0.1, V_intra = 1.0, F = 0.1, p-1 = 21.3%, AU: V_inter = 0.2, V_intra = 1.1, F = 0.2, p-1 = 30.8%, IF: V_inter = 0.1, V_intra = 0.7, F = 0.1, p-1 = 22.8%, EF: V_inter = 0.8, V_intra = 1.1, F = 0.7, p-1 = 58.5%, IR: V_inter = 1.7, V_intra = 0.7, F = 2.5, p-1 = 88.5%, SS: V_inter = 0.5, V_intra = 1.6, F = 0.3, p-1 = 41.9%, SC: V_inter = 17.0, V_intra = 1.6, F = 10.7, p-1 = 99.8%; SCT: V_inter = 0.6, V_intra = 0.6, F = 1.0, p-1 = 68.3%; SSU: V_inter = 12.5, V_intra = 1.9, F = 6.6, p-1 = 98.8%; SPC: V_inter = 2.2, V_intra = 1.0, F = 2.3, p-1 = 87.2%; * PMT: adapted PMT = ((VS + IT + IR) / 3) × (AU × FI)). Source: Research data.

Turning to the analysis of specific satisfactions, perceive themselves in two of the five indicators, different placements between companies. In SC, SSU, and SCT FMURAKI obtained respectively 5.57, 5.63, and 5.67, whereas with AM_ENERGIA was 4.55, 4.86, and 5.75. This indicates that aspects related to salaries and non-wage compensation, the same way that the relationship with the supervision, are best evaluated in FMURAKI. Regarding satisfaction with coworkers (SCT), indicating better assessed in the survey, both boast high satisfactory condition. Window with worse outcome in this group, for both organizations, was the SS (FMURAKI and AM_ENERGIA, 4.71 and 4.78), this time the advantage goes to the state-owned company, which has greater stability in employment and statutory consequently greater safety.

The score of the PMT varies according to Hackman and Oldham (1975), between 1 and 343 points. The parameters adopted for evaluation are framed in: “very poor” = up 102.90 points; “unsatisfactory” = 102.91 to 168.07; “regular” = 168.08 to 236.67; “satisfactory” = 236.68 to 305.27, and “very satisfactory” = 305.28 to 343.00. The results were similar to FMURAKI AM_ENERGIA reached 121.14 and 116.68. With this performance, organizations score falls within the “poor”, which shows the fragility (average below 5.0) present in four of the six indicators central task.

Noting in Table 5, the correlation between the variables of the study it is noticed that in the case of PMT, there is a very strong correlation with the size of the task (0.91), i.e., the result of all the variables central explains, almost entirely, the PMT. The contextual fulfilled, in turn, have a poor correlation with the size of the task (0.11), and the variables have stronger linkages are SSU (0.85) and SPC (0.84).
### Table 5

**Inter-correlation Matrix for the Study Variables**

<table>
<thead>
<tr>
<th>Dimensions of the task</th>
<th>Dimensions of Contextual satisfaction</th>
<th>PMT</th>
<th>VH</th>
<th>IT</th>
<th>ST</th>
<th>AU</th>
<th>FI</th>
<th>FE</th>
<th>IR</th>
<th>SS</th>
<th>SC</th>
<th>SCT</th>
<th>SSU</th>
<th>SPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions of the task</td>
<td>1.00</td>
<td></td>
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<tr>
<td>Contextual satisfactions</td>
<td>0.11</td>
<td>1.00</td>
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<tr>
<td>PMT</td>
<td>0.91</td>
<td>0.04</td>
<td>1.00</td>
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<tr>
<td>VH</td>
<td>0.64</td>
<td>0.1</td>
<td>0.54</td>
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<tr>
<td>IT</td>
<td>0.34</td>
<td>-0.21</td>
<td>0.29</td>
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<tr>
<td>ST</td>
<td>0.45</td>
<td>0.06</td>
<td>0.46</td>
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<tr>
<td>AU</td>
<td>0.69</td>
<td>-0.04</td>
<td>0.81</td>
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<tr>
<td>FI</td>
<td>0.57</td>
<td>0.18</td>
<td>0.66</td>
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<tr>
<td>FE</td>
<td>0.63</td>
<td>0.22</td>
<td>0.43</td>
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<td>IR</td>
<td>0.48</td>
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<tr>
<td>SS</td>
<td>-0.01</td>
<td>0.65</td>
<td>-0.01</td>
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</tr>
<tr>
<td>SC</td>
<td>0.14</td>
<td>0.75</td>
<td>-0.02</td>
<td></td>
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<tr>
<td>SCT</td>
<td>0.07</td>
<td>0.59</td>
<td>0.06</td>
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<tr>
<td>SSU</td>
<td>0.08</td>
<td>0.85</td>
<td>0.05</td>
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<tr>
<td>SPC</td>
<td>0.12</td>
<td>0.84</td>
<td>0.1</td>
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</tbody>
</table>

**Notes.** The values in the table are for each criterion and each category, the number of observations excluding non-responses calculated by the principal component analysis (PCA), indicating correlations (positive or negative): coef. > 0.85 (very strong); < coef. > 0.85 0.70 (Strong); 0.70 < coef. > 0.50 (average); coef. < 0.50 (weak). Source: Research data.

### Conclusions and Recommendations

The two organizations were compared in order to identify, indicators of significant differences in their tax QLW, however, the study was able to prove that such anomalies cannot be considered robust. Thus, it is not possible to validate the initial proposition of research on the existence of significant differences in the indicators of QLW motivated by the type of legal personality and its task environment of organizations.

However, several factors suggest that the characteristics of FMURAKI of legal private, but acting as a service provider to public state led her to obtain indices slightly better than the public company AM_ENERGIA. The team researched the FMURAKI, unlike other organizations, demonstrates a more global perception of the task by their managers. Wages and overtime compensation and work supervisors best meet the expectations of employees, but the certainty as to the functional stability is lower, the fact that best applies to public organizations. In turn, the AM_ENERGIA displays the worst performance in its base QLW from the extent of the work. Their results show that, although there is a good relationship between colleagues, work is being seen as fragmented, with little autonomy and unmotivated.

The score of the PMT demonstrates that the weaknesses found in the size of tasks in both organizations may compromise the QLW of employees. The trend is that the combination of factors that generate positive psychological states is unsatisfactory, as it pertains to exploring the motivation and satisfaction at different levels and in different types of attitudes and behaviors (Sant’Anna et al., 2011).

Given the above, it is concluded that enterprises have more similarities than differences and stand in levels of QLW understood between “neutral” and “satisfactory”, and offer a potential motivational task “unsatisfactory”. The organizations surveyed sharpened sense investigative author of this article, motivating them to pursue in future research, validation and comparison of these states scores well established with other organizations.
References
Process-Oriented Management in Public and Private Sector*

Liliana Hawrysz, Katarzyna Hys
Opole University of Technology, Opole, Poland

The aim of the paper is to discuss the differences between the process-oriented management in public sector organizations and private sector organizations. It is also to present the consequences of implementation of this approach and to suggest areas for further research. The process management is based on the assumption that actions should be optimized by taking into account processes, which create the dynamics of an organization. These processes are constituted by sequences of activities, which turn ideas and efforts of members of an organization into an outcome expected by a client. It seems that the implementation of the process-oriented management in organizations of the public administration may facilitate the following current clients needs and identifying new ones, which are due to changes in needs of citizens or legal requirements. The paper gives an account of the process-oriented management approach and consequences of its implementation in public sector organizations. It also discusses the obstacles to the process-oriented management implementation, primarily in the public sector. The paper is theoretical and the presented ideas need further empirical investigation. The findings can be used to enhance process-oriented management systems both in the public and private sector.

Keywords: private sector organizations, process-oriented management, public sector organizations

Introduction

Process management rests on the assumption that actions should be optimized by taking into account processes, which are crucial to the dynamics and functioning of organization.

These processes are constituted by sequences of activities, which turn ideas and efforts of members of organization into an outcome expected by a client. It seems that the implementation of the process management in organizations of the public administration may facilitate identifying current and future clients’ needs (due to changes in needs of citizens or legal requirements). The process approach to organization may also enhance involvement and cooperation between employees. Moreover, it may contribute to making the internal communication more efficient. In the functional approach, which is the most widespread in public sector public entities, the manager assigns and enforces tasks in compliance with strictly specified procedures; within this framework to meet manager’s expectations seems to be the top priority. It may result in the shift of a sense of accountability: The results of activities are less important than modes of activity and acting in compliance with instructions is considered sufficient to warrant efficiency.

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Liliana Hawrysz, Ph.D., Doctor of Social Science (Economics), Faculty of Economy and Management, Opole University of Technology.

Katarzyna Hys, Ph.D., Doctor of Social Science (Economics), Faculty of Production Engineering and Logistics, Opole University of Technology.

Correspondence concerning this article should be addressed to Liliana Hawrysz, Opole University of Technology, Faculty of Economy and Management, ul. Waryński 4, 45-047 Opole, Poland. E-mail: l.hawrysz@po.opole.pl.
The public sector organizations are the focus of interest first of all due to their significance for each country’s economy. Secondly, it is related to the impact they have on lives of all citizens. Characteristic features of these organizations, which make them different from private sector organizations, are political and social rationality, which rarely go hand in hand with economic rationality. Action strategies result from political game, which is not conducive to setting difficult to measure and/or long-term goals (Kożuch, 2006). These organizations operate in less stable environment than private sector organizations, which is due to their close relationships with politics and cyclic changes of authorities. Despite the fact that market pressure on public sector organizations is smaller than on private sector organizations, their position is not privileged. It is connected with double role played by citizens as inhabitants, citizens, and taxpayers they are subordinate to a given state, but as service receivers they are not.

Both in the world and in Poland significant changes in the sphere of public administration have taken place recently. Some of these changes have been a result of implementation of concepts and methods of management taken directly from the private sector (Heracleous & Johnston, 2009); the process management is one of them (MacIntosh, 2003). The process approach has been known since the time of the classical school, yet since then it has changed significantly and has evolved into Business Process Management (BPM) (Grajewski, 2012). The concept of BPM in its current shape emerged in the 1990s; it was inspired by earlier frameworks such as Total Quality Management (TQM) and Business Process Reengineering (BPR) (Brocke & Sinnl, 2011). Many authors who explore the concept of BPM focus mainly on its “hard” aspects, such as organizational structure, development of processes, and use of new information technologies (Gulledge Jr. & Sommer, 2002; MacIntosh, 2003; Sentanin, Santos, & Jabbour, 2008).

Implementation of the process management in public administration is recommended since there is a necessity to understand customers’ current needs and to identify new needs being a result of changes in needs of citizens or legal requirements (Krukowski & Siemiński, 2011). These are not the only arguments in favor of it. It seems that the main source of inefficiency of functional approach (the opposite of the process approach) is the focus of employees on expectations of manager, who assigns and enforces tasks in compliance with strictly specified procedures. It may result in a shift of a sense of accountability: Outcomes of activities are less important than modes of activity and acting in compliance with instructions is considered as a sufficient warranty of efficiency (Sikorski, 2000).

This bureaucracy stemming from formalized communication and peculiar focus on stamps and signatures on documents instead of people, their actual problems and organization as a whole, leads to depersonalization
of interpersonal relationships (Kołodziejczak, 2011).

It may also lead to so-called "local attitudes": Employees focus solely on their assignments, in consequence, the wider perspective is lost (Sikorski, 2000). The result of such an attitude may be conservatism oriented towards stabilization and strengthening of existing norms, values, and patterns of behavior; changes are unwelcome and the past is considered as a guide to the future (Kołodziejczak, 2011).

The most common stages of the process management implementation are as follows:

- Awareness of some benefits. The most common mistake at this stage is a lack of full understanding of what process management consists in. In many cases, even advocates of process management lack comprehensive knowledge about the methodology, the core, and challenges of the approach. Lack of full awareness stems from a lack of experience, which is crucial to create, develop, and sustain the awareness;
- The willingness to implement the approach. This is the critical stage, which requires the leader and the master, who would represent different parts and levels of organization; they may be top-level managers, managers of departments or units or heads of the team;
- Implementation at the level of a chosen process is connected with strengthening of potential and credibility of the approach. The employees most often at this stage start to identify themselves with the approach since they see personal benefits from employing it;
- Implementation at the level of the whole organization. This stage may take three to five years. It requires creating a methodology and choosing methods, techniques, and tools, which take into account organization peculiarity. They need to be documented, implemented, passed on, and actively sustained. It is achieved by mapping processes; it allows defining modes and subsequent stages of organization improvement. When accountability is assigned and mapping of processes is accepted, carriers of process management should be scrutinized once again;
- Organization has full awareness of its processes and process management center of excellence is finally established (Rosemann, 2008).

Passing through subsequent stages until process maturity is achieved takes different shapes and depends on organization. However, one may identify six key factors, which have an effective impact on implementation of BPM:

- Strategic alliances—ongoing integration of organizational priorities and organizational processes, which enable to achieve business objectives;
- Culture and leadership, collective values and beliefs, which shape attitudes and behaviors related to a process;
- People, units, and groups who are on a daily basis responsible for the processes;
- Management, defined accountability, and transparency in decision-making processes;
- Methods, modes, and techniques of supporting the processes;
- Information technology (Bandara, Alibabaei, & Aghdasi, 2009).

According to research conducted in 2009 by service PROCESOWCY.PL within a group of 480 people who worked with entities representing different sectors and branches, the process maturity level of a large part (38%) of Polish organizations, measured by slightly modified hierarchy Capability Maturity Model Integration (CMMI), is intermediate. It indicates full awareness of processes, which take place in organizations as well as the existence of defined measuring system. It does not, however, translate into management decisions. Processes do not supply solutions to fulfill strategic objectives. Only 7% of entities consciously identified,
measured, and managed their processes; 19% of investigated entities belonged to public sector, their process maturity level was assessed as below Polish average. Within a group of public sector units, there was not a single one that would consciously identify, measure, and manage its processes; in these entities processes were at most identified (PROCESOWCY.PL).

Similar research is carried out by Wolf and Harmon (2012) on BPTrends (see Table 1). Since 2005, every two years, they have been publishing reports on current trends in process management in organizations all over the world. The recent report is based on research, which was conducted in 2011 among 399 entities from Europe, America, Australia, New Zealand, Asia, and Africa (out of which over 50% was located in Europe and America). This research has shown that over the last years the level of process maturity of organizations has been slowly growing. Authors of the report have come to conclusion, however, that more “mature picture” of organizations is not a result of overall growth of level of process maturity, but it is an outcome of strenuous work of several entities (Wolf & Harmon, 2012). It is also worth mentioning that more European organizations than American organizations have achieved the highest level of process maturity.

Table 1

<table>
<thead>
<tr>
<th>Levels of Process Maturity of Organizations in General Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of process maturity of organization</td>
</tr>
<tr>
<td>1</td>
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<td>3</td>
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</tbody>
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**Process Management in Public Sector Organizations and Process Management in Private Sector Organizations**

Tregear and Jenkins (2007) identified nine potential differences between process management in public and private sector. They are as follows:

- Public interest;
- Accountability;
- Political sensitivities;
- Whole-of-government ecosystems;
- Budget cycle complexity;
- Information exchange;
- Regulating society;
- Machinery of government;
- Culture.

While some of these factors have been recognized by the authors as conducive to process thinking, the others have been considered as a hindrance. There are also factors that are both catalysts and inhibitors of process management: public interest, accountability, whole-of-government ecosystems, budget cycle complexity, regulating society, and machinery of government.
Public Interest

Public interest, to a greater or lesser extent, is inscribed into mission and vision of public sector organizations. In fact, they were created to realize public interest goals. However, due to the complexity of the issue, to measure the degree of these goal fulfillments is a very difficult task. Likewise it is difficult to precisely define a customer and his/her needs.

Accountability

Mulgan (2000) in his article on *Comparison of Accountability in Public and Private Sector* emphasized that structure of accountability seems to be more rigid in case of public sector. In general, he indicated four elements, which make accountability in two sectors different. In the public sector, apart from rigidity, it characterizes, there is a constant political pressure and wider scope of accountability; and in case of private sector it is a lack of equivalent of such an institution as the parliament.

Political Sensitivities

Accountability of those who take care of management in the public sector has both political and organizational dimensions, and their work is watched on by the public opinion. Even the most efficient manager may lose his/her job when he/she is not supported by society.

Whole-of-Government Ecosystems

Close cooperation between many entities for the benefit of public interest is one of the most important determinants for public sector organizations. Yet, to coordinate activities of organizations, which are subject to different, separate legal acts, is an extremely difficult task.

Budget Cycle Complexity

Much more components and determinants have to be taken into account while drafting a budget in public sector entities than in the private sector. The budget of public sector entities is one of the most important political, economic, and social documents.

Information Exchange

Interaction between citizens and public sector organizations is twofold in its nature. On the one hand, citizen is subject to them (as taxpayer), but on the other hand, they are to serve citizen. The institutions pass on information on governmental politics and programs. One of the most important tasks of government agendas is to create, manage, promote, and supply information according to the needs of society. However, it seems to be complicated since the kind of information citizen expects rarely concerns only one entity or/and locality.

Regulating Society

Governments create regulations, and private sector entities have to act in compliance with them.

Machinery of Government

The scope and impact of changes brought about by electing a new government may be much bigger than impact of changes being a result of restructuring, fusion or takeover in private sector organizations.

Culture

A typical public sector organization has strictly defined regulations and procedures, established hierarchy, extended decision-making process; it is oriented to acting in compliance with regulations and rules, and it is subject more to political than market control. In comparison to private sector entities, public sector
organizations are to a lesser extent innovative and oriented to development; they are also more passive with regard to risk. Attitudes and values of public sector employees also significantly differ from attitudes and values of private sector employees. The public sector employees are more altruistic and more willing to engage in activities for the benefit of social development and public interest.

To assess a relative impact of identified differences, Kurt Lewin’s Force Field Analysis (FFA) technique is used; it enables to understand behaviors by identifying forces, which determine them.

Table 2

<table>
<thead>
<tr>
<th>FFA</th>
<th>Change target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving force</td>
<td>Reach, success, ongoing process management in public sector units.</td>
</tr>
<tr>
<td>Public interest:</td>
<td></td>
</tr>
<tr>
<td>Impact of success is much higher</td>
<td>Restraining force</td>
</tr>
<tr>
<td>“Due process” supported by a process view</td>
<td>Public interest:</td>
</tr>
<tr>
<td>Accountability:</td>
<td>Customers harder to identify</td>
</tr>
<tr>
<td>Risk management supported by process view</td>
<td>Outcomes, harder to measure</td>
</tr>
<tr>
<td>Transparency supported by process view</td>
<td>Accountability:</td>
</tr>
<tr>
<td>More resources to be saved</td>
<td>Intense social and political pressure</td>
</tr>
<tr>
<td>Whole-of-government ecosystems:</td>
<td></td>
</tr>
<tr>
<td>WoG approach supported by process view</td>
<td>Monopolistic complacency</td>
</tr>
<tr>
<td>High profile incident mgt profile centric</td>
<td>Political sensitivities:</td>
</tr>
<tr>
<td>Facilitate understanding and consensus</td>
<td>Repercussions of failure</td>
</tr>
<tr>
<td>Budget cycle complexity:</td>
<td>Transparency exposes problems</td>
</tr>
<tr>
<td>Higher potential for efficiency savings</td>
<td>Broad group of stakeholders</td>
</tr>
<tr>
<td>Information exchange:</td>
<td>Election cycle disruptive</td>
</tr>
<tr>
<td>Higher digital content in service</td>
<td>Whole-of-government ecosystems:</td>
</tr>
<tr>
<td>Regulating society</td>
<td>Complex, multi-jurisdictional process</td>
</tr>
<tr>
<td>Able to change regulations</td>
<td>Admin frameworks are not supportive</td>
</tr>
<tr>
<td>Red tape reduction supported by process view</td>
<td>Complex agreements required</td>
</tr>
<tr>
<td>Machinery of government:</td>
<td>Budget cycle complexity:</td>
</tr>
<tr>
<td>Forces review of process</td>
<td>High public visibility</td>
</tr>
<tr>
<td>MoG enhanced by process view</td>
<td>Resource intensive processes</td>
</tr>
</tbody>
</table>


The most common mistakes related to the implementation of process management are as follows:

- Wrong identification of the process owner or, in fact, lack of the owner; mapping it in a wrong place within the structures of organization. Merely 34% of organizations, which have identified their processes, have
process owners; since they are usually persons who hold director positions it results in limited accessibility and in consequence is tantamount to lack of process ownership;

- Too wide range of processes, which organization wants to manage. Implementation from the start, apart from the basic process management, its derivatives, which should not be implemented until some level of process maturity is achieved;
- Wrong order of implementation—37% of organizations, which have identified their processes, acknowledge that work on processes is a part of projects of information system implementation. Whereas, it is BPM that should be the point of departure, and measuring of processes and their analysis should decide whether the information system should be implemented or not;
- Inefficient system of communication—only 28% of organizations, which have identified their processes, put process documentation in easily accessible place. In consequence, participants have no access to information on the current state of affairs and implemented or future planned changes (PROCESOWCY.PL).

On the basis of experience of leading public sector entities in Australia, one may indicate following “keys to success” in the process management:

- Technology or rather the way we make use of it. The main goal is not to employ advanced technologies to support existing processes, but such use of technology that allows achieving profits, which could not be easily achieved in another way;
- Proactive change, which at its core has an innovative organizational culture and awareness of the necessity to remain competitive;
- Ongoing and critical exploration of environment in order to find ways to achieve balanced diversity, to implement innovations and to redefine activities (Heracleous & Johnston, 2009).

Conclusions

The process management in the public sector, by changing perspective from vertical to horizontal, aims at engaging citizens, both on state and local administration level. Therefore people responsible for management in public sector should operate within network. They also need negotiation and cooperation skills to be able to build and sustain relationships with citizens, which are based on partnership and to make these relations source of power stemming not from authority, but from cooperation. The examples of inclusion of citizens into the process of governing are, for instance, deliberative democracy, e-democracy, public conversation, participatory budgeting, citizen juries, study circles, focus groups, roundtables, new forms of town meetings, choice work dialogues, cooperative management bodies, and other partnership arrangements (Bingham, O’Leary, & Nabatchi, 2005).

One shall bear in mind, however, that use of suggested tools is culturally conditioned. The implementation of the process management in the public sector seems to be more complicated than in the private sector. Nevertheless, given the direction of public sector reforms in Poland it seems to be inevitable.

References


Multi-valued Document Classification Based on Generalized Bradley-Terry Classifiers Utilizing Accuracy Information*

Tairiku Ogihara, Kenta Mikawa, Masayuki Goto
Waseda University, Tokyo, Japan
Gou Hosoya
Tokyo University of Science, Tokyo, Japan

Due to the development of computer network, a large amount of documents are treated in many fields. The number of digital document data stored in databases is enormous, accordingly it is difficult for analysts to read all documents and classify it by hand. Therefore, it is necessary to develop the technology of automatic document classification by using computers these days. From the above needs, many classifiers with good performance have been proposed, i.e., Relevance Vector Machine (RVM) and Support Vector Machine (SVM) that are known as good binary classifiers. For multi-valued document classification problems, it is known that a multi-valued classifier by combining several binary classifiers has a good performance. In this study, the method to construct an efficient combination of binary classifiers based on improving Generalized Bradley-Terry (GBT) model, which has high extensibility, is focused. This model is an expansion of Bradley-Terry (BT) model. Though the BT model has a limitation on combination of classes, the GBT model enables us to utilize any binary classifier which classifies into two arbitrary subsets in the class set. Generally, when several binary classifiers learn from the training dataset, there would be the difference of accuracy between these binary classifiers, due to the existence of categories that cannot be easily classified. However, the conventional method of multi-valued classification by GBT binary classifiers does not take the accuracy of each classifier into consideration. To avoid this problem, a new way of multi-valued classification method by considering each classifier’s accuracy is proposed. The purpose of this study is to construct a good multi-valued classifier by calculating the accuracy of each classifier and utilizing it as the weight. In order to verify the effectiveness of the proposed method, the simulation experiment by using newspaper articles is conducted.

Keywords: Generalized Bradley-Terry (GBT) model, multi-valued classification, Relevance Vector Machine (RVM), document classification, the accuracy of each classifier, combination of binary classifiers

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Tairiku Ogihara, B.E. degree, Department of Industrial and Management Science, Faculty of Science and Engineering, Waseda University.
Kenta Mikawa, M.E. degree, Department of Industrial and Management Science, Faculty of Science and Engineering, Waseda University.
Masayuki Goto, Dr.E. degree, Department of Industrial and Management Science, Faculty of Science and Engineering, Waseda University.
Gou Hosoya, Dr.E. degree, Department of Management Science, Faculty of Engineering, Tokyo University of Science.
Correspondence concerning this article should be addressed to Tairiku Ogihara, 3-4-1 Okubo Shinjuku-ku Tokyo 169-8555, Japan. E-mail: i.w.g.p-land@akane.waseda.jp.
MULTI-VALUED DOCUMENT CLASSIFICATION

Introduction

Due to the development of computer networks, a large amount of digital documents have become to be able to be treated in every field. The number of document data stored in databases is enormous, accordingly, it is difficult for analysts to read all documents and classify it by hand. Therefore, the necessity of automatic document classification by using computers has risen these days. From the above needs, many methods by applying binary classifiers with good performance have been proposed. For example, Relevance Vector Machine (RVM) and Support Vector Machine (SVM) are known as good binary classifiers and these methods can be applied to the binary document classification problems (Tipping, 2001; Cortes & Vapnik, 1995). However, it is sometimes difficult to acquire a unique multi-valued classifier with both high performance and practical computational complexity. Thus, the formulation of the multi-valued classification problem by a combination of several binary classifiers has been proposed. The most basic idea is the one versus the rest method which prepares the binary classifiers to classify each category and others. Though the one versus the rest method is a very simple way, it is known that a combination of appropriate number of binary classifiers is more efficient than the one versus the rest method and a unique multi-valued classifier. Therefore, several works using binary classifiers for multi-valued classification problems have been studied (Rumelhart & McClelland, 1986; Quinlan, 1993). One of these methods by combining binary classifiers is the Error-Collecting Output Codes (ECOC) (Dietterich & Bakiri, 1995; Hastie & Tibshirani, 1998; Allwein, Schapire, & Singer, 2000). Another effective idea is to apply the Bradley-Terry (BT) model (Ikeda, 2010; Huang, Weng, & Lin, 2006). The BT model is a statistical model and has broad applications in many fields. The application of the BT model to the multi-valued classification is an attractive way and has a possibility to develop this research field.

In this study, the method to construct an efficient combination of binary classifiers based on Generalized Bradley-Terry (GBT) model (Huang et al., 2006) with high extensibility is focused. This model is an expansion of BT model (Bradley & Terry, 1952). Though the original BT model has a limitation on combination of classes, the GBT model enables us to utilize arbitrary binary classifier which divides into an arbitrary size of two subsets in the class set. Generally, when several binary classifiers are combined to implement multi-valued classification, there exists the difference of accuracy between binary classifiers, due to the existence of categories that cannot be easily classified. However, the conventional method of multi-valued classification by GBT binary classifiers does not take the accuracy of each classifier into consideration. Therefore, classifiers with bad performance can make the gross accuracy decrease. In short, a direct use of those bad classifiers leads to degrade the classification performance. To avoid this problem, a new way of multi-valued classification method by considering each classifier’s accuracy is proposed. The purpose of this study is to develop the effective method by estimating the accuracy of each classifier and utilizing it as the weight of classifier. The proposed method gives the large weights to good classifiers with high accuracy and gives the small weights to bad performance classifiers. The improvement of performance by applying these weights in classification rule is expected. To verify the effectiveness of the proposed method, the simulation experiment by using newspaper articles is conducted.

Preliminaries

Multi-valued Classification Problems

Let the number of categories be $K$, and the set of categories be $C = \{c_1, \ldots, c_K\}$. $x$ is an input vector which
has an unknown category. A classifier is adaptively modeled by a learning rule with the training data set. When a new test data is provided, its class is predicted by the trained classifier. The classification problem is defined as a prediction of the category \( c \in C \) to which a new input \( x \) belongs. The classification problem is referred to as multi-valued classification problems in the case of \( K \geq 3 \), and is also referred to as binary classification problems in the case of \( K = 2 \).

**Classifications by Using RVM**

In this study, the RVM classifier is applied by performing soft decision to estimate the posterior probability of each category. The binary RVM classifier has a lot of same characteristics as the SVM which is a good binary classifier with high accuracy. The RVM was proposed by Tipping (2001), which is a sparse learning algorithm applied to regression and classification problems. Silva and Ribeiro (2006) talked about the application to the text classification problem. The RVM is similar to the SVM (Cortes & Vapnik, 1995) in many respects but is capable of expressing a fully probabilistic model.

First, a binary classification model \((K = 2)\) by the RVM is explained. Let \( x \) be an input vector and \( c \in \{c_1, c_2\} \) be a category label. A set of \( N \) training document samples is denoted by \( \{x_n, t_n\}_{n=1}^N \), \( t_n \in \{c_1, c_2\} \). The probability of category label \( c \) takes \( c_k (k = 1, 2) \) conditioned on \( x \) is expressed by using logistic regression as follows:

\[
p(c = c_k | x) = \frac{1}{1 + \exp(-f_{RVM}(x))}
\]

where \( w_i \sim N(0, \alpha_i^{-1}) \) and \( \alpha_i^{-1} \) are obtained by maximizing a posterior probability of \( \alpha \), which is hyper parameter that controls the distribution of parameters. Moreover \( K(...) \) denotes a kernel function which calculates inner product of two input data points mapped on a higher dimensional space, and \( w_j \) expresses a weight parameter. By maximizing a posterior probability, almost all \( \alpha_i^{-1} \) becomes zero. \( x_i \) having non-zero \( w_j \) value the Relevance Vector (RV) is called. The decision function \( f_{RVM}(x) \) is determined by these RVs. The RVM has several desirable properties and good performance in classification accuracy. On the other hand, the RVM needs to spend more times in learning phase compared to the SVM. If the RVM is performed for a model with \( M \) basis functions, the computational complexity of evaluating inverse matrix of size \( M \) takes \( O(M^3) \) (Bishop, 2006).

For a multi-valued classification problem \((K \geq 3)\), a probabilistic method of combining \( G \) linear models is used. The parameter \( \alpha_i^{-1} \) is calculated in the same way as a case of two categories. It is a quite straightforward extension to the multi-valued classification problem, but there exists a disadvantage that the computational complexity for learning is \( K^2 \) times larger than that of the binary RVM (Bishop, 2006). Assume that the classifier \( r \) \((r = 1, \ldots, R)\) classifies input vectors \( x \) into the two category sets, \( C_r^+ \) and \( C_r^- \). Here, assume that \( C_r^+, C_r^- \in C \), \( C_r^+, C_r^- \neq 0 \), \( C_r^+ \cap C_r^- = 0 \), and \( C_r = C_r^+ \cap C_r^- \). The binary classifier is reduced to
the 1-vs-1 classifier when $|C_r^+| = |C_r^-| = 1$. If $|C_r^+| = 1$ and $|C_r^-| = K - 1$, then the binary classifier is referred to as the 1-vs-the-rest-classifier. Let the performance of classifier $r$ be $q_r(x)(0 \leq q_r(x) \leq 1)$, then $q_r(x)$ and $1 - q_r(x)$ can be seen as the estimations of $p(c \in C_r^+ | c \in C_r, x)$ and $p(c \in C_r^- | c \in C_r, x)$, respectively.

### Conventional Study

#### Basic Explanation of BT Model

The BT model has been widely applied in many areas, especially in sports statistics (Ikeda, 2010). The BT model is a model to quantify the strength of each player when many people play a lot of one-to-one match. Assume that there are $K$ players and a player $k$ ($k = 1, \ldots, K$) has non-negative parameter $p_k$ called strength. Probability that player $k$ wins against player $l$ ($l = 1, \ldots, K, l \neq k$) by $p_k/(p_k + p_l)$ is denoted, and probability that player $l$ wins against player $k$ by $p_l/(p_k + p_l)$ is denoted. Let $n_{kl}$ be the number of matches between players $k$ and $l$. Let $r_{kl}$ be a winning rate of player $k$ against player $l$, and it is given by:

$$r_{kl} = \frac{\text{the number of matches that player } k \text{ wins against player } l}{n_{kl}} \quad (3)$$

We assume there is no tie so the equation $r_{kl} + r_{lk} = 1$ holds. Let $F(p)$ be a log-likelihood function, and it is defined as follows:

$$F(p) = K \sum_{k,l=1}^{K} \left(r_{kl} \ln \frac{p_k}{p_k + p_l} + (1 - r_{kl}) \ln \frac{p_l}{p_k + p_l} \right) \quad (4)$$

where $p = (p_1, \ldots, p_K)$ denotes a strength vector. By maximizing $F(p)$ in equation (4) with respect to $\sum_{k=1}^{K} p_k = 1, p_k > 0$, the maximum likelihood estimator $\hat{p} = (\hat{p}_1, \ldots, \hat{p}_K)$ is acquired. The players according to their strength from $\hat{p}$ are ranked.

#### Multi-valued Classifier by BT Model

Consider applying the BT model to multi-valued classification by combining binary classifiers. The log-likelihood function of BT model, $F_{BT}(p, x)$, is defined as follows:

$$F_{BT}(p, x) = K \sum_{k=1}^{K} \left(q_r(x) \ln \frac{p_k}{p_k + p_l} + (1 - q_r(x)) \ln \frac{p_l}{p_k + p_l} \right) \quad (5)$$

where $q_r(x)$ denotes the output of the 1-vs-1 classifier, $k_r$ and $l_r$ denote the numbers of category in $C_r^+$ and $C_r^-$, respectively. Similar to the previous subsection, the maximum likelihood estimator $\hat{p} = (\hat{p}_1, \ldots, \hat{p}_K), \sum_{k=1}^{K} \hat{p}_k = 1, \hat{p}_k > 0$, is obtained by maximizing $F_{BT}(p, x)$ in equation (5) with respect to $p$. Then it can be treated $\hat{p}_k$ as $p(c_k | x)$. Since $\hat{p}_k$ represents an estimation of category $c_k$, the classification rule of $x$ from $\hat{c} = \arg\max_{c_k \in C} \hat{p}_k$ is formulated.
Multi-valued Classification by GBT Model

It is difficult to attain high performance by multi-valued classifier using the BT model, since the number of learning data of 1-vs-1 classifier in this model is lower than that of 1-vs-the-rest-classifier. As a result, classification accuracy of 1-vs-1 classifier is not so good. However, the GBT model can use any combination of 1-vs-1 classifiers and 1-vs-the-rest-classifier (Huang et al., 2006). The Log-likelihood function of GBT model, \( F_{GBT}(p, x) \), is defined as follows:

\[
F_{GBT}(p, x) = \sum_{r=1}^{k} \left( q_r(x) \ln \frac{\sum_{i \in c_r} p_k}{\sum_{i \in c_r} p_i} + (1 - q_r(x)) \ln \frac{\sum_{i \in c_r} p_k}{\sum_{i \in c_r} p_i} \right)
\] \( (6) \)

Similar to the case of multi-valued classifier by BT model in the previous subsection, the maximum likelihood estimator \( \hat{p} = (\hat{p}_1, \ldots, \hat{p}_k) \), \( \sum_{k=1}^{k} \hat{p}_k = 1, \hat{p}_k > 0 \), is obtained by maximizing \( F_{GBT}(p, x) \) in equation (6) with respect to \( p \). Then the classification rule of \( x \) from \( \hat{c} = \arg \max_{c_k \in C} \hat{p}_k \) is formulated.

Proposed Method

In the conventional multi-valued classification based on the GBT model, this model assumes the same weight for all binary classifiers. Therefore, there is a possibility that a bad classifier affects the total decision by all classifiers. The proposed method takes the estimated accuracy of classifier in consideration. It is necessary to determine the weights of the classifiers. By applying these weights to the GBT model, the modified GBT (MGBT) model which is a new way of multi-valued classification method by considering each classifier’s accuracy is proposed.

Method for Calculating the Weight of Each Classifier

Usually, the reliability of each classifier can be different because it classifies different categories and is learned individually. Therefore, in order to verify the reliability of each classifier, \( q_r(x) \) \(^1\) is regarded as confidence of classifier \( r \). Classifier accuracy can be estimated from the output of training data. The accuracy of classifier \( r \) is derived as follows:

\[
A_r = \sum_{x' \in C_r} q_r(x')
\]

where \( \mathcal{X}' \) denotes a training data set, and \( c(x') \) denotes the category of a training data \( x' \) \( (x' \in \mathcal{X}') \). If the total confidence \( A_r \) is large, the classifier \( r \) is easy to classify. On the other hand if \( A_r \) is small, the classifier \( r \) is difficult to classify the training data. As a result, the weight of each classifier which corresponds to its accuracy is calculated. In order to normalize the confidence \( A_r \) based on its maximum value \( \max_{r=1}^{K} A_r \), the weight of the classifier \( r, \omega_r \) is calculated as follows:

\[
\omega_r = \frac{A_r}{\max_{r=1}^{K} A_r}
\]

\(^1\) In this research, \( q_r(x) \) is treated as output of classifier, the performance of classifier, or confidence of classifier.
Classification Considering the Variation in Accuracies of Classifiers on GBT Model

By applying the weights accuracy of GBT classifiers, a new classification rule considering the variation in accuracies of classifiers is proposed on GBT model. Like equation (6), the log-likelihood function $F_{\text{GBT}}(p, x)$ can be formulated as follows:

$$F_{\text{GBT}}(p, x) = \sum_{r=1}^{g} \omega_r \left( q_r(x) \ln \frac{\sum_{c_r \in C_f} p_k}{\sum_{c_r \in C_f} p_l} + (1 - q_r(x)) \ln \frac{\sum_{c_r \in C_f} p_l}{\sum_{c_r \in C_f} p_l} \right)$$

(9)

Similar to the case of multi-valued classifier by GBT model in the previous section, the maximum likelihood estimator \( \hat{p} = (\hat{p}_1, \ldots, \hat{p}_K) \), \( \sum_{k=1}^{K} \hat{p}_k = 1, \hat{p}_k > 0 \), is obtained by maximizing $F_{\text{GBT}}(p, x)$ in equation (9) with respect to $p$. Then the classification rule of $x$ is formulated by \( \hat{c} = \arg \max_{c_i \in C} \hat{p}_k \).

Experiments

In order to verify the effectiveness of the proposed method, classification experiments by using newspaper articles and evaluating the classification accuracy are performed. In this study, the combination of 1-vs-the-rest-classifiers which are the most basic configuration of binary classifiers is focused.

Experimental Conditions

In this experiments, four categories (Economic, Social, Sports, and Entertainment) of the Mainichi Newspapers article published in 2000 are used. Every article belongs to only one category. For the numbers of training data 100, 300, and 500, the average values of classification accuracy are evaluated. Each experiment is repeated five times and the numbers of test data are equally 200. To estimate the parameters of the log-likelihood, the gradient method is applied. We use the word “frequency” as features of documents. The feature space is configured by words with more than 10 times appearance in whole documents. To evaluate the performance of the proposed method, we compare its accuracy with that of the original GBT model that does not take the accuracy of the classifier into account.

Result of Experiments

Figure 1 shows the results obtained by averaging the accuracies of experiments. In each experiment, the number of training data was set in three patterns: 100, 300, and 500. From the results, in the cases of 100 and 300 training data, the proposed method has statistically significantly higher classification accuracy than the conventional methods. In the case of 500 training data, there is no significant difference between two methods. It can be clarified that the proposed method is effective when using a small number of training data.

![Figure 1. Classification accuracy by each number of training data (* shows that there is a 5% significant difference).](attachment:figure1.png)
Discussion

The proposed method is an effective method when only a small number of training data are used in learning phase. If a large number of training data are used, the effectiveness of the proposed method is diminished because classification accuracy of each classifier can be improved and the effect of weighting is diminished. If we have to treat the more complex data structure, this characteristic is desirable in practice.

Conclusion and Future Work

In this study, the new multi-valued classification method by the GBT model considering the variation in the accuracy of each classifier is proposed and shows the effectiveness of the proposal by the experiments. The proposed method is effective in accuracy especially for the case only a small number of training data can be used for learning phase. The idea to use the information of accuracy of each classifier is useful for other methods with a combination of classifiers.

The proposed weighting method is based on a heuristic way. As future work, an examination of a method to investigate the optimum weight is remained.

References


Essential Competences to the Pharmacy Industry Competitiveness: Case Study With Cooperators in the Town of Natal, Rio Grande do Norte, Brazil

Kleber Cavalcante de Sousa, Fernanda Cristina Barbosa Pereira Queiroz, Hélio Roberto Hékis, Jamerson Viegas Queiróz, Marciano Furukava
Universidade Federal do Rio Grande do Norte, Natal, Rio Grande do Norte, Brazil

The pharmaceutical industry is one of the most promising markets in the world. It is highly competitive, complex and requires huge investments in research, development, production, marketing, and sale of pharmaceutical products. One of the main strategies of the pharmaceutical industry is the promotion of its products for the medical fraternity through a drug sales representative, essential for the acceptance and prescription of your brand. This study identifies the essential drug promoter skills to competitiveness and the success of these organizations. Data were collected through semi-structured individual interviews and resulting 46 competences mentioned as the most important by own sales representatives. The research points to the need for new methods of empowerment, essential to the competitiveness of sales representatives, considering that these competences contribute to the strategies of establish industry.

Keywords: competences, competitiveness, pharmaceutical representatives, pharmaceutical industry

The Pharmaceutical Industry

The research, development, and production of drugs are fundamental to maintain health. With time the pharmaceutical industries have evolved over their role as a manufacturer of medicines to innovator, a provider of information, employer, and a significant player in the world economy (Das, 2011). Porter (2004) pointed out that, besides the global environment that businesses are located, they should worry about their competitors, suppliers, customers, substitutes, and potential entrants that influence competition in your industry generating profits.

There is an observable growth of investments in pharmaceutical laboratories in Brazil, aligned to
population purchasing power, increasing the job opportunities in this category. Supporters of pharmaceutical promotions claim that marketing expenditures give innovative pharmaceutical manufacturers a fair chance to recover high R&D expenditures (Kremer, Bijmolt, Leeflang, & Wieringa, 2008). The pharmaceutical market is a specialized field that requires knowledge in drugs and sales skills by the sellers that sell the product to a customer (doctor) who has more scientific knowledge. It is known that the importance of competency management in this scenario is to align human resources managements with business strategy incorporating the concept of competence.

In this market, consumers do not always choose the product because it is the doctor who prescribes the medication and decides to be more appropriate to the patient. To Rubin (2003), marketing may serve as a communication channel to educate physicians and expose consumers to information that may improve their health outcomes and medical options. This is the reason to take promotional and commercial actions with the physicians and competent distributors (drugstores and wholesalers) in order to reach their planned objectives. Such spending benefits both patients and physicians in a variety of ways. The pharmaceutical representatives are valued highly by physicians as a reliable source of information. Kobayashi and Leite (2010) asserted that these professionals must be increasingly qualified and updated, so the investments could revert to keep the competitiveness of the organization.

The question refers to the importance of core competencies of the pharmaceutical representatives as competitiveness in the city of Natal, Rio Grande do Norte, Brazil, outlining the following specific objectives: to identify individual skills, classification of competencies (knowledge, skills, and attitudes), and characterization of the pharmaceutical representatives activities.

Competences and Strategy

Organizational competencies stem from the specificity of each company to identify its resources and turn them into competitive advantage. It is noteworthy that the process to transform resources into organizational competencies happens in the competitive scenario and moves the dynamic of the organizational.

This way, the strategy emerges linked to the company’s competences, while its separation into personal competences goes through hierarchic levels and work teams. The effectiveness of the organization results in the ability to articulate their strategic guidance and expertise of the company, group, and individual skills. Therefore, establishing the strategic direction, aligning the organizational competences, and separating into individual competences reflect the organizational culture and the management model (Moura & Bitencourt, 2006).

Mintzberg, Ahlstrand, Lampel, Quinn, and Ghoshal (2008) pointed out that both organizations and strategies exist independently. However, one influences the other, since strategies are constructed from a previously organizational framework, and evaluated by the strategic management at some moment. This can be conditioned, either by need to change as well as for the survival of the organization. Therefore, the strong and weak points and the opportunities and menaces must be considered as a starting point to build a new management strategy. The strategic management plays an important role in the characterization of the diverse and complex organizational processes, contributing to creating a kind of management focused on the efficiency and the search for better results (J. V. Queiroz, F. C. B. P. Queiroz, & Hékis, 2011).

The word “competence” associated with human resource management originally appeared in a paper published by David C. McClelland in 1973 Testing for Competence Rather Than Intelligence (Daólio, 2004;
Dutra, 2004). The concept of competence is thought as a set of knowledge, abilities, and attitudes justifying a high professional performance (A. Fleury & M. T. Fleury, 2004). To Le Boterf (2003), by embracing knowledge, skills, and attitudes, competence is something that requires a continuous motion, a constant mobilization of diverse knowledge for application to a specific situation. Hence, it can be said that to be competent, the professional needs knowledge, abilities, and attitudes which are specific to practice his/her activities. In other words, the professional must have attitudes and abilities enabling him/her to mobilize his/her knowledge, at a precise time, to reach a particular goal, in order to solve a specific problem.

For this study, we consider competence as a set of knowledge, abilities, and attitudes providing the professional and a better performance of his/her functional attributes, with efficiency in developing the activities and success. Organizations situated in competitive environments need to define its strategy and the necessary competences in a continuous learning.

Individual Competences

To Zarifian (2001), individual competences are those regarding to each professionals of the organization. These are skills that the individual possesses by his/her educational background, family creation, and his/her biography. Business competences refer to the comprehension that a person must have about the “business” of the organization and the organizational goals, as well as a comprehension of the social and political environment surrounding the organization. In this sense, a good professional must incorporate competences, or improve those already present, according to his/her experience in the environment.

A switchover between organization and persons is perceivable, both sides have effective participation in the process of professional growth. A professional unable to move his/her knowledge, information, and abilities to solve an immediately solvable conflict, becomes unproductive for reaching the organizational goals (Le Boterf, 2003). Therefore, competence refers to the professional capacity to associate all his/her personal qualities in order to get a better performance in his/her acting area.

Management Competence

Prahalad and Hamel (2004) developed the concept of essential competences in organizations. Such competences are a set of abilities and technologies resulting from contributing a fundamental difference for the competitiveness of the company. The identification and skills development are imperative for the organization to define its action strategies in a complex and ever-changing world. The companies are able to detect just a limited number of basic competences giving them strategic and sustainable advantage in the market. Competence management gains importance and is perceived as a management model derived from the resource-based theory of management.

Bitencourt (2005) pointed out that competence can be summarized and associated with the development of concepts, abilities, and attitudes. Besides, they constantly rise questioning and trigger a process of individual learning. The competences are transferred and consolidated by the relationship (interaction).

Identifying Competence

A. Fleury and M. T. Fleury (2004) highlighted the importance of competence-based management. Two models: the American Society for Training and Development (ASTD) and competency-based management were the first ones to stand out identifying the competences.

The research in skills management involves different approaches, including the views of managers, employees, and customers. The methods and techniques adopted to identify competences have the following
features: observation of high performance employees behavior in order to delineate their qualities; application of semi-structured focused interviews; brainstorming; brain-writing; surveys; and modeling by specialists.

Medical Advertisement Strategy

Medical advertisement is defined by the World Health Organization (WHO) as all informational and persuasive activities by manufacturers and distributors to influence the prescription, supply, sale, or use of drugs (Norris, Herxheimer, Lexchin, & Mansfield, 2007).

The industries concentrate its investments and efforts to develop drugs to treat chronic diseases that require ongoing prescriptions for longer periods (Rey, 2010). On the other hand, Palácios (2008) brought out that the use of sophisticated marketing and advertisement techniques, and the relationships established between physicians and pharmaceutical representatives are potentially harmful to the users and therefore it makes evident the importance of regulating medical advertising.

One of the main links between the pharmaceutical industry and the physicians is its sales force, the pharmaceutical representatives, or medicine advertisers, who are employed and earn their salaries working to attend the interests of their employers (Brody, 2005). In this sense, some difficulties rise from different beliefs and interest values existing among doctors, patients, and the third parties, including the media and the pharmaceutical industry (Neelam & Jo-Ann, 2012).

The Brazilian resolution establishes a difference: For over-the-counter (OTC) medicines, advertisements can be addressed to the consumer, but for prescription drugs (either with or without retention of the prescription), the advertisement must be addressed just to professionals entitled to prescribe them, though communication channels are restricted to them. There are two different segments for pharmaceutical marketing: the market of over-the-counter medicines and the markets for strictly prescription medicines, acquisition is done through medical prescription. There is one resolution regulating the activities of pharmaceutical representatives, determining that these professionals “must be limited to scientific information and characteristics of the medicines registered by the National Health Surveillance Agency”.

The ethical matter about physicians and pharmaceutical representatives relationship has been widely discussed in the literature, evidencing a debate about conflicts between medicine users (patients) and the pharmaceutical industry, which through the pharmaceutical marketing plans a series of promotion and advertisement techniques directed to the doctors. The use of freebies, free samples, invitations to events, lunches and gifts are the central point of this debate (Fugh & Ahari, 2007; Gagnon & Lexchin, 2008; Palácios, 2008; Wazana, 2000).

Methodology

The study was performed based on qualitative search (semi-structured interview) with the intention to release the expression of ideas, thoughts, and opinions from the own pharmaceutical representatives. From the point of the objectives, this research is characterized as descriptive, as it intends to describe the features of a given phenomenon and to establish the relationship among variables. Sampling is non-probabilistic and the selection is made by typicality (Vergara, 2000), developing medical advertisement activities in the Natal market.

This work adopted a model praised by Dutra (2004) and A. Fleury and M. T. Fleury (2004): Competences can be surveyed based on their components of knowledge, abilities, and attitudes. The universe of the research
was the group of pharmaceutical representatives, city of Natal, Rio Grande do Norte, Brazil. Information about functional competences was collected from 35 pharmaceutical representatives from a whole universe of 250, representing 18.8% of the professionals at state of Rio Grande do Norte, Brazil. These professionals develop their work through health professionals visits, mostly physicians of different specialties. They promote and advertise pharmaceutical products manufactured by several pharmaceutical companies.

**Interviews**

As a first procedure for collecting data on individual competences, a semi-structured individual interview was applied to 35 pharmaceutical representatives. For the semi-structured interview, a script was used containing: a heading indicating the date of the educational institution; identification of the post-graduate program; the name of the searcher and the title of the work related to the research; definitions of organizational and individual competence; and the question to be answered: “based on the typical activities of the pharmaceutical representatives and the competences that you consider important for the pharmaceutical representatives”.

The 35 pharmaceutical representatives were interviewed individually, in different moments and places according to their convenience. Firstly, a brief explanation was made about the reasons: What was the research about and what was it for? It was emphasized that the data provided were strictly intended for academic research.

**Results and Discussions**

**Competences Identified in the Interviews**

Forty six competences were identified in the interviews in the requirements: knowledge, abilities, and attitudes according to Table 1.

**Table 1**

<table>
<thead>
<tr>
<th>Knowledge, Abilities, and Attitudes Detected in the Interview Session, Considering Significant Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
</tr>
<tr>
<td>Importance (%)</td>
</tr>
<tr>
<td>Sales techniques</td>
</tr>
<tr>
<td>Planning techniques</td>
</tr>
<tr>
<td>Advertisement techniques</td>
</tr>
<tr>
<td>Negotiation techniques</td>
</tr>
<tr>
<td>Foreign language</td>
</tr>
<tr>
<td>Products composition</td>
</tr>
<tr>
<td>Informatics and internet</td>
</tr>
<tr>
<td>Good manners</td>
</tr>
<tr>
<td>Human relationships, professional norms, memory techniques, notions on human health, politeness, good Portuguese</td>
</tr>
<tr>
<td>Ability</td>
</tr>
<tr>
<td>Importance (%)</td>
</tr>
<tr>
<td>Good human relationships</td>
</tr>
<tr>
<td>Communication skills</td>
</tr>
<tr>
<td>Work under pressure</td>
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<tr>
<td>Good memory</td>
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<tr>
<td>Ideas synthesizing capability</td>
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<tr>
<td>Decision-making capability</td>
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<tr>
<td>Vehicle driving</td>
</tr>
</tbody>
</table>
Among knowledge requirements, four competences were considered relevant, cited frequency higher than 60% by the interviewed professionals. There are the knowledge requirements standing out as the most relevant:

- Sales techniques;
- Planning techniques;
- Advertisement techniques;
- Negotiation techniques.

These competences are related to the application of the daily activities knowledge of the pharmaceutical representatives, such as supplying information in an efficient and effective way to the highest number of health workers. For this, they prepare activities and promote products through advertising techniques, promotional material, freebies, and gifts, in order to gain the medical prescription, a fundamental point to increase the sales and consequently reach the planned goals of the company. The pharmaceutical companies frequently work out these competences in their trainings, providing this technical knowledge to their professionals in order to transform these individual competences into useful company competences. Other two competences identified were foreign language and product composition, which interviewed professionals believe to be essential knowledge in order to inform, negotiate, and convince the doctors to prescribe.

Among the requirements of abilities, the competences stand out with more than 60%:

- Good human relationship;
- Communication skills.

The results point toward a concern of the professionals about how to communicate and relate with the clients. The importance attached by pharmaceutical representatives to personal relationship skills and communication skills related to their daily activities are evident. Based on these data, knowing how to deal with customers is very important for the performance; as well as how to communicate in a clear concise and transparent way. Among these requirements, it is worth considering the importance perceived to the following competences: work under pressure taken as relevant in spite of receiving lower scores (less than 60%). The ability to work under pressure is one of the new realities of the modern world, and it is very evident in the pharmaceutical market. The strong competition and high investments on research and development, beyond establish goals to be attained by their collaborators, as a way to get higher profitability.

None attitude requirement reached 60% in its score, but empathy, professional ethics and initiative got 54% and integrity reached 51%, hence being the most cited competences, evidencing the preoccupation about...
professional behavior and the doctors, colleagues, and patients relationship. The ethics issue got much attention as a result of discussions, raised by researchers and experts, about the limits and acceptable conduct of pharmaceutical representatives trying to convince the physicians about a medical prescription. Another competence to stress is empathy, which is also considered as a quite relevant competence, as professionals relate empathy with a better performance of their functions.

Final Considerations

The present work detected the essential competences to pharmaceutical representatives acting in state of the Rio Grande do Norte, Brazil, by own perspective. As a whole, 46 competences were identified. These competences were classified into knowledge, abilities, and attitudes. Knowledge on sales techniques, negotiation techniques, and planning techniques is competences related with knowing how to do daily activities of medical advertisers to plan their work, to know how to negotiate, and be able to identify the needs of their clients and demonstrate the advantages and benefits of the promoted products. As evidenced by A. Fleury and M. T. Fleury (2004), knowledge competences are those related with a potential to do, and competences identified among the requirements of attitude are those showing a capability to do and denote personal habits.

Pharmaceutical representatives are professionals that transfer information about diseases and medicines, and in this case it is fundamental to have the ability to create and keep good relationships, and communicate in a clear and objective way. These relationships between physicians and pharmaceutical representatives are built through respect and ethical behavior, based on empathy and integrity (Palácios, 2008). It is necessary for the ability to create and keep good relationships, abilities to communicate in a clear and objective way, and work under pressure, in response to the high competitiveness of this market. Some attitudes are essential: empathy, professional ethics, and integrity, which are competences related to conduct and behavior, in the daily activities visiting and promoting pharmaceutical products to health professionals. It was observed that these professionals, in daily activities, carry out complex activities demanding these competences in order to reach objectives and the goals imposed by the pharmaceutical industry.

This work highlights the importance of knowledge, abilities, and attitudes for the pharmaceutical representatives in order to attain results for the pharmaceutical industry. In this sense, it is necessary to increase the investments to develop new manuals for teaching and training pharmaceutical representatives in order to turn them more capable and aligned to new realities of this market. This will make pharmaceutical representatives force more conscious about the necessary essential competences. The survey still pointed out the competences of sales techniques, good human relationships, to know how to communicate or communication skills, and work under pressure as relevant.

The competence considered as the most relevant by survey was sales techniques. This result indicates that knowledge of sales techniques is essential for the good performance of this profession, as evidenced in previous studies (Brody, 2005; Medawar, 2002; Wazana, 2000; Maguire, 1999; Norris et al., 2007). This competence is related to sales activities including: knowledge about the client’s needs, about benefits and advantages of the product and being capable of keeping commercial relationships with the doctors.

Planning and negotiation techniques are competences related to knowing how to do and knowledge. Planning and negotiation are related to the daily work of the pharmaceutical representatives. Before the visits, they need to structure a plan called “pre-visits”, daily and weekly schedules and the client profile. The negotiation technique, on the other hand, is necessary to go around questions and to convince doctors to
prescribe their brand.

These results show that, besides knowing how to do, the pharmaceutical representatives must have the skills to do. In order to be able to transfer knowledge, the professionals need to read the study and retain knowledge in a constant and continuous way, and therefore, a good memory is relevant.

References


Brody, H. (2005). The company we keep: Why physicians should refuse to see pharmaceutical representatives. Annals Fam Medicine, 3(1), 82-86.


