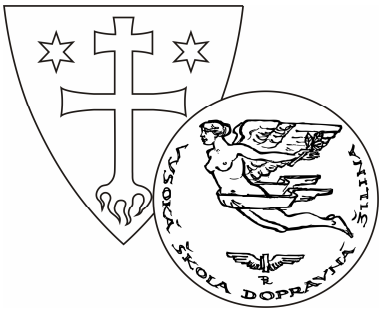
UNIVERSITY OF ŽILINA



TRANSCOM 2009

8-th EUROPEAN CONFERENCE OF YOUNG RESEARCH AND SCIENTIFIC WORKERS

PROCEEDINGS

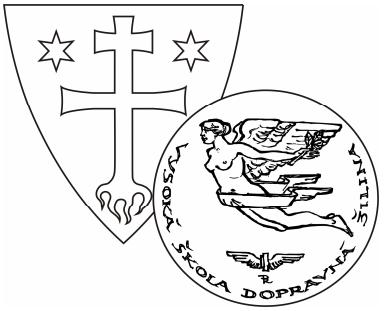
SECTION 2

ECONOMICS AND MANAGEMENT

Part 2

ŽILINA June 22 - 24, 2009
SLOVAK REPUBLIC

UNIVERSITY OF ŽILINA



TRANSCOM 2009

8-th EUROPEAN CONFERENCE
OF YOUNG RESEARCH AND SCIENTIFIC WORKERS

under the auspices of

Prof. Ing. Ján Mikolaj, PhD.
Minister of Education, Slovak Republic

&

Prof. Ing. Ján Bujňák, PhD.
Rector of the University of Žilina

SECTION 2

ECONOMICS AND MANAGEMENT

Part 2 (M - Z)

ŽILINA June 22 - 24, 2009
SLOVAK REPUBLIC

Edited by Lucia Tulejová, Monika Kormancová, Michal Varmus, Peter Brída

ISBN:….

TRANSCOM 2009
8-th European conference of young research and scientific workers

TRANSCOM 2009, the 8th international conference of young European researchers, scientists and educators, aims to establish and expand international contacts and co-operation. The main purpose of the conference is to provide young scientists with an encouraging and stimulating environment in which they present results of their research to the scientific community. TRANSCOM has been organised regularly every other year since 1995. Between 160 and 400 young researchers and scientists participate regularly in the event. The conference is organised for postgraduate students and young research workers up to the age of 35 and their tutors. Young workers are expected to present the results they had achieved.

The conference is organised by the University of Žilina. It is the university with about 13 000 graduate and postgraduate students. The university offers Bachelor, Master and PhD programmes in the fields of transport, telecommunications, forensic engineering, management operations, information systems, in mechanical, civil, electrical, special engineering and in social sciences.

SECTIONS AND SCIENTIFIC COMMITTEE

1. TRANSPORT AND COMMUNICATIONS TECHNOLOGY

Scientific committee: Baumann S. (D), Cenek P. (SK), Droździel P. (PL), Janáček J. (SK), Jánošíková Ľ. (SK), Kremeňová I. (SK), Novák A. (SK), Palúch S. (SK), Rievaj V. (SK), Řezáč M. (CZ), Schnieder E. (D), Surovec P. (SK), Žarnay P. (SK)

2. ECONOMICS AND MANAGEMENT

Scientific committee: Bartošová V. (SK), Blašková M. (SK), Březinová O. (CZ), Duncan F.H. (USA), Hittmár Š. (SK), Kos B. (PL), Kucharčíková A. (SK), Lyakin A. (RUS), Rostášová M. (SK), Rybakov F. (RUS), Strenitzerová M. (SK), Strišš J. (SK), Tomová A. (SK)

3. INFORMATION AND COMMUNICATION TECHNOLOGIES

Scientific committee: Bärwald W. (D), Dado M. (SK), Drozdová M. (SK), Hanuliak I. (SK), Keil R. (D), Klimo M. (SK), Kolev P. (BG), Kotsopoulos S. (GR), Madleňák R. (SK), Matiaško K. (SK), Spalek J. (SK), Vaculík J. (SK), Vaculík M. (SK), Vrček N. (HR)

4. ELECTRIC POWER SYSTEMS. ELECTRICAL AND ELECTRONIC ENGINEERING

Scientific committee: Altus J. (SK), Blažek V. (D), Čápová K. (SK), Dobrucký B. (SK), Dodds S.J. (GB), Santarius P. (CZ), Vittek J. (SK)

5. MATERIAL ENGINEERING. MECHANICAL ENGINEERING TECHNOLOGIES

Scientific committee: Adamczak S. (PL), Bokůvka O. (SK), Borkowski S. (PL), Dzimko M. (SK), Guagliano M. (I), Kunz L. (CZ), Meško J. (SK), Nicoletto G. (I), Palček P. (SK), Skočovský P. (SK), Takács J. (H)

6. MACHINES AND EQUIPMENTS. APPLIED MECHANICS

Scientific committee: Dekýš V. (SK), Gerlici J. (SK), Kalinčák D. (SK), Malenovský E. (CZ), Medvecký Š. (SK), Merkisz J. (PL), Nemček M. (CZ), Pawelczyk M. (PL), Sága M. (SK), Zapoměl J. (CZ), Žmindák M. (SK)

7. CIVIL ENGINEERING

Scientific committee: Bouchair H. (F), Dmitrovskaja L. (RUS), Garbuz A. (UA), Ižvolt L. (SK), Melcer J. (SK), Ivanov J. (BG), Teleman E.C. (RO), Vičan J. (SK), Zolotov M. (UA)

8. SOCIAL SCIENCES

Scientific committee: Banáry B. (SK), Baštinec J. (CZ), Cabanová V. (SK), Gulová L. (CZ), Kráľová Z. (SK), Růžičková M. (SK), Šindelářová J. (CZ), Vikoren V. (N)

9. SECURITY ENGINEERING. FORENSIC ENGINEERING

Scientific committee: Danihelka P. (SK), Horák R. (CZ), Navrátil L. (CZ), Poledňák P. (SK), Reitšpís J. (SK), Seidl M. (SK), Šenovský M. (CZ), Šimák L. (SK), Vasiliev D. (BG), Zamiar Z. (PL)

ORGANIZING COMMITTEE

CHAIRPERSON Bokůvka Otakar

EXECUTIVE SECRETARY Vráblová Helena

MEMBERS Bábel J., Belan J., Braciník P., Brída P., Brumerčík F., Dobrotková M., Dubcová Z., Frajtová-Michalíková K., Harušinec J., Hnátová Z., Houšková L., Imrišková E., Jánošíková G., Kačiaková B., Kardoš M., Kormancová M., Krasňan M., Kuzmová M., Ladovský T., Ližbetinová L., Mihalov K., Močková M., Mráz M., Murín M., Neslušan M., Ondrejka R., Pachová S., Pavelková I., Pilát P., Potkan T., Remek Ľ., Smetana M., Sršníková D., Stránska S., Štofková K., Tulejová L., Valentíková E., Varmus M., Vaško A., Vaško M., Záborský M.

SECTION 2 ECONOMICS AND MANAGEMENT

REVIEWERS:

Bartošová Viera
Blašková Martina
Brezániová Mária
Ceniga Pavel
Čorejová Tatiana
Dubovec Juraj
Ďurišová Mária
Dvořáková Eva
Frajtová-Michalíková Katarína
Gnap Jozef
Gogolová Martina
Hittmár Štefan
Jankal Radoslav
Klieštik Tomáš
Král Jaroslav
Kráľ Pavol
Kubina Milan
Kucharčíková Alžbeta
Mičieta Branislav
Močková Miriam
Nadányiová Margaréta
Pančíková Lucia
Rostášová Mária
Sovier Jakub
Strenitzerová Mariana
Štofko Stanislav
Štofková Jana
Štofková Katarína
Tomová Anna
Vodák Jozef

Note:

Authors are responsible for language contents of their papers

CONTENTS

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Development of the Autonomous Mobile 3D Laser Scanning System

[*]Milan Magdech, [*]Milan Gregor
*University of Žilina, Faculty of Mechanical Engineering, Department of Industrial Engineering, Univerzitná 1, 01026 Žilina, Slovakia, {Milan.Magdech, Milan. Gregor}@fstroj.uniza.sk

Abstract. This article deals with the autonomous mobile 3D laser scanning system and dividing by the scanning mode. It is here named the key problem of such a system faces in its activities and the subsequent processing of data. In the third section describes the elements of a mobile 3D Laser Scanning System and their properties with the reasons why they are necessary in the autonomous mobile 3D laser scanning system.

Keywords: 3D laser scanning, mobile robot, autonomous mobile system

1. Introduction

In our work of the digitization we use a static laser scanner, which has wide application. We have learned through its acquire and process data for 3D models. Now we would like to make this process of digitization has become effective, whether in cash or time. Means that we would like to achieve is the development of autonomous mobile 3D Laser Scanning System.

2. Mobile 3D laser scanning system

Uses the technology of laser scanning where the scanner is located on the mobile device, which receives from the area of 3D points. A key problem of such a system is the harmonization of spatial data with the position and orientation system. In order to create the right environment, 3D model, it is necessary that the different scans were merged into a single coordinate system. This process is called registration. If the scans have a different coordinate system leads to error. As a byproduct, successful registration of 3-D scans relocalizes the robot in 6D by providing the transformation to be applied to the robot pose estimation at the recent scan point.

Autonomous mobile 3D scanning systems can be divided into two groups. And according to the mode in which scanning takes place:

a, scanning mode "stop - scan - go"
b, mode scanning "go - scan"

3. Elements of 3D laser scanning system

The system consists of the essential elements of a mobile device, a laser scanner and the supporting technology, which record the position and orientation of the whole system such as ERSP Navigation, ERSP Vision, GPS and IMU.

3.1. Autonomous mobile device

Autonomous mobile vehicle must be able to fulfill a specific set of demands. It moves in specified environment, gains information about it's current position and environment, processes this information and modifies it's behavior accordingly.

For the purpose of developing an autonomous mobile 3D scanning system, we decided to use the Evolution Robotics ER1 platform. ER1 is a set of features that use of technologies that are needed. Patented solutions ERSP Vision and ERSP Navigation giving robots the possibility to move independently and the ability to recognize images and objects.

ERSP Navigation:

Allows the robot or device to be fully autonomous, move in their environment with knowledge of the location, create a map to plan an effective route to the destination point.

Main features:

- **vSLAM** (Visual Simultanous Localization and Mapping) is a set of navigation features that allow localization and mapping using camera and roller encoders as sensors. The system itself generates a map, which consists landmarks, which generates the robot during exploration environment. Each point is composed of identifiable images recorded from each position. One of the most important skills vSLAM allows the robot to recover after the transferred to another location
- **path planning,** this module allows the user to select a target position and request a list of items, which have brought the robot safely
- **voiding obstacles**, allows the robot to detect obstacles and continuously develop local routes to avoid them, which ensures the safe movement of robots
- **the survey**, property survey allows the robot to move safely in an unknown environment
- **grid deployment** represents two-dimensional map of the robot environment using precision grid, which model the occupied and empty space environment[12].

ERSP Vision,

It allows the robot or device to identify 2D and 3D objects in real terms, the lighting and the location of the object is not checked. Vision functions provide access to extremely efficient algorithms of computer vision. These algorithms able to analyze images from the camera and know how to extract information from them, which can be used for different tasks.

Evolution Robotics ER1 platform is compiled from available parts in different ways. We have chosen to compile in the form of the chassis, as can be seen in the figure[12].

Fig. 1. Chassis Evolution robotics platform ER1.

In coincidence developing a tracked chassis. Tracks are better suited for uneven terrain The vehicle can be used both outdoors and indoors. Smaller front tracks were added in order to give the vehicle stairway climbing ability. This can be crucial in some applications.

Platform is driven by two electric motors. They are powerful enough to move it in 45 degree climb. This is useful when a movement through some natural or artificial barriers is required. The negatives of track based approach are higher power drain and less precise movement [11].

Fig. 2. Tracked chassis.

Another type of mobile device that you can use the car. In our case, a car Wolksvagen Touareg, this mobile platform 3D Scanning system need to be supplemented by additional devices, and GPS IMU.

3.2. Laser scanner

We can use two types of scanners, 2D and 3D.

- **2D** are optimized to meet the requirements for high speed scanning. The sensor mechanism is based on the rapidly rotating polygonal mirror, which creates a complete one and parallel lines. The sensor is the maximum angle of 180 °.
- **3D** broadcast laser beam is made using a rotating mirror with 360 ° visual slash. There thus creating any gaps[7].

It is possible to use one or more scanners when scanning. The number of scanners is dependent on environmental conditions and Scanning.

3.3. Additional equipment

Additional equipment, namely GPS and IMU are needed especially when they are using a mobile device, which has not technology to identify the location and orientation. Such mobile devices may be a car.

GPS

Global Positioning System (GPS) can be used to determine the exact location and provide a highly accurate reference almost anywhere on Earth. Accuracy of a single GPS signal is about 5 meter. Through Differential GPS (DGPS) deviation from the true value at a radius of 10 km is centimeters and radius of 400 km is meters. Measurement of position using DGPS is a bit more complicated than in the GPS, there is a need for at least two GPS receivers. One receiver is placed at a known fixed position, which was established Geodetic measurement. This receiver is called the RS - a reference station. This station continuously take measurements of all visible satellites, pseudorange compared with the measured value (data on its location) and their differences sends its own separate channel to all users of DGPS. The DGPS receivers calculate deviations to apply the correction to the correction of the measurements.

IMU

IMU (Inertial Measurement Unit) is a major component of inertial guidance systems used in aviation, space shuttle, ships and missiles. IMU senses movement, including the type

of course and direction of movement with the assistance of the accelerometers and gyroscope. IMU detects current speed, acceleration as well as rotation and swing out. This data is then computer processed to calculate the current speed and position of the input values of speed and position. IMU system is error prone, so it is good to be combined with the already mentioned GPS.

The presence and alignment of elements of GPS and IMU is given their function in the mobile scanning system is important. Additional elements of the system are software combine geometric scanning profiles obtained with the position and orientation data and digital camera, which extends the visualization.

4. Conclusion

The aim of the article is to highlight how it is possible to increase the efficiency of the digitization process using autonomous mobile 3D Laser Scanning System. The article named the key problem, which is associated with autonomous mobile 3D laser scanning system, and also means that the problem can be solved.

This research work was supported by the agency for support of research development (APVV) under contract no.: APVV-0597-07.

References

[1] ĎURAJOVÁ M., MAČÚŠ P., GREGOR M., MEDVECKÝ Š. *Objects Digitization Using 3D Laser Scanning.* Research study, No. 008-UKaI-06.

[2] GREGOR, M., BUDZEĽ, F., ŠTEFÁNIK, A., PLINTA, D. *3D Laser scanning in Digitization of current production systems.* In: 9th IFAC Workshop on Intelligent Manufacturing Systems, Szczecin, 2008, p.137 – 144.

[3] HUNTER, G., COX, C., KREMER, J**.** ***Development of a commercial laser scanning mobile mapping system – Streemapper.*** Geomatic World, 2008

[4] HAALA, N., PETERA, M., KREMERB, J., HUNTER, G. *Mobile lidar mapping for 3D point cloud collection in urban areas – a performance test.* Geomatic World, 2008

[5] BARBER, D. M., MILLS, J.P. ***Vehicle based waveform laser scanning in a coastal environment. International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences,*** 6 pages. Newcastle University, UK, 2007

[6] NUCHTER, A., LINGEMANN, K., HERTZBERG, J. ***Kurt 3D a mobile robot for 3D mapping of environments.*** Universität Osnabruck, 2008

[7] RIEGL Laser Measurement Systems GmbH. Technical data, at: www.riegl.com, 2009

[8] FARO Laser Systems. Technical data, at: www.faro.com, 2009

[9] RAJA, V., FERNANDES, K. J., *Reverse Engineering - An Industrial Perspective.* Springer-Verlag London Limited 2008

[10] FURMANN, R., BUDZEĽ, F. *Digitalizácia výrobných hál pomocou technológie reverzného inžinierstva.* In: produktivita a Inovácie č.2, 2008, s. 11-12, ISSN 1335-5961.

[11] GREGOR, M., MAGDECH, M., MICHULEK, T. *Development of the autonomous mobile system for 3D laser scanning of large objects. In: Metody i techniki zazadzania,* Bielsko Biala 2009, pp. 109-116, ISBN978-83-60714-64-5

[12] EVOLUTION ROBOTICS, Inc. *Getting started guide ERSP 3.0 robotic development platform.* Evolution Robotics part number MC6125, Pasadena USA, 2004

[13] KARLSSON, N., Di BERNARDO, E., OSTROWSKI, J., GONCALVES, L., PIRJANIAN, P., MUNICH, E. M. *The vSLAM algorithm for robust localiyation and mapping.* Publishe in Proc. Of Int. Conf. on robotics and automation (ICRA) 2005

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Effectiveness of Strategic Human-Potential Management

*Radka Majerová
*University of Žilina, Faculty of Management Science and Informatics, Department of Managerial Theories, Univerzitna 8215/1, 01002 Žilina, Slovak Republic, Radka.Majerova@fri.uniza.sk

Abstract. This article is focused on evaluating effectiveness of strategic human-potential management process. It deals about need to review and update each step of setting the goals and strategy considering entrepreneur-environment changes. The first part concerns to determination of effectiveness of strategic human-potential management. The core is interested in evaluating strategic human-potential management as process, variety of strategic goals (qualitative and quantitative), known methods and tools to increase the quality and effectiveness of strategic human-potential-management process.

Keywords: Effectiveness, Evaluating, Strategic Human-Potential Management Process, Goals

1. Introduction

Strategic management is a key managerial function of any business. The purpose of this process is to define stretching, measurable, agreed (acceptable), realistic, relevant, time-related goals and variants of strategies as ways how to achieve the goals on the base of supertemporal vision, mission, and analysis of both micro- and macro-influencing factors with emphasis on prediction of trends in home and world market, searching and capitalizing on business opportunities and preventing of possible inconveniencies and problems.

1.1. Determination of Effectiveness of Strategic Human-Potential Management

The word meaning of *Effectiveness* is understood from several authors variously. Some meanings are illustrated in Figure 1.

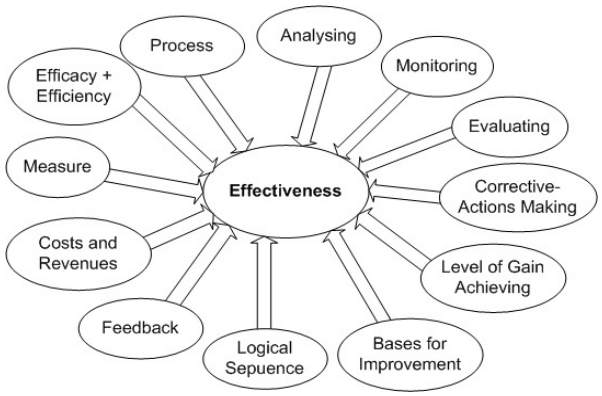


Fig. 1. The sense of the word effectiveness. [Source: own]

Effectiveness of strategic human-potential management should be known as constant process consisting of:

- Monitoring and evaluating animus, decisions and activities that have been made to achieve the goals, and
- Updating particular steps of this process regarding to all changes of internal and external environment of business.

In term of time effectiveness of strategic human-potential management is a process in which has been evaluated past process of realization and changes of strategic plans (because of environment changes), and provides the source information for future planning, decision-making and acting to gain the goals complying with the vision and the mission.

In term of subjects the actors of strategic planning are top managers, but for appropriate strategy implementation it is needed that all managers and employees are interested.

Method MBO (Management by Objectives) is one way how to make all human potential of a company to be interested in implementation of strategy. The principle of the method is to transform goals into specific objectives, targets, plans and actions, and to harmonize the objectives, targets, plans and actions of all company departments altogether, even with individual personal aims.

2. Effectiveness of strategic human-potential management process

Evaluating effectiveness of human-potential management process is multi-level process [1]. This process follows all steps and each individual step of strategic management as illustrated in Fig. 2.

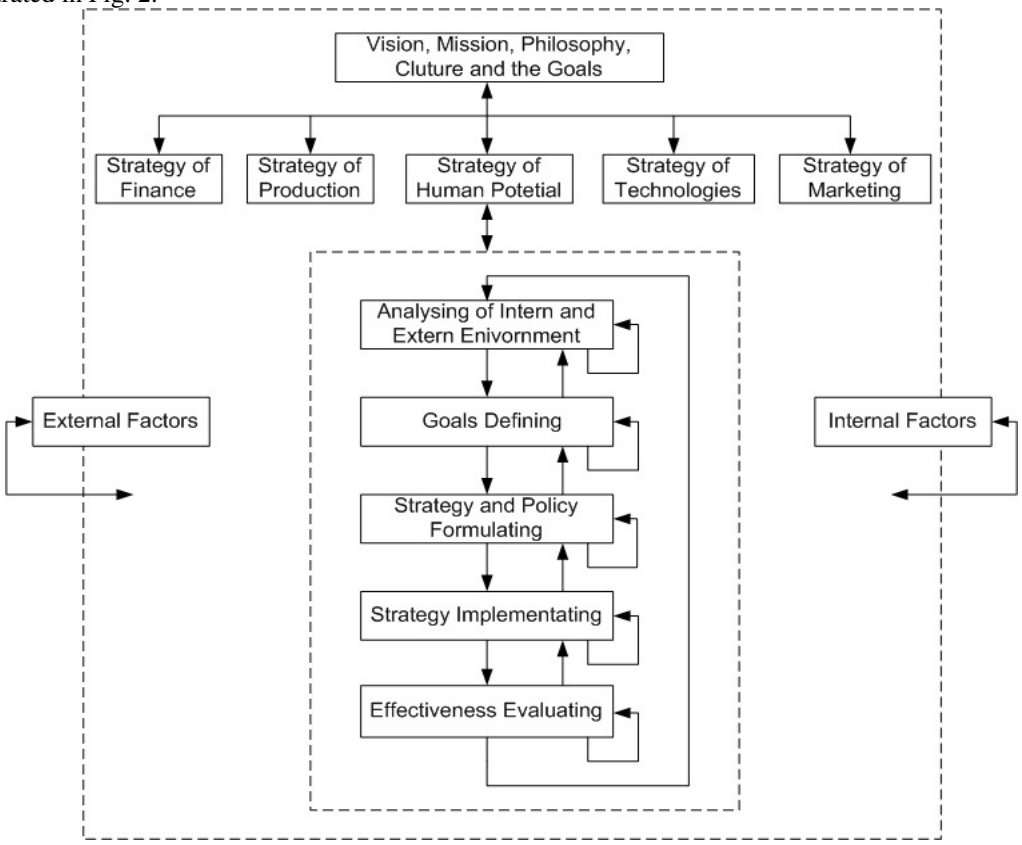


Fig. 2. Process of strategic human-potential management with feedback. [Source: own]

The final step of strategic-management process (Effectiveness Evaluation) evaluates the measure of goal-achieving. Business goals are evaluated as well as human-potential goals. Human-potential goal category may obtain [1]: productivity increase, raising of motivation and loyalty of managers and employees, improvement of communication-information flows, higher quality of qualitative composition in working team, increasing willingness to accept changes, even instigate human potential to change-activating, or [2]: raise knowledge of company goals in all company levels, higher employee-knowledge of consequence of his work, etc. Qualitative goals should be appended with quantitative goals, objectives and targets.

There is one not clearly explained question in scientific community: influence of qualitative conditions onto quantitative indicators (for example satisfaction enhancement of employee in a work onto higher working performance). It is true, that people, for whom their work is hobby and love, usually achieve above-standard goals or effects and their enthusiasm is notable not only in their performance, but also in social contacts (with colleagues, customers, in a family…). J. Collins [3] means, that enthusiasm for some working position together with character of a recruiter are preferred criteria in employee selection. But enthusiasm of these work-lovers must not depend on working conditions. The theory of supermotivation (Yorkers-Dodson) [4] says about non-linearity (concave) between motivation and performance. Raising of motivating causes performance increase but just until point of supermotivation, after this point, performance becomes weak under the pressure of motivators. The point of supermotivation is individual; it depends on personality, temperament and nerve system. Some people work effectively in stress; others performance under the pressure is low. Scientific researches have not proved positive feedback between satisfaction and performance in the sense that "satisfied employee works more effectively and employee with high performance must not be satisfied" [4]. On the other hand self-fulfillment of employee, positive working climate, need-satisfaction and background probably increase loyalty of the most employees.

While evaluating the efficiency of strategic management and development of a human potential, it is important to revaluate the effectiveness of decisions and steps that have been made in each stage of the process. And also the sequence and impact of these steps have to be considered.

The second part of the feedback is concerned about the propriety of the implementation chosen and of understanding of all employees to the methods of the implementation. The third stage is supposed to estimate if the strategies chosen have been suitable including creation of strategic variants and recency of personal policy applied. The fourth stage of the process investigates the level of objectivity, achievement of strategic aims that have been set up, and also equilibrium of the all business goals. The fifth part involves accuracy of process, procedures, methods and sources of the analysis of internal and external environment of the company. [1]

In the real life, it is not sufficient to evaluate the results of the strategic human-potential management at the end of the process. The company might not direct well in the long term or should direct to non-update goals, objectives and targets without quick and flexible respond to changes in the market and changes within the company, so it might fall short of vision and mission. Therefore every single step of the process must be updated and reviewed. It is necessary to follow up any changes within external environment of the company (such as economic cycle, legislative changes, demography, technologic trends, international and regional configurations, impact of competition, environmental changes) and internal background (culture, philosophy, interests, attitudes, attributes and relations of employees, motivation…). The company should, according all the aspects mentioned above, modify and upgrade its strategic goals in agreement with the SMART method. The strategy (or its variant)

must be modified according to modifications in conditions and goals, even relevance and functionality of the human-potential policy must be verified and updated, too. Depending on strategy-modifications, modifications of plans, programs, budgets in each department have to be made. While looking on the efficiency of the strategy implementation selected, it is important to realise whether the management motivates enough the staff to meet all aims with enthusiasm and with concern to achieve the best results.

Suitability of methods and tools applied within the strategic process in efficiency and efficacy criteria must be also considered carefully. The top management in strategic decision-making may choose some method like BSC, personal audit, personal controlling, EFQM to increase the quality and effectiveness of human-potential process. To achieve more efficient interaction among employees, it is suitable to implement leading-based-on-principals method [5].

High-quality IT system is important not only for evaluation of human-potential effectiveness, but also for all operations within the company (production, marketing, logistic, services, etc.) Updating of IT system of the company is closely related to effectiveness of human-potential management and also to classification and monitoring of all actions made.

3. Conclusion

Evaluating of effectiveness of human-potential management process should be natural part of strategic process. It is a form of feedback, which is needed to be done constantly and after each step of strategic planning. This process helps to aware changes in a company environment and to react flexible with the aim to gain defined goals. It involves monitoring, analyzing, evaluating the process, searching and finding deviation between plans and reality, next decision making and planning reactions to fill vision and mission.

Evaluating of effectiveness of human-potential management process must accept efficacy and efficiency criteria and is limited with available assets, time and motivation for doing this process.

Acknowledgement

This paper is supported by the grant VEGA No 1/4647/07 Dynamical Model of Motivation of Human Potential.

References

[1] BLAŠKOVÁ, M.: *Riadenie a rozvoj ľudského potenciálu*. Žilina: EDIS, 2003. ISBN 80-8070-034-6

[2] GYURÁK BÁBEĽOVÁ, Z. a kol.: *Uplatnenie personalistických ukazovateľov v praxi.* Trnava. VIVAEDUCA, 2007. ISBN 978-80-969827-0-7

[3] COLLINS, J.: *Z dobrého skvelé*. *Good to great*. Eastone Books, 2006. ISBN 80-89217-09-5

[4] WAGNEROVÁ, I.: *Hodnocení a řízení výkonnosti*. Praha. Grada Publishing, 2008. ISBN 978-80-247-2361-7

[5] BREZÁNIOVÁ, M.: *Kvalita a morálne princípy ako prostriedok zvyšovania kvality prostredníctvom ľudského potenciálu.* In: Zborník príspevkov 4. medzinárodnej vedeckej konferencie Manažment ľudského potenciálu v podniku. Žilinská univerzita v Žiline, 2007. ISBN 978-80-8070-672-2

.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

The Quality of Education Services as a Challenge for Education System in Poland

[*] Małgorzata Gromek
[*] Kozminski University, 57/59 Jagiellonska Street, 03-301 Warsaw, Poland, mbator@o2.pl, mmgromek@wp.pl

Abstract. The necessity of education change towards development of education service based on quality has become a challenge for modern education system in Poland. All of the participants of the system are required to accept the change and consider it not as a particular action but as a process. Taking into consideration the process of implementing the change into education system, it is crucial to insist on the quality of education service of both public and private sectors of education system. The quality policy in education should be supported by the observation of trends in competitive environment so that it becomes possible for the education service to meet its receivers needs. The analysis presented in the paper is focused on the quality of public education services in modern education system in Poland.

Keywords: quality of education service, service, education service, education system, logistic system.

1. The characteristics of public education service

The term – service is defined in literature as one of the forms of a product. P. Kotler explains that a product is one which could meet people's needs, so it can be understood as a material good, a service, an idea, a place, a person or an organization.[1] Taking into consideration the process of providing the service, the aim of the process is to meet the receivers of the service needs.

In literature education service is regarded as a product including three levels: the core of a product, a real product, an extended product. The core of a product is a benefit which allows customers to achieve their goals such as: knowledge and abilities. The real product includes the set of elements which meets a receiver minimum expectation. It also makes an influence on the image of a product, e.g. students' safety, teacher's attitude towards students, objective scale of assessment, syllabus and the methods of teaching. An extended product includes other benefits which support a receiver of education service in achieving its goals, e.g. education tools at school, extra lessons, pupil's organizations, school administration, workers behavior[2]. The aforementioned elements make an influence on a school image. Furthermore, their significance is created by their competitive role in education market.

When analyzing competitive character of public education service it is crucial to take into consideration its features. The brief analysis of the features of education service is presented below in Tab. 1.

[1] P. Kotler, *Marketing, analiza, planowanie, wdrażanie i kontrola,* Wyd. Gebethner i Spółka, Warszawa 1994, s.400
[2] H. Hall., *Marketing w szkolnictwie,* Wyd. ABC Warszawa 2007, s. 124

No.	The criteria	Education service
1.	Classification of services in sectors of economy.	public administration – the suppliers of public service
2.	The aim of providing with services	Obligatory rule of common access to knowledge. The public administration meets social needs in education.
3.	Product	Education service, which - has not physical features (impossible to touch it, know its results before decision about taking advantage of a service. There are material goods which are used in the process of providing education service, e.g. computers) - cannot be put in stock - diversity, heterogeneous features of the service - the service and its suppliers cannot be separated - the receiver of service cannot become the owner of a service
4.	Financial sources	Public funds (state and local government)- annual subsidy in certain amount.
5.	Organizational and legal form of institution providing services	Public institutions based on budget law providing with public service
6.	Customers	The customers of the public education service are people who the service is directed to including, Ministry of Education, Education Council, members of society that support schools development.

Tab. 1. The analysis of features of public education service

Although some of them make it impossible for a service to compete in education market successfully such as financial sources or legal form of institution providing with public educational service, there are features similar to those of private one such as the aim of providing customers with education service. Customers' expectations should be the clues to implementing the change into education system in both private and public sectors of economy.

2. The quality management as a determiner of education success

Nowadays competitive market rules of modern economy make an impact on public education system. Consequently, public education service should be adjusted to the competition criteria, so that achieving education success could be possible. Furthermore education system should be analyzed as an ordered logistic system[3]- in which particular elements cooperate to create the shared value – high quality of education service, which is a determiner of effectiveness of education system as well as contributes to education success. Creating the quality seems to be the process which starts at making school leaders aware of how to manage total quality. Apart from the leaders, there are other members of school community who take responsibility for the process. The crucial stages of creating the quality are connected with gaining funds, preparing suitable materials which support new relations and better communication at school. The process also includes: taking systematic, planned actions that allow to create a product or a service according to specifications and rules as well as taking regular audits and external assessments. The aforementioned steps contribute to assure quality in constant way and optimize the level of customer satisfaction. Apart from them, there is also a very important element included to the quality management at school. It is the knowledge which should be treated as a dynamic feature of education process that needs to be constantly developed and improved.

[3] According to D. J. Browerson, the logistic chain is defined as the group of institutions, which integrally cooperate with aim to provide with proper product, in proper place, in appropriate time, drawing attention to high quality and the possible lowest cost (in) S.E.Dworecki, Zarządzanie logistyczne, WSH Pułtusk, 1999, p. 125.

According to J. J. Bostingl, there is a new idea at schools with quality management which includes understanding of relations between suppliers and receivers of education service, permanent development, leadership and analyzing processes and systems of creating quality in education.[4]

3. Opportunities and threats for modern education system in Poland in the light of European education challenges

Transformation of education systems in European countries is connected with modern trends in the countries where social and economic changes have taken place so far. Education system has to be adjusted to the place and scale of civilization changes.[5] As far as expectations towards education service are concerned, the struggle for the quality is regarded as the significant consequence of such worldwide phenomena as civilization changes, globalization, technological progress which have resulted in the search for new solutions in education. As the quality of education service has become the main goal for education reformers in European countries, many of them such as Great Britain or France find the process of transformation in education difficult to be successfully developed.[6] It is the result of different circumstances for transformation process in education such as cultural and local communities differences. Despite of them, the crucial goal for transformation process in European countries are education system improvement and unification, taking special care of the quality. Polish education has also dealt with innovative solutions concerning development, improvement of its education system. However, innovations in education system still remains new and its adaptation to education system in Poland is quite difficult.

Firstly, there is a problem of suitable financial support. Secondly, there is a necessity to modify schedules, education procedures, what requires a lot of effort and time to introduce changes in organizational and legal areas of education system.

Furthermore, an environment is becoming more and more unpredictable what may bring crucial results for education institutions in the market. They try to take care of their effectiveness by searching for the balance between its external and internal environment.

Public schools are pubic institutions which are run due to public funds. However, they are influenced by the external environment situation. Interactions between public schools and their environment are influenced by such aspects as[7]:

1. The range of external funds which supports the public organization,
2. The intensification of public assessment,
3. The role of marketing in opinion of members of education institution.

Being the example of institution functioning in changing environment, public schools find it necessary to take environment changes into consideration and observe not only local but also global tendencies in education so that they can meet obligatory education standards. Consequently, the information from the education market is the basis for the public schools to take appropriate strategic approaches in management. The approach connected with the use of

[4] J.J. Bostingl, Szkoły jakości. Wprowadzenie do Total Quality Management w edukacji, Wyd. CDN., Warszawa 1999, w: W. Kołodziejczyk, Jakość - Oświata-Wartości, *Edukacja i Dialog* Nr(6/200)

[5] M. Włodarczyk, Edukacja polska na tle reform oświatowych na świecie. *Społeczeństwo i polityka.* Nr1/2004, s. 121-124

[6] A. Zając, Szkoła jako organizacja ucząca się TQM w kierunku uzyskiwania certyfikatów ISO, w: *Edukacyjne tendencje XXI wieku, w dialogu i perspektywie*, red. A. Karpińska, Trans Humana, Białystok 2005,s. 151-162

[7] L. Garbarski, I. Rutkowski, W. Wrzosek, *Marketing, punkt zwrotny nowoczesnej firmy*, PWE, Warszawa 2001, s.666.

marketing rules assumes that current analysis and observation of environmental tendencies provides schools managers with valuable information as the environmental changes influences customers' needs, their behaviour and values for them. As the result, the school tends to adjust education offer as well as methods, instruments of marketing management

Public education system in Poland finds the innovative solutions difficult to be implemented in practice. The way of education changes has its basics on theoretical analysis of education systems transformation in European countries in order to avoid repeating mistakes and learn from the best. Although some changes in education system in Poland has taken place so far there are still many problems to be solved. Apart from the lack of funds for new education tasks, the crucial conditions for implementing the quality into education system are the acceptance and the support of local community in local education actions. The awareness of demographic low influences the scale and quality of demand for education service. Having looked at complicated problems concerning education change, transformation actions leading to improvement of education system have to be gradually taken in international scale.

4. Conclusion

Nowadays, it is commonly discussed how to improve education system so to make education success. The solutions point at the policy based on the quality of education service. However the term of quality is still ambiguous as far as education service is concerned. Consequently, it becomes necessary to define the aspects of quality in the background of education theory so that its implementation in education system in Poland could be effective.

In nowadays competitive market economy, education services are provided in unpredictable environment. Increasing competition makes the situation of education institutions both public and private more and more difficult. The competitive services are offered by competitive institutions, which try to meet rising customers' demands and preferences. The crucial value for the customer is associated with high quality of the service. The customers requirements in the quality of the service make it necessary for the suppliers of the service to change the strategic approaches in management aiming at action considering the quality of the service and financial effectiveness in the future so that they will be able to compete successfully in the market.

References

[1] DWORECKI ,S., E., *Zarządzanie logistyczne*, WSH Pułtusk, 1999.

[2] GARBARSKI, L., ,RUTKOWSKI, I., WRZOSEK, W., *Marketing, punkt zwrotny nowoczesnej firmy*, Wyd. PWE, Warszawa 2001

[3] HALL, H., *Marketing w szkolnictwie,* Wyd. ABC Warszawa 2007

[4] KARPIŃKA, A., *Edukacyjne tendencje XXI wieku, w dialogu i perspektywie*, Wyd. Trans Humana, Białystok 2005

[5] KOŁODZIEJCZYK, W., *Jakość – Oświata - Wartości, Edukacja i Dialog Nr(6/2000)*

[6] KOTLER, P., *Marketing, analiza, planowanie, wdrażanie i kontrola,* Wyd. Gebethner i Spółka, Warszawa 1994

[7] WŁODARCZYK, M., *Edukacja polska na tle reform oświatowych na świecie*. Społeczeństwo i polityka. Nr(1/2004)

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

The Level of Utilization of Quantitative Methods in Operational Decision among Slovak Companies

Zuzana Mečiarová
University of Žilina, Faculty of Management Science and Informatics, Department of Macro and Microeconomics, Univerzitná 1, 01026 Žilina, Slovak Republic, Zuzana.Meciarova@fria.fri.uniza.sk

Abstract: One of the most important managerial activities is to make the right decisions whose results influence effectiveness and prosperity of company as whole. Top managers make strategic decisions, tactical decisions are made by middle management and line managers make operational decisions. The manager as decision-maker uses various quantitative methods to assist him or her in decision-making process. Their most frequently application is in structured decision problems that are mainly solved at operational level of management. Therefore quantitative methods play an important role in operational decision. This paper presents our research results that concern to the level of utilization of quantitative methods in operational decision among Slovak companies.

Keywords: Level, operational decision, operational decision support, result research, quantitative methods.

1. Introduction

The last three decades has been silent revolution in managerial decision that contributed to successful implementation of quantitative methods and wide usage of computers in managerial decision [1]. Every day the number of company problems that may be solved by quantitative methods increase. Examples of successful application of these methods may be found in every area – from production over marketing and finance to the human resource. Quantitative methods may be applied in decision generally and may be used by one decision-maker or group of decision makers at strategic, tactical or operational level of management in any type of company. The most frequently application of quantitative methods is in programmed or algorithmic decisions that are characterized by the quantification of relationships between all numerical variables that appear in decision problem. This type of problems is mainly solved at operational level of management and part of them interferes with tactical level.

In this paper we review the level of utilization of quantitative methods for operational decision support in Slovak companies. This paper is organized as follow. The research description is given firstly. The third section deal with the research results and then the conclusion is introduced.

2. Research Description

The research was realized from 1st August to the end of October 2008. 468 managers from operational level of management were addressed by the means of electronic mail and 73 line managers were required for personal interview. To the end of October 13.12 percent of questionnaires have been returned.

2.1. Research Sample

Research sample consists of 71 line managers of Slovak companies. As we can see from figure 1, most managers have college education, more then 11 percent of managers have secondary education with leaving examination and almost 10 percent of them finished bachelor and postdoctoral study. Only 1.41 percent has advanced vocational training.

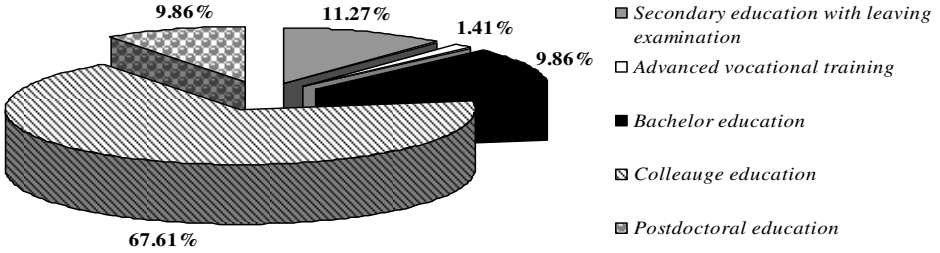


Fig. 1. Education of managers

Almost 62 percent of managers have technical education, 26.76 percent finished economic education and more than 11 percent of them have liberal education (Figure 2).

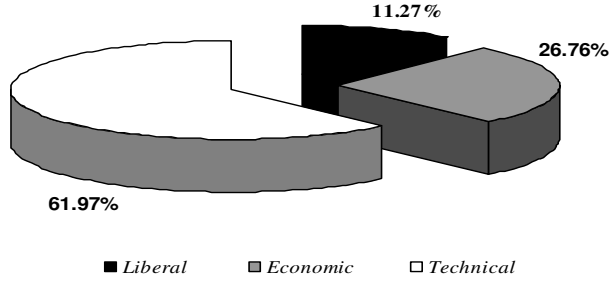


Fig. 2. The type of manager's education

3. Research Results

The offer of quantitative methods for decision support is really rich. Nowadays plenty of methods are at manager's disposal, from simple to very complicated whose effective application is only in connection with computational technique. Method selection for decision support depends on many factors, namely on character of decision process, on decision conditions, on information and data availability, on information and data quality, on real interpretation of results, on concrete needs and preferences of managers and on other factors. In our research, we looked into question "What is the level of utilization of quantitative methods in operational decision and to what extent are quantitative methods used in practice?". Frequency utilization of quantitative methods was evaluated by the means of scale from one to five with following determination:

- 1 – This term is unknown for me.
- 2 – I know this term and its substance only.
- 3 – I am going to use this method in the future.
- 4 – I use this method sporadically.
- 5 – I use this method regularly.

The general view of utilization of quantitative decision methods by line managers shows the figure 3. As we can see, the most widely used quantitative methods are methods of descriptive statistics like bar charts, pie charts, time series graphs, histograms etc. One of the possible reasons why methods of descriptive statistics are so widely used is that just these methods are normally integrated in spreadsheet program Excel which is a part of current software in companies. The least used methods are decision methods in uncertainty conditions like criterion MAXIMIN and MAXIMAX. On the basis of average values listed in figure 3, it may be generally pointed out, that utilization of quantitative methods in operational decision is not enough. Two groups of methods are unknown for line managers and eleven methods are only known, but not used in practice or will be used in the future. Only one group of methods, namely descriptive statistics is used in practice, but only sporadically. Even though line managers know very well the theoretical background of quantitative methods, it is necessary to inform them with practical utilization of quantitative methods on concrete examples which are directly from company environment. This may increase the utilization of methods in decision process.

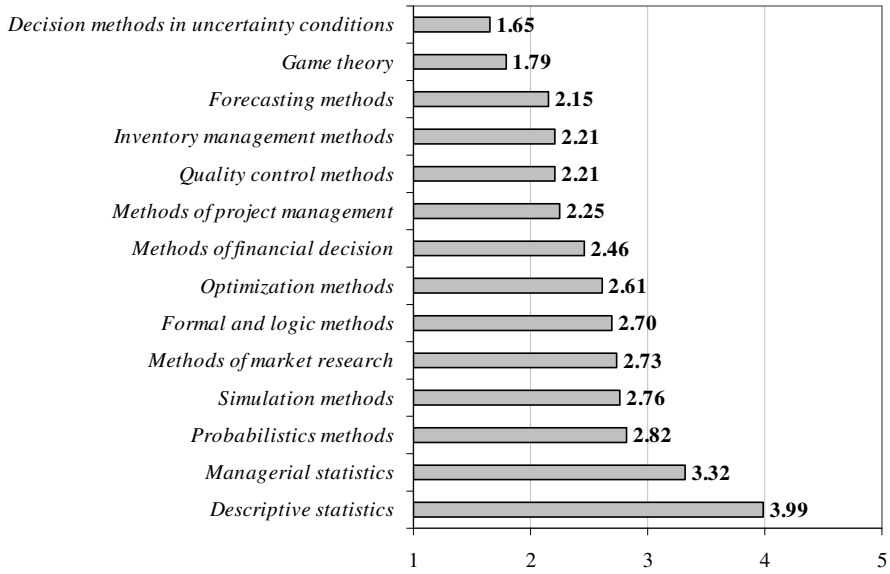


Fig. 3. The level of utilization of quantitative methods by line managers

In our research, we asked managers the question "How can be used the results obtained by quantitative methods in the decision process?". Almost 64 percent of managers think that these results improve decision proces and give rise to more effective decisions even though their utilization is not enough in practice. More than 33 percent of managers regard the utilization of results as limited in decision process and 2.82 percent of managers suppose quantitative methods are useless in practice.

The line managers identified the following key problems areas of quantitative methods implementation in decision proces:

- Missing practices with application of quantitative methods in decision process (63.38%).
- Missing knowledge about application purpose of quantitative methods (56.34%).
- Lay small stress on application of quantitative methods in practice (42.25%).
- Time severity (28.17%).

- Technological support is not enough (21.13%).
- Computing complexity of quantitative methods (16.90%).
- Assumptions of quantitative methods application are limited (16.90%).

More than 22 percent of line managers said that special education and training courses help to increase the level of utilization of quantitative methods in decision process. The same percent of managers think that these courses are necessary to connect with presentation of practical instructions, procedures and examples how to use quantitative methods in decision process. Only two percent of managers said that simplification of computing complexity of quantitative methods help to increase their utilization (Fig. 4).

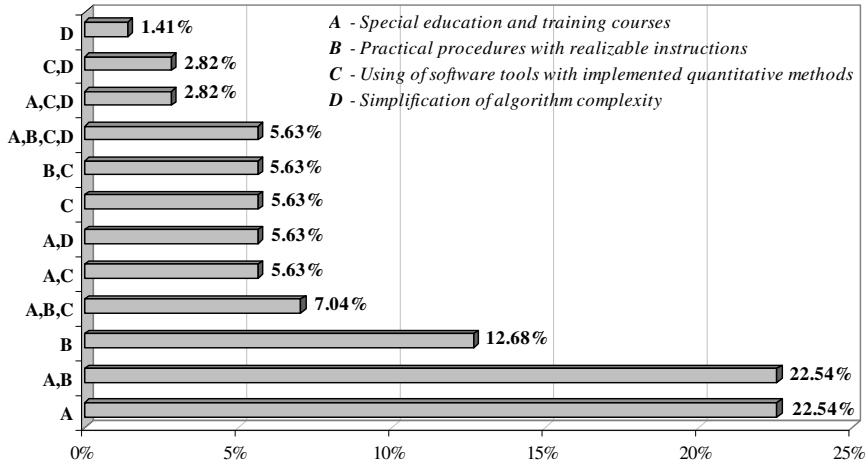


Fig. 4. Factors which increase the utilization of quantitative methods in decision process

4. Conclusion

In this paper we have presented the level of utilization of quantitative methods in operational decision among Slovak companies and identified the main key problem areas of their implementation in decision process. The results of our research show that line managers know very well theoretical background of quantitative methods, but more then 63 percent of them miss the practices with their application in decision process. According to line managers, special education and training courses help to increase the utilization of quantitative methods in operational decision process.

Acknowledgement

This work has been supported by the grant VEGA 1/0024/08.

References

[1] VOLOŠIN, M. *Kvantitatívne metódy v riadení podniku*. Bratislava: Ekonóm, 2006.

[2] ONDREJKOVIČ, P. *Úvod do metodológie sociálnych vied*. Bratislava: Regent, 2005.

[3] POLONSKÝ, D. *Sociologické metódy poznávania spoločenských javov*. Banská Bystrica: EF UMB, 1999.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Knowledge Management in Traffic Business

[*]Katarína Mendrošová, [**]Eva Filová,
[**]University of Žilina, Faculty of Operation an Economics of Transport and Communications,
Department of Railway Transport, Univerzitna 2, 010 26 Žilina, Slovakia
{Katarina.Mendrošova}@fpedas.uniza.sk
[**]University of Žilina, Faculty of Operation an Economics of Transport and Communications,
Department of Water Transport, Univerzitna 2, 010 26 Žilina, Slovakia {Eva.Filova}@fpedas.uniza.sk

Abstract. Knowledge control is about the people and the method of obtaining, changing and enlarging the knowledge on one hand and information technology on the other hand. The business firm which collects information and produces knowledge has big supposal to be successful and competitive. Connection of informations and knowledges with company processes, is main assumption of active transmition of relevant informations and knowledges inside company.
The essence of competitive company is not only a classical education, but a development and a selfeducation of individuals, as well as the entire company.

Keywords: Knowledge management, education, Information System, knowledge, business firm,

1. Introduction

Knowledge management introduces operation of knowledge, obtaining process, data concentration, data holding, passing and using of knowledge and wisdom accumulated in organization and relating in its process, methods and activity with the goal of improving the learning and effort process in organization. This type of managemet understands the knowledge as a conclusive source. Knowledge control is about the people and the method of obtaining, changing and enlarging the knowledge on one hand and information technology on the other hand.

Knowledge is the information tailored to productive utilization or let us say the facts which where obtained by observing, exploration or experience. It's personal and often immaterial and may be temporary and ungraspable.

Operation of knowledge permits to obtain, use and create the value for the business by using creativity and proficiency of its work force. The goal of the head office is systematic cumulation of personal people knowledge and its transformation to the form which allows to reusing it what helps to the business firm to be independent on the factual employees engaged with the business firm. Engagement of the informatics technology into this process is one of the possibilities of obtaining of the upper mentioned aspect [1].

Purpose of the operation of knowledge is utilization of the business collective experience and its application in the most paying place. Primary source of the competitive advantage is in the business firm itself, what means in its people and knowledge. The business firm which collects information and produces knowledge has big supposal to be successful and competitive. The operation of knowledge consists in collecting of knowledge from people who have it and it's consigning to people who need it in the interest of enhancement the business

firm efficiency. In this modern world of technology with network oriented man-power operation may this fact have the conclusive aspect to the business firm capability to efficient costs decreasing for own intellect capital [2].

2. Present condition of knowledge flow in Railways of the Slovak Republic (ZSR)

In modern market economy is putting big emphasis on information and knowledge of individual business firms which want to be successful and competitive. Providing that one of this business firms is ZSR, it's actual to dwell on knowledge management implementation into its environs. One of the conclusive activities is education, which has long tradition in this environed and it's ensure by Central institute of education and psychology (ÚIVP).

2.1. Present condition of education in ZSR

Employee education in ZSR is part of the carrier development of employees and it refers to the range of demands on working duty and to place of working duty in the organization structure and to the level of responsibility for the done working duty. Fast evolution of new technique, technology and working process is opening new needs of constant changes in legislation and it's necessary to employee requalification. The goal of education is to specify the policy, to create and realize the condition in business firm for the education system which will ensure competitive advantage against the other types of transport in present or future environs trough the quality of man-power [5].

The Central institute of education and psychology is providing the employee education - rail operators and freighters, preparing them for careers, and taking care of requalification, improvement, checking and deeping their working ability.

There are two categories of rail employee education:

- Management.
- Executive employees.

Management education is aimed at total improvement of their job, new trends in people managing intercession and creating useful working teams, delegation of powers, improvement of special managerial abilities and skills.

Providing professional competence of executive employees is done by the range of knowledge in particular internal operating instructions. Basic instruction which determine standardized status for exam organizing and executing, policy in education and training, course organizing and executing is instruction ZSR Ok2 "Training and examinational system of ZSR"[3].

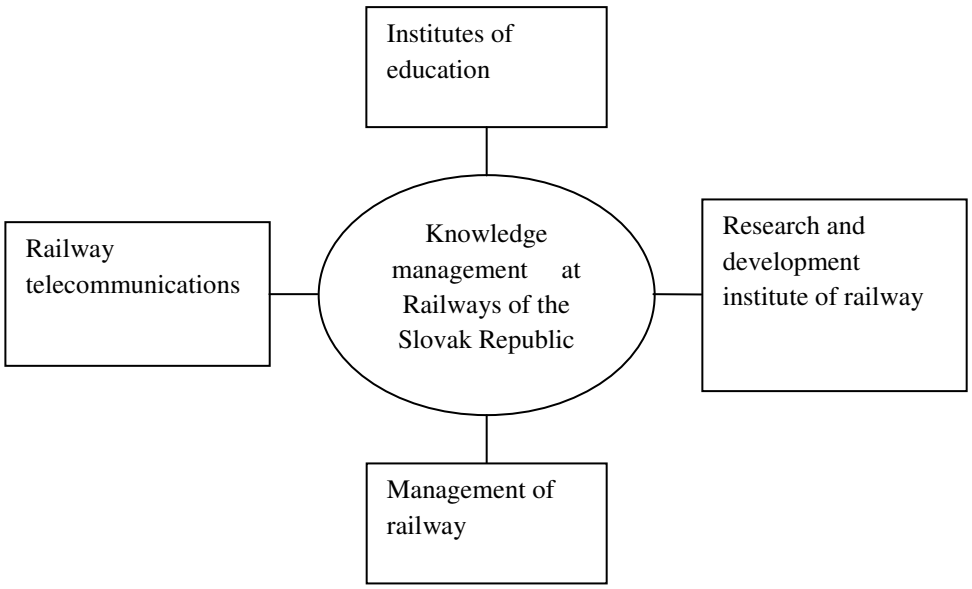
2.2. Informations systems and ensure transfer of knowledges at Railways of the Slovak Republic

Any company operations don't work optimally including the education. If there aren't managed information flows by information systems and also knowledge flows aren't connected and ensured with direct knowledge into and outside from the process.

Connection of informations and knowledges with company processes, is main assumption of active transmition of relevant informations and knowledge's inside company.

From beginning, communications and transfer of information is one of most important segment of railway transport. Information Technologies have been passing thought rapid development. There are actually several information systems in Railways of the Slovak Republic. These systems provide flow of informations into company and also from company. Information department is responsible for these operations. Information department has been part of Railway telecommunication department since 2006. Main activity of these department is application information system to Railway transport [5].

Application of Knowledge management would concern to particular departments of Slovak Railways, which deals with information flow, see below.



It is necessary to connect these elements for more effective and faster flow of informations and knowledges at Slovak railways. Many software companies develop new special softwares. These softwares are especially focused for projects of knowledge management, which would find application in Slovak railways.

Information systems for Railways of the Slovak Republic:

- Operational information system of Slovak railways / Integrated management system and information system of freight service – PIS/ IRIS-N.
- Information system for comprehensive handling of passangers (the sale of travel documents) – IS iKVC.
- Information system of mobile equipements – IS MP.
- Information system of infrastructure – ISI.
- Information system of management and maintenance of railway infrastructure – SSÚ.
- Comprehensive business and economic information system – SAP R/3.

Existing information systems together and infromation infrastructure at Slovak railways, form the basis for creation of informations flow and knowledges flow with are connected to business activities and also for integration of knowledge management into information systems. The attention should be focused on the overall integration of IS and provision of datas for all authorized users [4].

3. Conclusion

The essence of competitive company is not only a classical education, but a development and a selfeducation of individuals, as well as the entire company. In learning company of this days is not only about a passive listening to seminars, courses and training programs, but it is more about an active and constantly learning from their own work, work of their colleagues and competitors.

The implementation of knowledge management in the company is a process of planning realization of strategy:

1. Analyse of an existing status of exploitation business knowledge.
2. Assessment of analysis of knowledge.
3. Activities leading to manage knowledge.
4. Bilateral coordination of selected activities.
5. Integrated system supported knowledge management.

If the knowledge management should be introduced, it is necessary take to the calculation needs of a particular environment, in this case ZSR. The successful implementation supposes the achievement of the fifth grade.

To ensure the quality of the project of introducing knowledge management in the ZSR is necessary to establish the function of the knowledge manager. The knowledge manager is a person responsible for the creation, maintenance, content and passing knowledge within a company (intranet).

For increasing of efficiency in sphere of employees ZSR education is possible to use one of the forms of knowledge management: e-learning. It is education through electronic media. That's mean ideal form of retraining large groups of emplayees with minimal demands on time, organization and finance.

It is important especially in the current conditions ZSR that the intentions and procedures of implamentation of knowledge management were real and respect conditions which result

for the extension of knowledge from the current economic situation and the current financial crisis. One of the options represents the use of funds from eurofunds.

References

[1] WALKER, A.,J. a kol.: *Moderný personálny management*, Praha: Grada Publishing, a. s., 2003, ISBN 80-247-0449-8

[2] ARMOSTRANG, M.: *Řízení lidských zdroju,* Praha: Grada Publishing, a. s., 2002, ISBN 80-247-0469-2

[3] www.zsr.sk, marec 2009

[4] NEDELIAKOVÁ E., DOLINAYOVÁ A.: *Outsourcing informačných technológií v železničnom podniku,* Mezinárodní vědecká konference Outsourcing dopravně - logistických procesů a prostorová lokalizace veřejných logistických center, Univerzita Pardubice, 2007, str. 89 - 94, ISBN 978-80-7395-022-4

[5] GAŠPARÍK, J.; VALOVIČ, R.: *Možnosti využitia informačných technológií pri výuke v študijnom programe železničná doprava.* In: Práce a štúdie Fakulty prevádzky a ekonomiky dopravy a spojov Žilinskej univerzity v Žiline, zborník č. 22. Žilinská univerzita, Žilina 2004. ISBN 80-8070-324-8.

Paper is written within the project VEGA scientific agency by the project 1/0411/08 , A comprehensive analysis and classification of the instruments of regulation of transport in relation to the prospects and challenges of the liberalized transport market, the EU," which is solved at Faculty of Operation an Economics of Transport and Communications, University of Zilina.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Virtual World as a Mean for Companies' Human Resources Management

[*]Kvetoslava Mišiaková,
[*]University of Žilina, Faculty of Operation and Economics of Transport and Communication Computer, Department of Communications, Univerzitna 1, 01026 Žilina, Slovakia,
Kvetoslava.Misiakova@fpedas.uniza.sk

Abstract. Advances in computer-related technology have had a major impact on the use of information for managing human resources. Large quantities of employee data (including training records, skills, compensation rates, and benefits usages and cost) and team building can easily be stored on personal computers and manipulated user-friendly virtual reality. The most popular and most used virtual world in these days is Second Life.

Keywords: Human resources management, virtual reality, second life, new trends in HRM.

1. Introduction

Human resources management is a process of bringing people and organizations together so that the goals of each other are met. The role of HR manager is shifting from that of a protector and screener to the role of a planner and change agent. Personnel directors are the new corporate heroes. The name of the game today in business is personnel. Nowadays it is not possible to show a good financial or operating report unless your personnel relations are in order. [1]

Human resources professional need to be aware of trends in the composition of the external labor market, because these trends affect the organization's options for creating a well-skilled, motivated internal labor force. Over the years, highly skilled and knowledge based jobs are increasing while low skilled jobs are decreasing. This calls for future skill mapping through proper HRM initiatives. Organizations are also witnessing a change in systems, management cultures and philosophy due to the global alignment of organizations. There is a need for multi skill development and using computers. Role of HRM is becoming all the more important. Due to the new trends in HR, in a nutshell the HR manager should treat people as resources, reward them equitably, and integrate their aspirations with corporate goals. There is a very innovative method – to use virtual life and meeting in a virtual world Second life.

2. Second life – a new place for human resources management

Second Life is a free online virtual world imagined and created by its Residents. It is a Multi-User Virtual Environment. All the content in this virtual world is user-created, and each user makes of their experience in it. To get started, you will need to download the Second Life viewer. Once installed, you will be able to walk, "teleport" or even fly to thousands of exciting 3D locations. Though games-based it is not, strictly speaking, a game, as it lacks pre-defined goals. You can also use voice and text chat to communicate with other real people from

around the world. Second Life is widely considered to be part of the Web 2.0 phenomenon. In SL people create avatars - digital representations of themselves and do what they would do in the real world and far more. Residents of SL purchase products, meet new people, visit various facilities, and exchange ideas. It is free to download and join, but there are plenty of opportunities for residents to spend money acquiring items both in - game and in real life. In fact, an entire economy exists in the game with residents spending Lindens - Lindens and dollars can be really exchanged through the Second Life bank Lindex. SL is filled with opportunities for networking, teaching, experimenting, and even making money.

2.1. How companies use Virtual World for HRM

There are hundreds of organizations currently in Second Life, including many Fortune 1000 companies and government institutions.

We would like to give some examples of the companies that are recently present in SL and of their virtual activities.

Energy	Media	Technology	Manufacturing	Finance
British Petroleum	Comcast	Cisco	Colgate-Palmolive	Banco Bradesco
Energie Baden-Wurttemberg	Time Warner	Dell	Kraft	Wells Fargo
	Walt Disney	Intel	Pfizer	World Bank
		Microsoft	Unilever	
		Samsung		
		Sun Microsystems		
		Toshiba		
		Trend Micro		
		Xerox		

Healthcare	Services	Automotive	Retail	Telecom
Novartis	Accenture	BMW	Best Buy	British Telecom
	Kelly Services	Honda	Herman Miller	Motorola

Tab. 1. Companies in Second Life

2.2. Real Enterprises Work Successfully Inworld Today

Visionary corporations from around the globe, such as Michelin, IBM, and Xerox, have all established and grown significant presences in Second Life. They are working in Second Life in a wide variety of ways (from holding meetings, conducting training, to building product prototypes or simulating business situations in a safe learning environment).

2.3. Meetings, Events, and Networking

Second Life encourages engagement between users and provides exciting new means for conducting meetings and conferences, conducting focus groups, executing customer research and recruiting, as well as fostering a recordable dialogue in your community. Second Life enables direct interactive engagement among colleagues and with target audiences in an immersive 3D environment that includes voice, text, video, document sharing, and a whole host of other collaboration tools.

Here's how it works. Within Second Life, individuals can publicly communicate with one another in text or 3D spatial voice chat while private conversations can be held among designated groups or with direct one-to-one texts and voice channels. Meeting virtually allows

keynote speakers to address an entire group while subgroups can maintain communication and share thoughts, ideas and reactions. The platform supports multiple languages and real-time text chat translators are available.

2.4. Corporate Training

Second Life provides a safe and powerful platform for interactive learning experiences, whether in a classroom setting or in an environment that simulates dangerous or expensive equipment or scenarios. Learn new languages, rehearse presentations, try out new ideas, practice new skills and functions, and learn without risk of damage or injury.

Use Second Life to bring a new dimension to training events, research, professional certification, and compliance. Rapidly develop employee skills to prepare for complex real-world situations. Trainees can participate in team building activities and training via Second Life, from distributed locations anywhere in the world. Learning and interacting together in 3D immersive space creates the sense of concurrent immersive experience. This shared experience improves motivation, training retention and teamwork as a result of heightened sensory engagement and the opportunity for collective activity and communication. Unlike other e-learning technologies, Second Life can bring trainees and their instructors into the same physical space where they can feel as if they are inhabiting the same world at the same time and can affect and be effected by one another.

2.5. 3D Prototyping and Simulation

Second Life enables participants from distributed geographical locations to prototype products, simulate business situations, and rehearse training scenarios—all in real-time.

Make use of Second Life simulations and models to avoid the expense and logistical hassle of scheduling, maintaining or repairing real world training devices. Enable clients, employees or sales leads to view or interact with models and simulations from anywhere in the world in a safe environment you can control. Avoid risk of damage to one of a kind real world models and products by sharing and collaborating with a Second Life replica. Create simulations to test and demonstrate the effectiveness of a product prototype without the real world material expense. Allow for collaborative design work and product development testing before you engage manufacturing. Conduct group simulation training in an immersive 3D environment that leverages multi-sensory engagement for greater training retention and teamwork. Create proof of concept models that can be quickly and inexpensively altered or reproduced to suit your customization needs, manage proprietary information or create safe solutions to security or clearance issues.

Create training simulators, product prototypes and data visualization models without the expense or difficult learning curves for new software applications or lengthy periods of training and development. Second Life comes complete with standard build tools that make the creation of content and models accessible to all users. Use the built-in tools to create your own custom models and simulation environments or select a Solution Provider from our Solution Provider Directory to commission custom builds to your specifications with a fraction of the real world cost or time investment

3. Example- The Informa project

The Informa project in Second Life has created a lot of interest lately. Informa is the leading provider of specialist information to the global academic & scientific, professional and commercial communities via publishing, events and performance improvement.

Their private island has been developed to provide a careers resource for their staff. The company has been restructured into 14 functions (sales, marketing, publishing, etc.) and each of those functions can have up to four levels of seniority, from marketing assistant to CMO, for example.

These functions have been represented in 3-D, through buildings, with each floor representing a level within the hierarchy. Those levels, or floors, have displays containing information about the roles and the capabilities required to fulfill them.

This ability to move around the opportunities open within the company differentiates it from their intranet, as does the ability to meet with 'Ambassadors' in-world for each of the functions to discuss career options. Informa is a global organization and the virtual world provides the ability for the marketing ambassador, who is based in the UK, to meet with a member of the team in, say, Hong Kong to discuss career development.

4. Conclusion

In Web3D, immersive learning simulations will be common training mechanisms and will aid in business activity rehearsal. Training departments in companies of all sizes are revamping their training and learning programs. Learning organizations must develop employee-centric, business-driven learning strategies that guide the successful deployment of learning that is more contextual and more relevant to employees' work. Companies can use virtual environments like SL to pique interest, actively engage the learner, teach content faster, and check for understanding and ability to apply concepts on the job. This virtual training is an important part of a new approach to human resource management, or better said,human capital management.

References

[1] RITUPARNA BANERJEE, http://www.chillibreeze.com/articles_various/human-resources.asp, in internet.

[2] NOE, HOLLENBECK, GERHART, WRIGHT: *Fundamentals of human resources management* 2nd ed. Norwood: Artech House, 2004.

[3] STRENITZEROVÁ, Mariana.: Application of Information Technologies in the Process of Human Resources Management, In: IWKM 2005: 17-th International Scientific Conference, Mittweida, 3.-4. 11. 2005, Scientific Report der Hochschule Mittweida, 13/2005, ISSN 1437-7624

[4] Brown, S. Breaking Rules, Building Virtual Bridges: Using Second Life for Information Awareness in the Enterprise. Available at www.sla.org/pdfs/2008CP_Brown.pdf

[5] Helmer, J. Second Life and Virtual World. Learning Light Limited 2007. Available at http://www.wilsoncenter.org/topics/docs/SecondLifeReview_May07.pdf.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Project Approach to Real Estate Maintenance Management

*Tayisia Molodchenko, *Viktoria Melman, *Natalia Matvieieva, *Mariya Sukhonos
*Kharkov National Academy of Municipal Economy, Faculty of Management,
Revolucii st. 12, 61002, Kharkiv, Ukraine, tmc79@rambler.ru

Abstract: The reformation ways of cities municipal economy are examined in the article. A control system for an apartment house by a governing company is offered. A management agreement structure between owner of apartment houses and governing company is offered. The schema of the system of managing the multiple dwelling by the management company is presented in the article.

Keywords: City municipal economy, residential area, physical deterioration, high-rise buildings, the management company.

1. Introduction

City reformation is characterized, first of all, by gradual changes of relationships between its main owners: government, population – consumers of housing and communal services and enterprises – service providers.

During Soviet Union a state authority was the main party to a legal relationship on the field of housing and communal service. The government performed financing of new constructions, repair works, and all arrangements for maintenance of all apartment houses. Today the situation significantly changed: there is an institute of accommodation owners (about 80% of accommodation is in private property), as well as business structures operate in construction market and accommodation maintenance [1].

2. City Municipal Economy

V.N.Babayev, N.O.Gura, N.N.Lisenko, G.I.Onishyuck, V.P.Poluyanov, L.N.Shutenko, V.T.Semyonov, V.I.Torkatyuck, M.S.Zolotov, P.M.Aksyonov made a great contribution in problems researches of municipal economy reformation [3-5].

Results of analysis of foreign management experience of real estate allow defining management model which is acceptable for Ukraine. The final result can be characterized in the following way:

- Real estate should be in proper technical condition, energetically effective and constitute a considerable part a national wealth;
- Citizens of Ukraine should be satisfied of quality of their life in general, including comfort and safety of apartments;
- Economical activity for providing comfortable life conditions to population should be attractive because only in such a situation housing and communal services market will be really competitive and balanced concerning services quality and its costs.

After disintegration of socialist camp a lot of East Europe countries appeared in a difficult situation of finding of effective management systems. Some of ex-socialist countries

defined strategic lines of development. Such countries as Hungary, Poland, Czech, Latvia, Lithuania, and Slovakia didn't become completely free of housing facilities blocking problems but already worked required mechanism of actions. Other countries, including Ukraine, are still in a formation stage of new management system and accommodation maintenance.

Russia having the same starting conditions passed ahead of Ukraine in 2-3 years approximately. It has already Housing low of Ukraine, as well as actively works management actions for housing facilities, which duty as defined by this code. Russian approaches to public policy formation, ownership relations regulation in multifamily housing, estate management means are very useful for Ukraine.

Modifications of the residential real estate management system (i.e. its de-monopolization) are required to improve the economic mutual relations and parties of the housing and communal services in Ukraine. Nowadays, pricing policy of the communal sector is regulated by the government when rating goods and services. Though, housing maintenance is joining the competitive sector. Companies able to meet competition appear in Ukraine. These companies are prepared to hold keeping, maintenance, capital and current renovation in the residential real estate sector. Meanwhile, they provide services of higher quality than the communal enterprises do.

3. Real Estate Maintenance Management

De-monopolization of the housing and communal services is a complex multilevel task. The questions of the executor's and supplier's dependency on the customer's payments but not on the local budget financial support are to be regulated first of all.

Taking into consideration the fact that most of the low-income groups are not able to pay fully the communal services, housing maintenance and current renovation financing as well as random capital renovation financing is held from the local budgets. Thus, we can conclude that it will be almost impossible for Suppliers to realize means on the actually consumed services.

Paying capacity of the Consumer majority is low in Ukraine as of today. Mostly it depends on the state economy development in whole. That is why transferring the housing and communal service expanses to the housing owners will provoke the sudden reducing of means for the other needs. As a result social and political instability will appear.

The second important issue to be regulated is adjusting the joint multiple dwelling estate property rights. The dwelling estate is presented by staircases, lifts, lift wells, corridors, attics, apparatus floors, basement floors, the lot where the house is located and the territory for planting and beautification. Thus, the mechanism of separating the joint ownership among the individual owners is required.

The contractual relations between owners and management companies as for providing the specific services and performing the various works, should be outlined when the transition from the residential real estate management state system to the private executive company market occurs. Rights and interests of consumers and management companies with low risk should be considered in the contracts.

To solve the issues discussed above the following condition should be met: the premises (residential and nonresidential) of the multiple dwelling with their territory should be possessed by the physical and juridical persons or should be socialized.

The schema presents the system of managing the multiple dwelling by the management company (Fig. 1.)

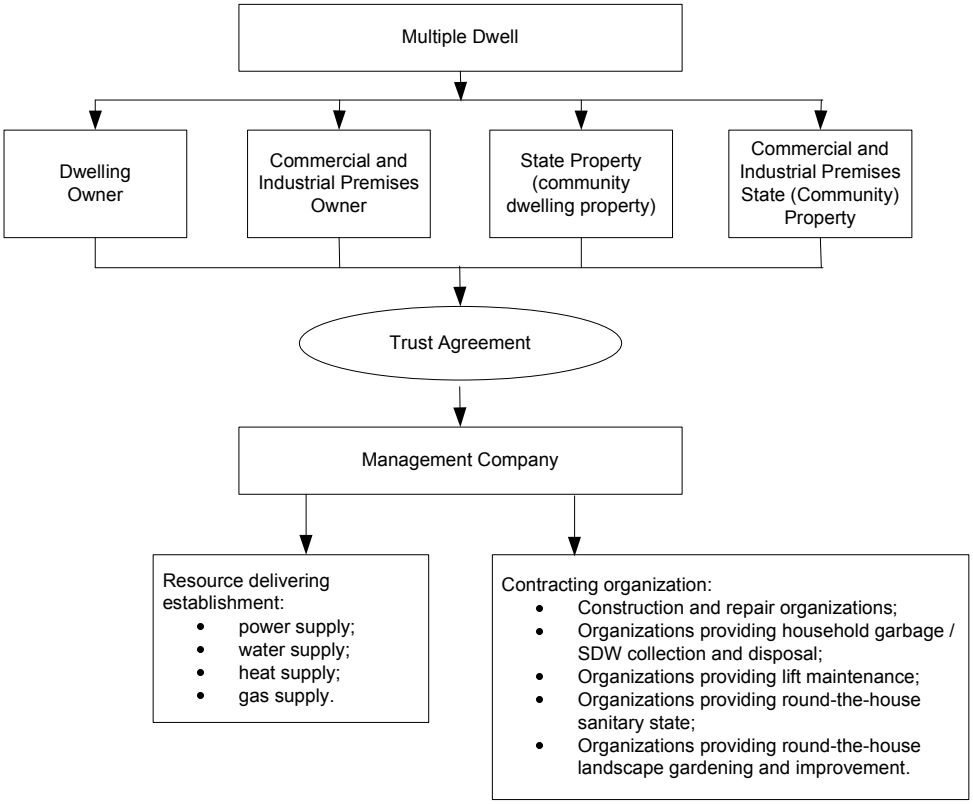


Fig. 1. The schema presents the system of managing the multiple dwelling by the management company.

4. Conclusion

Thus, taking into account all mentioned above, one can come to the conclusion that the residential real estate management system reorganization can be provided only as well-planned timing project with reliable executives. Effective use, residential/ nonresidential premise and local asset management will allow decreasing expanses for keeping the property mentioned above and considerably increase the budget income.

Considerable reorganization of the housing sector is required. It should cover the range of problems as well as various factor interaction that result creating the comfort conditions for people's life and activity. Thus, implementing the market principles to the housing management and maintenance sector is required as well as creating a competitive sector to involve new market partners. However, these modifications should be accompanied by the legal and economic assistance and held by means of renovating and rebuilding the existing system as they will influence the life activity of people and municipal management system in whole.

References

[1] Закон України «Про об'єднання співвласників багатоквартирних будинків», від 14.02 2001 р. №39 // Урядовий кур'єр. – 2001 № 12.

[2] Методические рекомендации органам исполнительной власти и местного самоуправления по реализации положений Жилищного Кодекса Российской Федерации по вопросам управления многоквартирными домами. – М.: Издательство Прима-Пресс-М, 2006. - 96 с.

[3] Програма розвитку і реформування житлово-комунального господарства м. Харкова на 2003-2010 рр. (Колектив авторів під керівництвом Шутенка Л.М., Бабаєва В.М., Семенова В.Т.). – Харків: ХДАМГ, 2003. – 208 с.

[4] Шутенко Л.Н., Золотов М.С., Мельман В.А. Программа для организации и учета работ по техническому обслуживанию, ремонту зданий, сооружений и инженерных систем/ Материалы Всеукраинской научно-практической конференции „Проблемы реализации реформирования отрясли жилищно-коммунального хозяйства”.– Харків: ХГАГХ, 2003 – С. 32 – 33.

[5] Шутенко Л.Н., Золотов М.С., Мельман В.А. Организация работ по техническому обслуживанию, ремонту зданий, сооружений и инженерных систем жилищно-коммунального хозяйства/ Материалы Всеукраинской научно-практической конференции „Реализация региональных программ реформирования и развития жилищно-коммунального хозяйства”.– Алушта: ХО ГТТ КГ и ПО, ХНАГХ, 2005 – С. 61 – 63.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Decision-making in Enterprise and PDCA Cycle

[*]Zdenka Sidónia Natšinová
[*]University of Žilina, Faculty of Management Science & Informatics, Department of Management Theories, Univerzitna 2, 01026 Žilina, Slovakia, {zdenka.natsinova}@fri.uniza.sk

Abstract. This paper discusses issues related to decision support in event-driven enterprises and proposes PDCA cycle as a method to improve. PDCA cycle is model on quality improvement consisting of a logical sequence of four repetitive steps for continuous improvement and learning. The success of the enterprise depends on the quality of decision-making process, in essence, each director in the enterprise (regardless of function) to take important decisions or to participate in the complex decision-making.

Keywords: PDCA cycle, method, enterprises, improvement, decision-making.

1. Introduction

Enterprises nowadays continue to struggle with gaining insights and accessing decision-making information to respond to challenges in a changing economic and control environment.

We all make decisions of varying importance every day, so the idea that decision-making can be a rather sophisticated art may at first seem strange. However, studies have shown that most people are much poorer at decision making than they think. An understanding of what decision making involves, together with a few effective techniques, will help produce better decisions.

Decision-making has always been a part of the human experience, but as our collective decision-making skills have slowly evolved over the centuries, our thinking has moved from instinctive, based reactions to a more sophisticated model. Now, with the massive proliferation of new technologies, we're thinking of the human mind in a new way, and adapting decision-making techniques to a kind of "mechanical" philosophy. A main point at issue in article is applied decision- making in model PDCA cycle.

Our environment is constantly changing. Some changes are imposed on us and we have to find a way to manage the impact. At other times, change is something we choose to make and motivated by the desire to make things better. It is obvious to say it, but whilst every, improvement is certainly a change; every change is not always an improvement. Making changes to the way that we do things can be time-consuming and can sometimes feel risky. The Model for Improvement is PDCA a tried and tested approach to achieving successful change.

2. Decision-making and PDCA cycle

2.1. Definitions

1. Decision-making is the study of identifying and choosing alternatives based on the values and preferences of the decision maker. Making a decision implies that there are

alternative choices to be considered, and in such a case we want not only to identify as many of these alternatives as possible but to choose the one that has the highest probability of success or effectiveness and best fits with our goals, desires, lifestyle, values, and so on.

2. Decision making is the process of sufficiently reducing uncertainty and doubt about alternatives to allow a reasonable choice to be made from among them. This definition stresses the information-gathering function of decision making. It should be noted here that uncertainty is reduced rather than eliminated. Very few decisions are made with absolute certainty because complete knowledge about all the alternatives is seldom possible. Thus, every decision involves a certain amount of risk. [1]

3. Decision-making is complex partial specific activities, in prevention on solution decision-making problems. Decision-making process is then notional than straightness this activities destined an effective solution decision-making problem to accomplish decisions. Activities are collated after well-timed to knot, where every solid independent special work. Decision-making process is possible represent than progression of logical connected to the four phases:

- Diagnostic
- Analytical
- Optimization
- Implementation

Preferable is model decision-making process with activities, which to create his contents refill, property representing problematic a sufficient level of represent reality and logical layout of the decision-making. It became a model decision-making process, consists of seven basic interdependent and referring activities summarily organized in accordance with the above phases (sections decision-making process). It is a universal model, which give solve all decision-making problem, enabling next practical applications to adapt to deal with situations. It is representation in the picture number one.

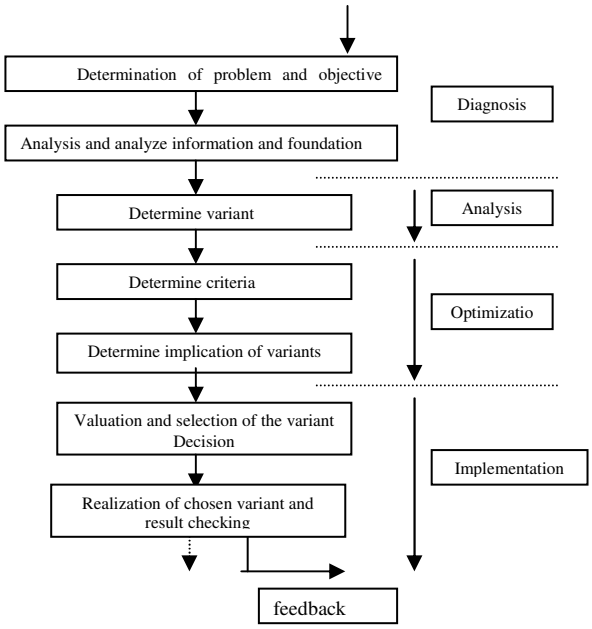


Fig. 1. Model decision-making process

2.2. PDCA cycle

PDCA stands for 'Plan, Do, Study, Act. Once you have decided exactly what you want to achieve, you can use PDSA cycles to test out your ideas developed from the third question. *'What changes can we make that will lead to an improvement?'*

The key to PDCA cycles is to try out your change on a small scale to begin with and to rely on using many consecutive cycles to build up information about how effective your change is. This makes it easier to get started, gives results rapidly and reduces the risk of something going wrong and having a major impact. If what you try doesn't work as well as you hoped, you can always go back to the way you did things before. When you have built up enough information to feel confident about your change, you can then implement it as part of your system. PDCA cycle is model with four repetitive steps for continuous improvement: Plan, Do, Study (Check) and Act.

- PLAN: plan ahead for change. Analyze and predict the results.
- DO: execute the plan, taking small steps in controlled circumstances.
- STUDY/CHECK: study the results.
- ACT: take action to standardize or improve the process.

PDCA cycle is representation in the picture number two.

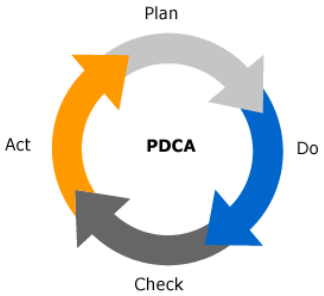


Fig. 2. Model PDCA cycle

2.3. Model improvement PDCA cycle and decision-making

Including improvement are import three ground questions:

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What changes can we make that will result in an improvement?

The result of my work is to apply the seven basic steps of decision-making model PDCA cycle on improvement. The new model is representation in the picture number three. Model improvement PDCA cycle and decision-making is representation in the picture number three.

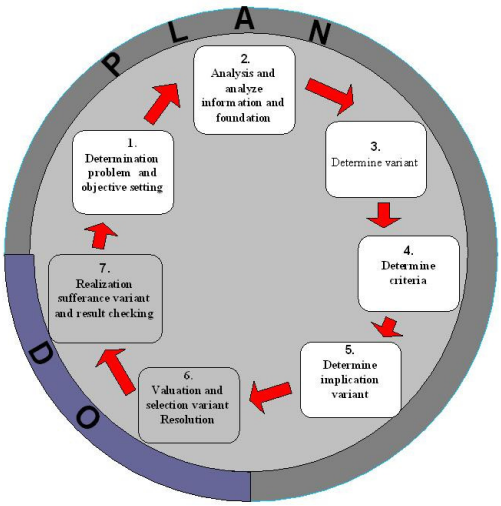


Fig. 3. Model improvement PDCA cycle and decision-making

3. Conclusion

Using the PDCA model we are seven basic steps of decision-making applied to model and exploit the PDCA cycle. Effort is to obtain a simpler model to solve given the steps in the light of the PDCA model that allows us to solve every problem in the above four steps, which are known to us as a plan, do, study and act. Every one step helps us to easy solve the problem which showed us.

In the article I am to define "what it is" decision-making from what steps it is composed. In the second part I am describe the model PDCA cycle and in the third parts I am applied the decision-making diagram to model PDCA cycle, and I am descend that using the PDCA cycle, we can help in decision-making in the first two steps of the PDCA second two steps are for us also used as help with the feedback and come to the problem which is solved by an appropriate solution, if so we need to find a solution. If we do not have a solution, it is necessary to return to step number two and repeat give the process again until we haven't come to solution.

PDCA cannot be too small. One PDCA will almost always lead to one or more others. You can achieve rapid results. They help you to be thorough and systematic. They help you learn from your work. Anyone can use them in any area. Developing objectives for improvement work. You may find it useful to identify what you want to achieve from your improvement work. The Improvement Model's three fundamental questions for achieving improvement provide a useful framework for developing your objectives.

1 What are we trying to accomplish?

What is the overall aim of what we are doing? What are we hoping to improve? For example increase the range of ways in which patients can access care, improve how we use skills of team members, use our appointment capacity better

2 How will we know that a change is an improvement?

What will tell us that our changes make things better than they were before? What can we measure that will demonstrate that our changes are actually an improvement? What data (opinions, observation, process data and results) will be useful?

3 What changes can we make that will lead to an improvement?

Include all the ways that you can work towards your objective, so that you can develop plans for PDSA cycles. Think about what has worked for other people, what ideas you have yourself and innovative approaches.

References

[1] http://www.virtualsalt.com/crebook5.htm

[2] HITTMÁR, Š.: *Manažment*, EDIS,ISBN, Žilina, 2006

[3] PAPULA, J., PAPULOVÁ, Z.: *Manažérske rozhodovanie*, KARTPRINT, ISBN, Bratislava, 2005

[4] http://www.valuebasedmanagement.net/methods_demingcycle.html

[5] BREZÁNIOVÁ, M., MAJERČÁK, J.: *Marketing B. to B.*, učebnica, EDIS, ŽU, 2004

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Comparison of Transport Modes and their Influence to Environment

[*]Eva Nedeliaková, [*]Ivan Nedeliak [**]
[*]University of Žilina, Faculty of Operation and Economics of Transport and Communications, Department of Railway Transport, Univerzitna 1, 01026 Žilina, Slovakia, eva.nedeliakova@fpedas.uniza.sk
[**] Railway Company Cargo Slovakia, a.s., Section of Information Technologies, Hviezdoslavova 31, 010 02 Žilina, nedeliak.ivan@zscargo.sk

Abstract. This article deals with influence of transport modes to environment. It describes selected factors which affect sustainable development. It characterizes energy consumption, CO2 emissions, consequences of land use and relations between transport and sustainable development. The European strategy on transport and its environmental impact defines the objectives for integrating environmental requirements into transport policy. It provides guidelines for all transport modes. The international institutions like the European Commission, the Community of European Railway and Infrastructure Companies (CER), the International Union of Railways (UIC) and others try to overcome problems with climate change, the growth in congestion on roads, air pollution, accidents and noise pollution of transport. All these factors lead to serious costs that are borne by society.

Keywords: transport modes, environment, sustainable development, environmental impact.

1. Introduction

Nowadays transport represents one of the biggest treats for environment. Transport sector is the only one in the EU in which greenhouse gas emissions have consistently risen since 1990.

There has been a very strong growth in mobility over the last 30 years, and the increase in distance travelled has been mainly by road. In 1970 every European citizen travelled an average distance of 17km per day; today this figure has reached 35km per day.

2. Energy consumption and railway transport advantages

In the EU, the final energy consumption of the transport sector equals to 31% of the total European wide consumption. Railways' share of the transport energy consumption is less than 3%, while its market share is between 6% (passenger) and 10% (freight). [3]

The European Commission predicts a rise of 21% in energy consumption for transport from 2000 to 2030. [1] Railway transport is on average 2 – 5 times more energy efficient than road transport, air transport and water transport.

3. CO_2 emissions and transport

Transport causes around one third of all EU CO_2 emissions. Fig. 1. describes CO_2 emissions by sector.

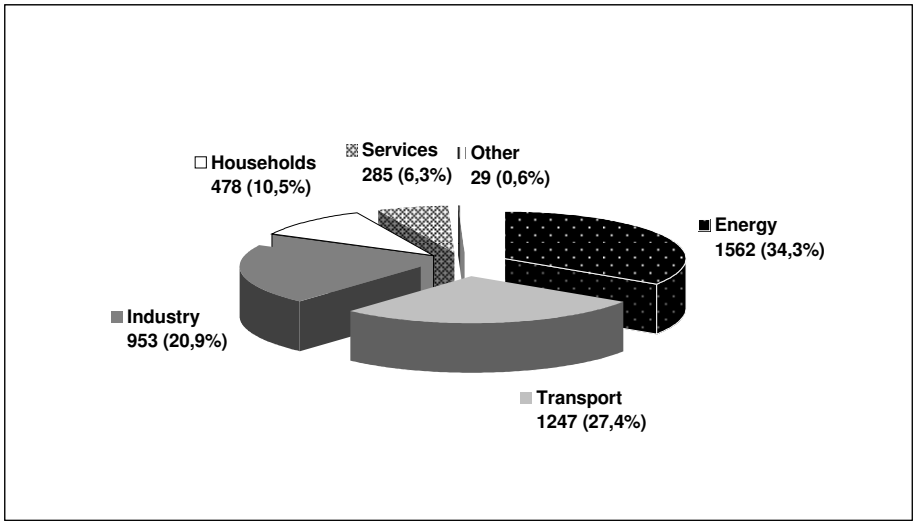


Fig. 1. CO_2 emissions by sector

Source: Rail Transport and Environment. The voice of European Railways. UIC, CER. June 2008

Railway transport is 3 – 10 times less CO_2 intensive than road or air transport. More than 70% of total domestic transport emissions are due to road transport. Fig. 2. describes CO_2 emissions by transport modes where railways' share is only 1,6% .

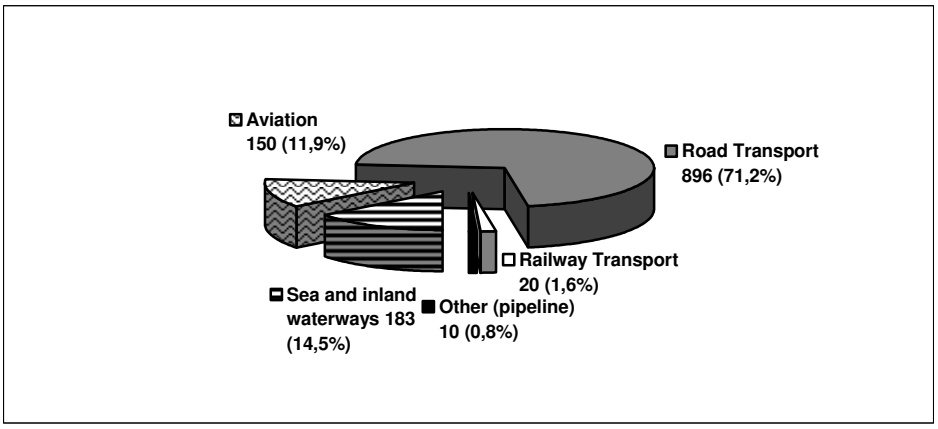


Fig. 2. CO_2 emissions by transport modes

Source: Rail Transport and Environment. The voice of European Railways. UIC, CER. June 2008

4. Consequences of land use

Land use has many negative consequences, which are associated with three factors. The actual space taken for infrastructure leads to the sealing of the top soil, as well as disturbances resulting from noise, resource use, waste dumping and pollution. Transport networks which connect cities add to the fragmentation and degradation of the natural or urban landscape due to the "barrier" effects of the infrastructure. [2] Fig. 3. defines capacity of urban transport (in persons per hour) per metre of infrastructure width.

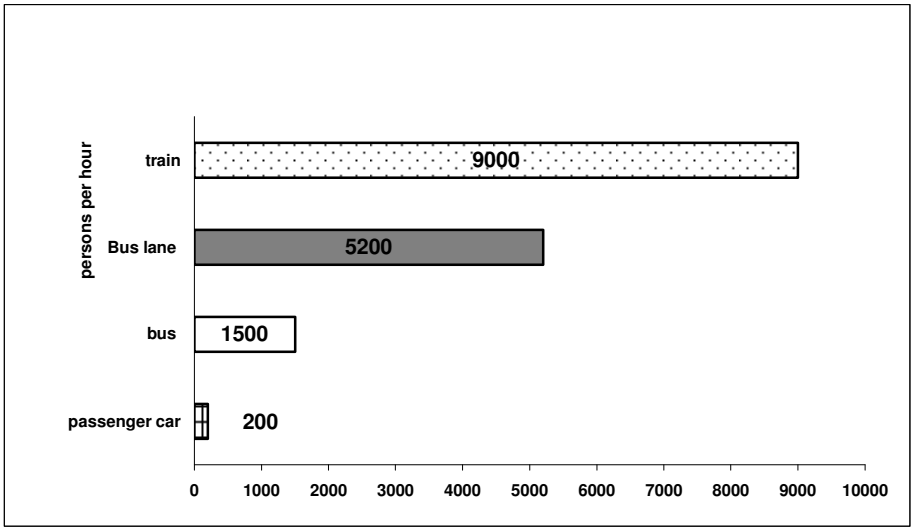


Fig. 3. Capacity of urban transport modes

Source: Rail Transport and Environment. The voice of European Railways. UIC, CER. June 2008

5. Sustainable development and transport

Sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs", ensuring that today's growth does not jeopardize the growth possibilities of future generations. Sustainable development thus comprises three elements - economic, social and environmental. The strategy for sustainable development, adopted in 2001 and amended in 2005, is complemented inter alias by the principle of integrating environmental concerns with European policies which impact on the environment. [4]

The European strategy underlines that further progress is required in the following areas:

- elimination of the negative effects of traffic growth, particularly through land use measures and infrastructure charging,
- promotion of public transport, inter modal and combined transport and environmentally friendly modes,
- further research and technological development, in particular to reduce CO2 emissions and noise,
- reduce the environmental impact of transport, e.g. through indicators and vehicle standardisation.

Sustainable development in the conditions of the Slovak Republic is concluded in law no. 17/1992 about environment and no. 24/2006 about appraisal of the effects to environment.

Following statistical data the biggest sources of atmosphere pollution in the Slovak Republic are energy industry, metallurgical industry and transport. Afterward it is chemical industry. Transport share is large mainly in regard to the pollution caused by nitrogen oxide and carbon dioxide. Transport demand still increases, which means increasingly bigger requirements to environment and infrastructure.

6. Conclusion

Regulation of transport processes will be very important for the future. It is not possible to prefer such transport mode which is not able to use alternative energy sources. One of the possibilities how we can overturn the tendency of atmosphere pollution is to prefer intelligent transport systems, integrated transport systems, combined transport, logistics and support of public transport.

This article is a partial outcome of the project VEGA no. 1/0411/08 Complex analysis and classification of tools for the regulation of transport in continuity with perspectives and calls of liberalize transport market within EU.

References

[1] DOLINAYOVÁ, A.: *Computation of external impact of emissions in determining transport fields and possibilities of their internalization [Komputácia externých dopadov emisií v rozhodujúcich dopravných odboroch a možnosti ich internalizácie]*. In: Railway Transport and Logistics, Electronic technical paper about railway transport, carriage, logistics and management, no. 1/2006, II., p. 102 – 106, ISSN 1336 – 7943

[2] LIŽBETIN, J.: *Ecology process of freight transportation flows from north to south. [Ekologizácia tranzitných prepravných prúdov nákladnej dopravy v smere sever-juh]*, Perner´s contact 2003. Pardubice 11.-12.2. 2003 Univerzity Pardubice, DFJP, 2003. ISBN 80-7194-522-6. - p. 378-383.

[3] KENDRA, M., BARTA, D., ISTENÍK, R.: *Trend of emissions in transport of Slovak Republic [Trend emisií v doprave Slovenskej republiky]*. In: TRANSCOM 2007 : 7-th European conference of young research and science workers : Žilina June 25-27, 2007, Slovak Republic. Section 1: Transport and communications technologies. - Žilina: University of Žilina, 2007. - ISBN 978-80-8070-692-0. - S. 111-114.

[4] Rail Transport and Environment. The voice of European Railways. UIC, CER. June 2008

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Supply Chain Management – in Theory

[*]Ján Neupauer, [*]Eva Carmen Poláčková, [*]Martin Krajčovič
[*] University of Žilina, Faculty of Mechanical Engineering, Department of Industrial Engineering, Univerzitná 1, 01026 Žilina, Slovakia, {jan.neupauer, eva.carmen, martin.krajcovic}@fstroj.uniza.sk

Abstract. The contribution deals with the problems of the latest trend in logistic management by means of the higher integration externally from the organization. There are several effects as a consequence of this- it comes to substantial savings of expenses and a higher service towards the customers is attained. On the other hand, there is aroused a need of outsourcing of logistic operations and a formation of a new info-communication type of services. The key element of that is the effective supply management in all constituents of the supply chain management.

Keywords: supply chain management, flows, suppliers, customers

1. Introduction

For the nowadays market environment is typical swinging demand, decrease of customer's loyalty, shorter life cycle of the products and a strengthened global competition. Organizations need the information infrastructure for their survival; that enables to make the exact decisions in the actual time and also enables to be fully orientated on the customer's satisfaction. The customer stands in the first position. At the same time, the competition ability and profitability of a company must be maintained. Such information infrastructure is optimization of supply chain management, where must be guaranteed the involvement of purchasers and suppliers in such a way so that it would be possible to integrate process, access, systems, databases and strategies among various commercial partners.

2. What is Supply Chain Management

When new concepts are launched, there is always a great deal of confusion about definitions, content, and fields of application. Definitions from the literature on SCM serve to demonstrate the wide spectrum of what is understood as the concept of SCM.

Handfield &Nichols (2002) define Supply Chain and Supply Chain Management as follows:

„The Supply Chain encompasses all organizations and activities associated with the flow and transformation of goods form the raw materials stage, through to the end user, as well as the associated information flows. Material and information flows both up and down the supply chain. Supply chain management (SCM) is the integration and management of supply chain organizations and activities through cooperative organizational relationships, effective business processes, and high levels of information sharing to create high-performing value systems that provide member organizations a sustainable competitive advantage".

Christopher (2005) defines SCM as:

„The management of upstream and downstream relationships with suppliers and customers to deliver superior customers value at less cost to the supply chain as a whole."

This definition of SCM focuses on management of relationships as a means of achieving better results for all members of the supply chain, including customers. Christopher also claims that the term supply chain management is actually mismanaging. Demand chain management would be a better term and would stress the fact that the chain is driven by market forces and not by the supply side. Christopher further suggests that the word chain be replaced by network, because the supply chain is normally comprised of a complex network of players on both the vendor and the customer sides. In addition, the business suppliers may often be customers and competitors in other scenarios.

From the structural aspect, Supply Chain is a complex chain of relations that the companies maintain with their partners with the purpose of securing the raw materials, production and supply of products.

Supply chain management is based on coordination, optimization of material, and financial flows among all participants of the chain.

- *Material flows* – flows of the physical products in direction supplier → customer, including feedback,
- *Information flows* – information concerning the supply, purchase order
- *Financial flows* – flows of finance, financial relations with the suppliers, customers.

The basic task of SCM is coordination and integration and these constitute the means for the integration among companies. Supply Chain can be defined as a specific form of the chain organisation and it is free formed by bound participants, who, in ideal case, have equal rights.

3. Structure of the Supply Chain

The easiest view on Supply Chain can be pointed out by the motion of simple product within the series of organisations, where each one adds a value to the product. When we have a look from one point of view of organisation, activities before it – motion of the material into the inside – these are called "upstream"; those behind the organisation – the motion of the material in outside direction – are called "downstream".

Upstream activities are divided into the tiers of suppliers. The supplier who funnels material straight to operations is the first tier supplier; the one, who sends it to the first tier supplier is the second tier supplier; and who sends material to the second tier supplier is the third tier supplier; and this way it is being returned to origin sources. Customers are also divided into classes (ranks). The one, who provides product straight from operations, is the first tier customer; the one, who takes the product from the first tier customer, is the second tier customer; the one, who takes the product from the second tier customer, is the third tier customer, and it continues like this to the final customer (see Figure 2.1).

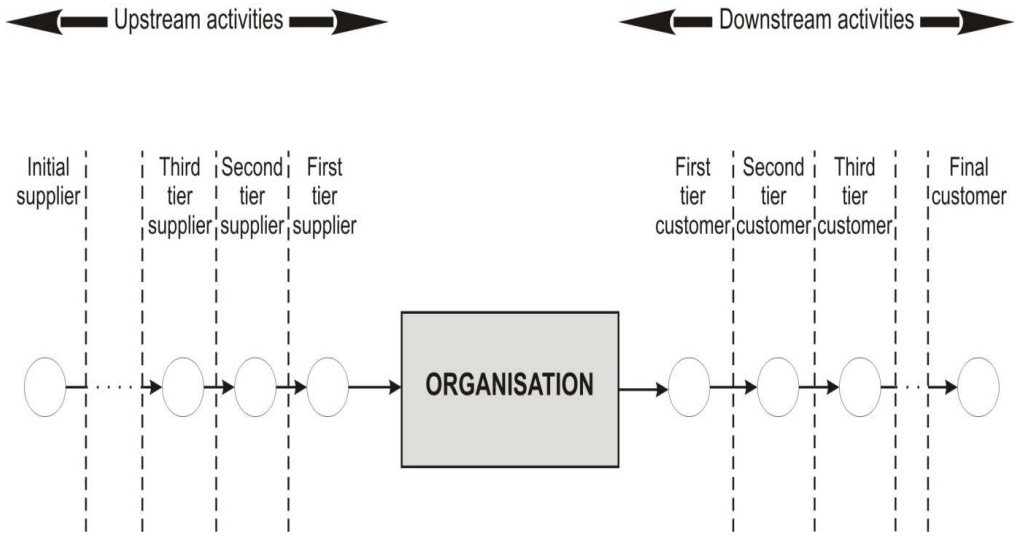


Fig. 2.1 Activities in a supply chain

In practice, most organizations get materials from many different suppliers, and sell products to many different customers. Then the supply chain converges as raw materials move in through the tiers of suppliers, and diverges as products move out through tiers of customers. A manufacturer might see sub-assembly providers as first tier suppliers, component makers as second tier suppliers, materials suppliers as third tier suppliers, and so on. It might see wholesalers as first tier customers, retailers as second tier customers, and end users as third tier customers (as illustrated in Figure 2.2).

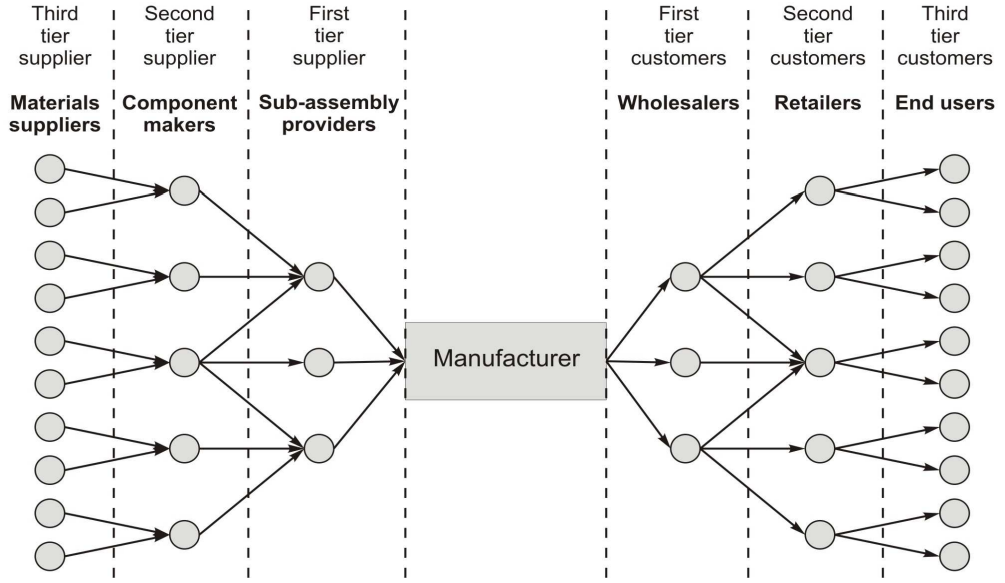


Fig.1.2. Supply chain around a manufacturer

4. Conclusion

SCM. offers the administration of the whole chain offering value added- from suppliers and producers, through vendors to the final customer. SCM. has three primary aims: supply reduction, increasing the transaction speed by date exchanging in the real time and increase the sale by more effective implementation of customer's demands.

The responsibility for the supply chain management was ensured externally very often in the past; nowadays is still more often performed back to the companies. With the establishment of the complex, mutually interconnected supply chains and supplying network, it is still more relevant so that all users in each chain link would have appropriate remits; as within organisation, as among the organisations- from the employees to customers, suppliers and another business partner worldwide.

References

[1] WATERS, D.: Logistic: An Introduction to Supply Chain Management. Palgrave Macmillan Ltd, New York.

[2] WATERS, D.: Global Logistics and Distribution Planning: Strategies for Management. Institute of Logistics and Transport, England, London, 2003

[3] JESPERSEN, B. D., LARSEN, T. S.: Supply Chain Management: in Theory and Practice. Copenhagen Business School Press DK, 2005

[4] PERNICA, P.: Logistika pro 21. století: Supply Chain Management, Radix, 2005

[5] SIXTA, J., MAČÁT, V.: Logistika: Teorie a Praxe. Computer Press, a. s., Brno, 2005

[6] GROS, I., GROSOVÁ, S.: Dodavatelské řetězce, VŠCHT Praha, 2002

[7] DUPAĽ, A., BREZINA, I.: Logistika v manažmente podniku, SPRINT Bratislava, 2006

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Strategic Role of Human Resources in a Process of Mitigating the Consequences of a Crisis

*Ladislav Nižník
*University of Žilina, Faculty of Management Science & Informatics, Department of Micro and Macroeconomics, Univerzitna 2, 01026 Žilina, Slovakia, lacio@zilina.net

Abstract: The financial crisis is a real prove for the human resources (HR) in a company. In the last few years the term strategic partner has gained its importance. This term is associated with the expected role of HR in a company. In time of an economic boom this strategic role does not necessarily need to be put to the test. Their readiness is proved in time of crisis. Does the human resources strategy take into consideration the fact that a crisis can occur? Do they have any crisis scenario? This article brings some ideas on how the human resources staff should perform to resist the crisis and possibly gain some benefits from this situation.

Keywords: Strategic partner of management, employee appraisal process, reengineering of HR processes, analyses, employee activation.

1. Strategic Role of HR in Time of Crisis

The financial crisis is getting also into Slovakia and it is a daily reality, which influences the business of our companies. In comparison to the same period of the previous year the unemployment rate is decreasing. However there are some companies that started to reduce massively the headcount or that declared the company holiday. They are making various decisions to eliminate the decreasing demand for their products and services. This is the secondary effect of the crisis. There are several alternatives how to cope with the consequences of the crisis. Top management of big companies and managers of smaller companies need to find the alternative how to survive on the market. The typical and often used solution is to reduce the company costs. As the personal costs together with overheads form the biggest part of the total costs, the company is very often predisposed to reduce the number of its employees. In the company where the HR department is a strategic partner such solution should be realized only as the last alternative backed up by deep analyses of the HR processes.

1.1. The Key Task of HR in the Time of Crisis

HR departments have to be an active partner who is trying to find the way how to solve the current problems of the company with regard to preserving the human potential for the future. They are doing so based on a complex knowledge of the HR agenda and processes. They have strong reasoning and offer alternatives. Selected tools are:

- Operative round of employee appraisal focusing on the crisis strategy of the company. Based on this the method of appraisal and the target employee group is derived.
- Optimization of remuneration policy – personal cost reduction plan in such a way, which enables the company to keep the maximum of their employees. Decrease of benefit-like budget items.

- Audit of the company training program – definition of priorities: management trainings focused on the staff management in time of crisis, employee trainings oriented on new working techniques – improvement of their qualification, using of internal specialists as trainers. The training program needs to be flexible and focused on creating of universal employees.
- Guided and targeted internal communication in a company.
- Putting the state aid tools into practice.
- Activation of employees by organizing internal workshops. The main idea of these workshops is to identify the possible innovations in a day-to-day work. The result will be a reduction of costs and efficiency improvement of processes in a company.
- Personal leasing of some qualifications.
- Reaction to an increased supply on the labor market – possibility to hire high qualified specialists dismissed by other companies.
- Organizational change in a company. Application of project management and setting up of virtual teams. This decision should allow a company operating in the area of commerce and services are more flexible.
- Talent management.

2. Prerequisite of an Active Role of HR in a Process of Mitigating the Consequences of a Crisis

The main prerequisite of an active role of HR in a company is an effective cooperation between management and the HR department. Only then it is possible to achieve a state that management will consider the importance of the human potential when making decisions related to the future of a company.

The company should have the crisis strategy defined. If the reduction of the headcount is necessary, this document defines the jobs with the lowest rate of value added and the lowest level of appreciation of the technical and human capital in an organization.

According to prof. Koubek the strategic management in an organization needs to be derived from the answers to five key questions. These questions are focused on the business philosophy – 1. role of a company on the market, 2. positive and negative factors the company must face, 3. strengths and weaknesses, 4. goals and tasks leading to the achievement of these goals. "All these questions imply the issue of human resources and it is not possible to answer them, if the HR people are not taken into consideration."

In the time of crisis the philosophy of a company is often beginning to open under influence of internal and external factors on the market. The change in philosophy secondarily starts the process of change in the company goals and tasks. The typical example of an external factor is a decreasing market demand for goods and services offered by a company. Such situation needs to be solved by changing the strategy, which is always followed by a change in the HR strategy and the respective personal processes.

2.1. Employee Appraisal

Regular appraisal of the employee performance is an output in form of high quality information basis, which can be used in analyzing the production alternatives. The existence of a crisis in the world has to be a starter of the appraisal process in case the regular one is not scheduled for an upcoming period.

The method of appraisal should be based on changes in the strategy of a company. In the time of recession the motivational style needs to be applied.

The application of a motivational-appraisal interview method can activate the employees. The structure of an interview should give an employee a room to express his opinions about strengths and weaknesses of a company and make him name a change in a company he would do as a first step. An employee must know that his opinion is important to his employer. This method also gives interviewer the opportunity to find out the loyalty level of an employee.

2.2. Optimization of Remuneration Policy

The remuneration system of every company is created in accordance with a valid legislation. The rules are taken from a law and they are incorporated into the internal guidelines. Very often a company creates a remuneration guideline, in which all the rules valid in company are strictly defined. Benefits have usually a form of non-financial fulfillments and they are governed by a collective agreement.

The remuneration system of a company needs to be linked with the performance of an employee. This system setting should ensure that a company will only pay out the money earned by its production.

Being in the time of the crisis, one of the alternatives how to react to a lower inflow of company finances is the negotiation with trade unions. The topic could be the postponement of fulfillments. Such step needs to be considered carefully. The postponement should be realized only in case of the budget items that are statistically significant in the total costs. The benefits related to healthcare and anniversary should not be postponed.

The reduction of personal costs can also be achieved by reducing the headcount. It should be done at the time when the company is no further able to pay its liabilities towards employees and the survival on the market is endangered. If there is a crisis strategy describing jobs with the lowest rate of value added and the lowest level of appreciation of technical and human capital in the organization, then the company should use it. If this is not the case, the decision on employees to be dismissed should be a result of a deep analysis – profitability of organizational units, employee appraisals. The reason is that there may be employees with a large human potential even in an ineffective organizational unit.

2.3. Audit of the Company Training Program

The changes in an organizational strategy need to be reflected in the new training requirements. The reason could be the change in a production process or the production of some new products. In this situation the HR employees should launch the audit of the training program and offer some solution options to the management.

The training costs represent a significant item in the budget of a company. A crisis must not be a reason for a restriction of the training process. There is always the option to use the potential of internal trainers or high qualified specialists – sponsors of the individual company operations. In the time of the production restrictions and cutting down of the working time of employees, there is an opportunity for organizing internal workshops. The main topic of such workshops should be the efficiency improvement of daily business and employees will get an opportunity to express their opinion.

2.4. Using of Market's Opportunities

In the time of recession the situation occurs very often that even the profitable companies, which became big very quickly but they didn't prepare themselves for crisis by creating crisis scenarios, are not able to cope with this situation and their businesses are getting bankrupt. The labor market is then filled by high qualified specialists. The market demand in the time of recession is lower and the recruitment-related costs are decreasing.

Candidates, who are given another opportunity to work in a new company after having been dismissed, are very often loyal and active employees. They know mistakes done by their former employers, which resulted in the collapse of their businesses. That is why they are able to come up with new ideas and very constructive information. Here, the rule shall apply that sometimes less is more. The company should focus on a smaller number of high quality specialists.

Development programs focused on the identification of talents in an organization, training of managers as well as support of the key people become a thorn in the management's side in the time of a crisis, because such programs are the most expensive ones. The postponement or cancellation of these programs poses a threat to a company. These employees are very sensitive and they are prone to change their employer if their personal growth is threatened. A company should keep an eye on the biggest potential it has because for some employers and headhunters crisis is the best time to rope them in their side.

3. Conclusion

Recession will test whether the partner is strategic or not. It is well known fact that top management even today hardly understands the strategic role of HR in a company. A crisis is an opportunity for this group of employees to reassure the management that the activities they are doing are very valuable. The strategic partner offers alternatives, whose main idea is to keep the existing human potential and develop it further. There must be a crisis scenario defining personnel tools that could minimize the consequence of decreasing income.

The implementation of a motivational-appraisal interview method can activate the employees to offer alternatives how to raise the efficiency of daily business operations.

The remuneration has to be linked with the performance of a company and employees. The budget items have to be identified, which can be paid out at a later time. The last options how to reduce the personal costs are lay-offs.

The change in the strategy of a company as a result of a crisis is followed by some changes in the training program of a company. There is a big pressure on the reduction of training costs and using of an internal capacity.

The company must not stop supporting its key employees and talents as they are most inclined to accept the job offers made by competitors, if their requirements are not met. At the same time a company has to think about some alternatives how to benefit from this situation. A company can acquire qualified candidates on the labor market which have been laid off by other companies due to a crisis. These candidates are very often very loyal and active.

References

[1] *KOUBEK*, J. *Řízení lidských zdrojů : základy moderní personalistiky*, Praha, Management Press, 2007

[2] KUCHARČÍKOVÁ,A.- TOKARČÍKOVÁ,E.: *The process of education in context of business diagnostics*. International scientific conference TRANSCOM 2003, 06.2003, University of Žilina, Žilina, s. 191-195, ISBN 80-8070-082-6

[3] TESAROVIČOVÁ, I.: *Modern Approaches to Leading an Organization with Focus on Human Capital*. Journal of Information, Control and Management Systems, no 2/2008, Faculty of Management Science and Informatics, University of Žilina, Žilina pp. 133-143, ISSN 1336-1716

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Laws of motivation, the motivational process and their impact on work´s motivation

*Andrea Pohanková
*University of Žilina, Faculty of Management Science and Informatics,
Univerzitna 2, 010 26 Žilina, Slovakia, maat@centrum.sk

Abstract. The article is focused on the definition of motivation, composition of motivational process, detection of motivational factors that affect individual´s motivation in the positive or negative way. Motivation is an inseparable part of everyday life. It is an important motive power, which encourages individuals and groups to act. Articles´attention is focused on the laws of motivation that are important to determine the objectives in the field of motivation and increases its performance, it stresses the importance of motivation in terms of company function. It also highlights the significance of motivation in human resources management and in implementation of the objectives determined by enterprise.

Keywords: motivation, laws of motivation, types of motivation, motivational factors, work´s motivation.

1. Introduction

Securing and increasing profits, and individual economic indicators is in the spotlight nowadays. However, in time of economic crisis, the organizations should focus their attention on the development of human potential and increasing its value. Human potential, which consist of practical knowledge, acquired skills and learning abilities of individuals, could be pernament developed. Increased productivity and business prosperity could be achieved by effective use of human potential. In addition, the motivation is needed since only the effective and encouraging high-performing organizations may achieve the objectives they have settled.

2. Definition of motivation

In order to define motivation in general, and particularly work motivation, it is necessary to be concesned with personality dynamics. The motivation of human behaviour becomes topical when the resources, the reasons or causes of behaviour are considered. Human motives are usually combined in different ways, and some action is often the result of several motives that operate simultaneously.

The one way how to learn the art how to motivate someone is by means of understanding the motives which influence the behaviour of individuals by motivator. But it is not easy at all, because everyone is different, he grew up in different environments and was influenced by the other factors. To reveal human hidden corners – his "ego" is not only very difficult but also time consuming.

Motivation is often helpful where other forms to ensure the desired action or behaviour have failed. Currently, there are countless number of definitions of the term motivation. For example, by the term motivation Boroš means "any individual or group attributed processes with explain or make clear his behavior" (Boroš, 1995, p. 18). Another author, Fuchsova, argues that the motivation is "interpsychical process, explaining the reasons for behavior in a

subjectively assessed situation when he satisfies the perceived lack of the outstanding needs, habits, interests, values and ideals" (2004, p. 11). Czech psychologist Nakonečný presents that motivation expresses the concept of a process which is initiated by motive and is expressed primarily by the state, which is referred to as a need (2005, p. 61). On the other hand, according to Heller the motivation is "will to act" (2001, p. 6).

3. Model and philosophical background (laws) of motivation and motivate

In addition to definitions given above motivation, can be defined as internal psychological process, which takes place at several levels of human consciousness and which individual´s action and directs it towards achieving the objective.

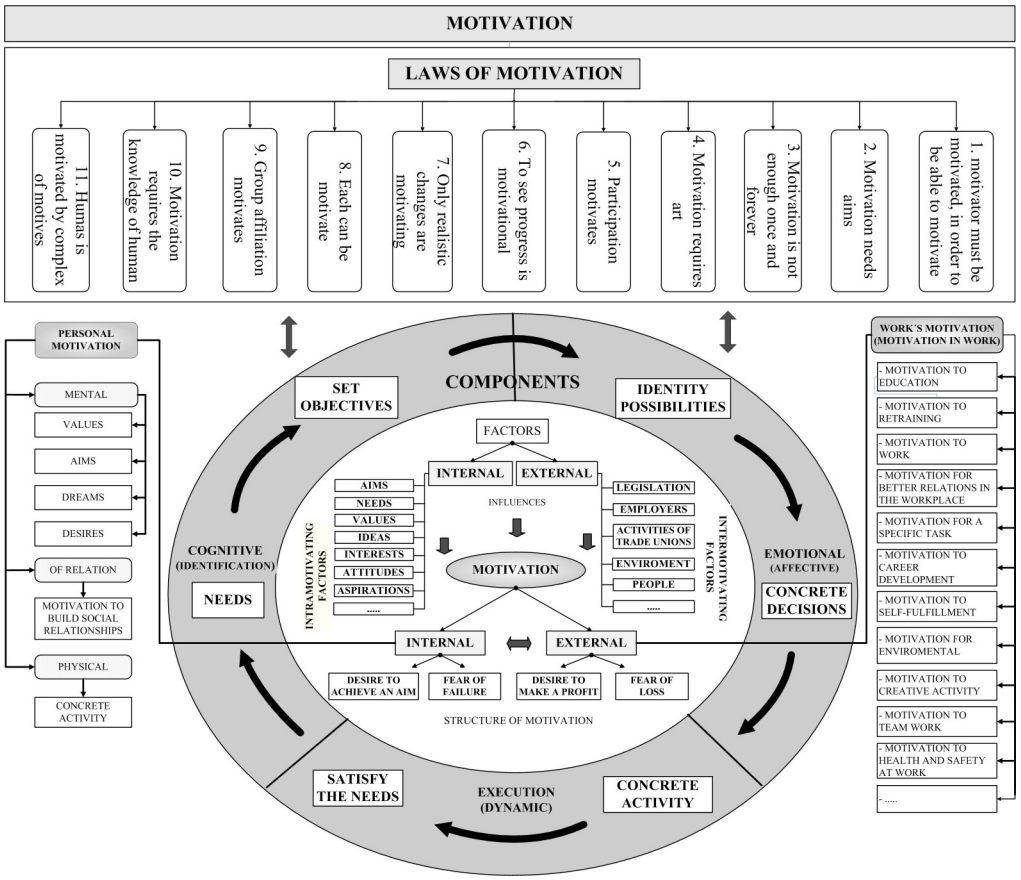


Fig.1. Model of the motivational process and laws of motivation

It is important to know the basic laws of motivation, to ensure that the motivation in the company is successful.

1. In the first place motivator must be motivated, in order to be able to motivate other individuals. A very important part of the incentive process is the motivation of motivator. Even in practice it is clearly confirmed that only the manager who is himself properly motivated, can adequately motivate and lead subordinate staff motivationally, and

this apply to vice versa. In the present management the capability to motivate and to lead employees incentively is consiedered as one of the basic skills of the manager and the company profit is depended on it.

2. Motivation needs aims. It is not possible to motivate someone without a clear target ahead. The objective is something that an individual or group is trying to achieve, and it may vary, for example someone is motivated by reached working position, a pleasant working environment and good relations in the workplace. The result is that motivation is an individual concern. The reason for this come from the diversity of people, their goals, values and motives.

3. Motivation is not enough once and forever. Motivation is a constant, never-ending process. It is not possible to motivate only once and no more. It is mainly due to the level of incentive that changes and evolves over time. Therefore, it is very important to do variations of motivational processes in horizons of time and try to bring them closer to reality.

4. Motivation requires art. Motivator should have a nature and character properties which are suitable for communication with people. In particular, it should be someone with a certain level of emotional (EQ) and general intelligence (IQ). It is particularly necessary in order to motivator knows how to respond accuratelly, burst into the people, but also to have a certain level of intelligence and know to look for context and to propose solutions. He should be able to listen actively and should be able to praise his colleagues, and show recognition for good work. This law is very important, because it considers the fact that not every person can motivate another and be a good motivator.

5. Participation motivates. A company may also motivate their employees in such a way that enables them to participate in some decisions of the enterprise future when defining and solving problems. This way will ensure the motivation to work and feeling of belonging to the company and to its results, which has an impact on productivity and performance of the enterprise.

6. To see progress is motivational. When individuals see someone around them promotes, improves and achieves satisfaction, they feel more motivated and have a willingness to improve. It is important to understand that even a small success motivates. For managers in the company, that means that should boast subordinate staff even for small successes, because it has an impact on their further work and their future performance.

7. Only realistic challenges are motivating. It is necessary to set realistic goals, so that individuals and groups could see the possibility of its completion. In case of long-term goal it is possible to split it into smaller goals that will be achieved gradually. In this situation the aim of the manager is to inform about the corporate objectives and ensure that staff can see the real target and do not be affraid of possible changes. An important prerequisite of effective motivation is to ensure each task will be brought to the end. Even then it is not appropriate to judge a staff member and his qualities; but to assess his task and performance.

8. Each can be motivate. Each individual or each group may be a subject of motivation. Under this context, it is necessary to realize that although in general it is possible to motivate anybody, but the level of motivation, and also the forms of motivation are different for majority of people. Therefore it is important to find a certain consensus and work out a motivational program addapted to current requirement and possibilities of the organization. This should include acceptable motivational tools that will be adapted for most employees to increase the effectiveness of motivation.

9. Group affiliation motivates. Most people need to belong somewhere. This membership gives them a sense of security, social background, community and contributes to the motivation.

10. Motivation requires the knowledge of human. If the motivator has intention to motivate anyone, he has to know him first. This is about knowing the objective needs,

interests of the considered individual (object of motivation), simply expressed, it is necessary to know his motivation profile. It is not clear what the individual needs, his problems if he is doing well, it will not be possible even to determine how he can be effectively motivated. It is demanding work for manager and it consumes much time. The best way to know a man, is personal contact. But in large companies it is often very difficult, therefore it is appropriate to use the Questionnaire survey among employees.

11. Human is motivated by complex of motives. Individuals or groups are not motivated by only the one motive, but it is a complex of interrelated and interacted motives.

4. Factors affecting the motivation

Motivation is made of intramotivating and intermotivating factors. **Intramotivating factors** are internal factors and influences that are part of internal motivation. Every human behavior is motivated by a particular event. The internal factors that affect motivation, include goals (short, long), attitudes, values, ideas, needs, interests, aspirations and other factors. Interior motives in the work may be, for example, the need to improve himself, learn, need to do and interesting and creative work, the need to participate in the success of the company to prove its merits, abilities, knowledge etc.

The effective manager is aware of the importance of external and internal, impulses trying to know the inner motives of employees and creating opportunities for them to use it. He tries to appropriately combine the external and internal stimuli in order to maintain the motivation of motivated employees and on the other hand, encourages those without motivation. **Intermotivating factors** are external factors that affect the level of motivation in the company. They have an effect from the surroundings to the people. These are usually classified:

a) legislation (laws, rules, regulations).

b) employers – for example remuneration, profit share, working conditions, social pro-feast, and certainty in employment for employees and so on.

c) activities of trade unions - negotiate the better conditions for employees.

d) the environment – it is distinguished the social and physical above all. Socially it concerns the relationships between people. In case, individuals do not have a good relationship with co-workers (there are expressions of anger or antipathy), the motivation of such individuals is declining as the work environment is unwell. He realizes that something is not right and he concentrates harder on the current activity. Whilst in a pleasant environment where understanding of others prevails a much better performance is given and their motivation is rising.

e) people - acquintance, family, friends, colleagues and other people from surroundings. Each of them may effect the individual in other way. However, one fact is certain: if the problems and misunderstandings appear, so they affect the individual's relationship to others and have negatively impact on their motivation, which falls almost in every area of life. But it depends on the relation to that man. The problems and misunderstandings with someone are perceived in different way with someone who is a close friend and who is not.

Many studies demonstrate the motivation for that financial remuneration (salary, eventually Profit-sharing) is not the only important motivating factor. Individual factors, whether external, internal, or both, affect the process of motivation. This process has 3 components:

1. Cognitive (identification) - individuals understand what they miss and they set a specific goal

2. Emotional (affective) - Individuals decide the objective and need throught feelings about them. It is a reaction based on feelings, intuition and experience

3. Execution (dynamic) - includes concrete steps and actions towards achieving the set goal.

The process starts with ***the recognition of the need***. Need is defined as a feeling of lack what is motivate power for man to achieve of equilibrium state, the elimination or removal of tension. Subsequently, the individual ***set objectives***, what he wishes to achieve. Unsubstantial need is in this way turned into something concrete. These two parts belong to the cognitive (identification) component of motivation.

The next phase is ***to identify possibilities***. This means that an individual will review its objectives and the reality of their implementation. Then he takes ***concrete decisions***. It is possible to consider two potential scenarios. Either an individual decides to continue or return to the phase of determining the objective, which he will review, eventually change. These two parts are included in emotional (affective) component of motivation.

The process continues by ***concrete activity*** that will bring one to the other two scenarios. Firstly, it ***can satisfy the need*** and he focuses on identification the next one. Secondly, the individual is unable to satisfy the perceived need, and therefore he returns to the phase of review and identification of possibilities. If, consequently, availability of objective is reduced, it can be adjusted downward or completely changed and focused on the satisfaction of other related needs. In this case, implementing (dynamic) component of motivation may be considered.

Knowledge of the motivational process, what motivates people at work, knowledge of their individual needs, interests, values and aspirations is the starting point to ensure that the manager know effectively motivate employees. However, for individual people external and internal motives are different, therefore it is necessary to focus on the motives which may be almost the same. These are primarily relating to work. For example: to be fairly remunerated, have interesting and safe job, have possibility to professional and career development and so on.

5. Typology (structure) of motivation

Motivation can be divided into internal (self-motivation) and external. Internal motivation is more important for the private and working life. That is made by factors, which are for the individuals characteristical and they themselves create and influence some of them. This motivation is important because it is the substance of every human activity and according to it the individuals make decisions in everyday life. In companies there is an effort to put the external and the internal motivation in harmony and after that it can be considered, that man is identified with the objectives of the organization.

Internal motivation can be influenced by two possible scenarios: the desire to achieve an objective or fear of failure. It is up to individual, his nature and confidence in himself, which variant he chooses. If he does not believe in himself, only the effort to avoid of failure is driven him ahead. On the contrary, ambitious goals are set by self-confident people and the failure is not accepted. In most cases, it is not the result of their behaviour and actions.

Personal motivation is part of an internal motivation, which consists of three parts:

1. Mental – it means, that an individual creates an idea in his mind where he wants to come on the base of his objectives, values, dreams and desires.

2. Physical – it is a concrete activity of individuals trying to reach the objective. The idea is as important as act.

3. Of relation – it is the motivation to build social relationships with other people, because man is a social creature and needs a society of other people.

External motivation is a motivation that is coming from the surroundings. There it can be considered with similar possibilities as when the internal motivation is in question. If the individual longs for a profit, so this his desire will be motive force for reaching his aim. Many individuals and groups can be influenced by negative form of the external motivation - fear of loss, for example fear of job loss, fear of inability to fulfill the given task and so on. It is known that fear is a very powerful way to influence people, some companies use it very often. For example in the current time of crisis and lack of jobs.

Part of external motivation is work´s motivation.

Work´s motivation is a phenomenon which is displayed in chains of events of internal – psychical enviroment and external - the working environment in the complex of inter-dependent, contingent and variable factors. It is characterized by systemic arrangement heterogenous factors that enter into the reciprocal interaction and consequently the man´s behaviour in the working process is dynamised. Work´s motivation is manifested as an "energy" side of behaviour, which brings the dynamic into the work process, leading to the activation, modification, alteration or inhibition of activity. Generally it can be defined as a response to the question of why a man works, why he makes some performance, why he reaches his performance, why he wishes to achieve a certain work´s position.

Work´s motivation can have multiple types. For example, the *motivation to education*, eventually the *retraining*. This motivation is about spreading of knowledge-level, whether professional, linguistic or development of personality (eg. management training, how to motivate, and lead people, how to solve conflicts, etc.). Retraining is a way to increase his value on the labor market. This form is used when an individual can not be applied in their field. It is a very important instrument of active labor market policy, the current situation in the labor market. Additional types of work´s motivation are the *motivation to work, motivation for better relations* in the workplace and by means of that to improve the working atmosphere and climate. Motivation for a specific task is such a form of motivation which ensures employees will be motivated to perform even other tasks as thore stated in their job conditions.

An important field of motivation is the *motivation to career development and self-fulfillment*. When the promotion plan, which is real and will be valid for different types of job positions in the company is eleborated in company, it may have an motivational character. The desire for self-fulfillment is linked to it. Another field of work´s motivation - the *motivation to creative activity* - has a great importance, as it gives employees the opportunity to submit their ideas and suggestions for improvement. It is about creating of such conditions, when employees are motivated to create independently.

In the current time when the environment suffers from human indifference and inconsistencies, *motivation for environmental* protection is needed. As everyone starts from itself and behaves towards the environment with respect at home and at work, it may slow down the consequences of negative impact on environmental.

Motivation to health and safety at work. Employees should be encouraged to work to protect their and their colleagues health.

Motivation to team work appears extremely important, since its synergy. This may help in solving complex tasks, eventually in verifying the accuracy of the chosen procedure. Teamwork is beneficial not only for business but also for humans. It brings the feeling of belongign somewhere and possibility to parcitipate in the tasks that are important to the company.

6. Conclusion

In the field of labor motivation it is very important to determine motivator. It's a man who will be responsible for motivating employees. It is important to retain the laws of individual motivation during its determination. They need to be applied in the overall process of motivation and setting aims and processes how to motivate. Different types of motivational programs can be created to support the work´s motivation in company. They must also focus on abidance and suitable combination of laws of motivation. Because those are the prerequisite that a specific motivational program will find application in practice. Its success depends on the extent of acceptation of the real needs of employees, on adaptability to their personal interests, objectives and needs and how they relate to the objectives and possibilities of company. Significant knowledge of current theory and practice is that even the best motivational program will not be effective in organizations where phenomena as motivational barriers or discouraging factors are preponderanced.

To conclusion the content of this article, theme of motivation is extremely extensive, and involves many diverse aspects and forms. Nowadays, it doesn´t have due attention. In most businesses it is undervalued and not used enough. For this reason increased dissatisfaction prevails among employees, which come from lower interest on their needs, necessities, expectations and limits. Therefore it is important for management section of organizations to recognize the importance of people who are the driving force of any organization, because their dissatisfaction has straight proportional to reduction of work performances, profits and, consequently, reducing the competitiveness of the products or services on individual markets.

References

[1] BOROŠ, J. *Motivácia a emocionalita človeka.* 1nd ed. Bratislava: ODKAZ, 1995. ISBN 80-85193-42-6

[2] FUCHSOVÁ, K. *Manažment pracovnej motivácie.* 1nd ed. Bratislava: IRIS, 2004. 170s. ISBN 80-89018-66-1

[3] HELLER, R. *Úspešná motivácia.* 1nd ed. Bratislava: Slovart, 2001. 73s. ISBN 80-7145-556-3

[4] NAKONEČNÝ, M. *Sociální psychologie organizace.* 1nd ed., Havlíčkuv Brod, 2005, 228s. ISBN 80-247-0577-X

[5] REHÁKOVÁ, H. *9 zákonov motivácie.* http://www.ibispartner.sk/index.php?option=com_content&task=view&id=450&Itemid=7

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Logistical Process and Material Flow

[*]Eva Carmen Poláčková, [*]Ján Neupauer , [*]Martin Krajčovič
[*] University of Žilina, Faculty of Mechanical Engineering, Department of Industrial Engineering, Univerzitná 1, 01026 Žilina, Slovakia, { eva.carmen, jan.neupauer, martin.krajcovic}@fstroj.uniza.sk

Abstract. The subject of this article is to analyze the supplying chain process of logistics, which plans, realizes, and effectively leads flowing and storing of materials as well as it gathers and manages information from the places where materials were produced and the places they were used to satisfy the customers' needs.

Keywords: material flow, process, transportation,

1. Introduction

The concept of logistic is widely used in many different fields; one of those fields is Math (Greek term "logisticse"= the way of counting). Another one is military service where it means material and military support for fighting units (food, ammo, material, repair squad, pharmaceutical service and transport). Later on the term logistic appeared in economy in which the meaning was taken from French word logistique= accommodation. Nowadays the most common meaning of this term is analyzing the supplying chain process of logistics, which plans, realizes and effectively leads flowing and storing of materials as well as it gathers and manages information from the places where materials were produced and the places where they were used to satisfy the customers' needs.

2. Logistical process and flow of material

Logistical process describes the function of producing, delivering, and storing processes. We can compare this process to one big chain inside which objects (materials) are moved around. The main function consists of two different elements.

- Trafic intersection - store
- Stage – movement

Traffic intersection may have different functions:

- Production; qualitative change of materials.
- Combining or dividing packages.
- Storing; material is stored until it comes to consumer use.
- Consumption; material is used or further qualitatively changed.
- Settling; used material is settled for environmental purposes.

An economical principle in logistic – logistical process is affected by production factors like:

- Expenses
- Time

- Quality

The placement of different traffic intersections depends on producing expenses, availability, labor, storage houses, qualitative factors in producing and transportation. According to these facts the right way of transporting and the correct route must be chosen in order to deliver the goods on time with biggest reduction of expenses possible.

3. Flow of material and road transportation

Two types of logistical processes:

- One-step system– it is a direct flow of material between supplying point (source) and delivery point (finish). The advantage of this system is that the flow between these points is direct so no storing either transporting process is necessary.

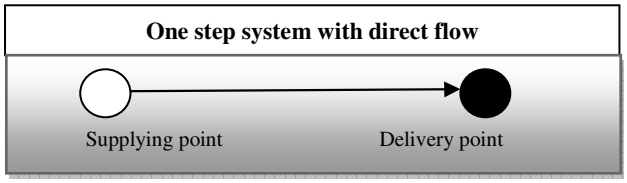


Fig. 1. One step system with direct flow

- Multi-step system– it is an indirect flow of material between supplying point (source) and delivery point (finish). It has been interrupted in some point. In this point distribution processes and consolidation processes play a role.

Distribution - reduction of transportation units (limited customers' demand).
Consolidation – many small flows of material combined to bigger one.

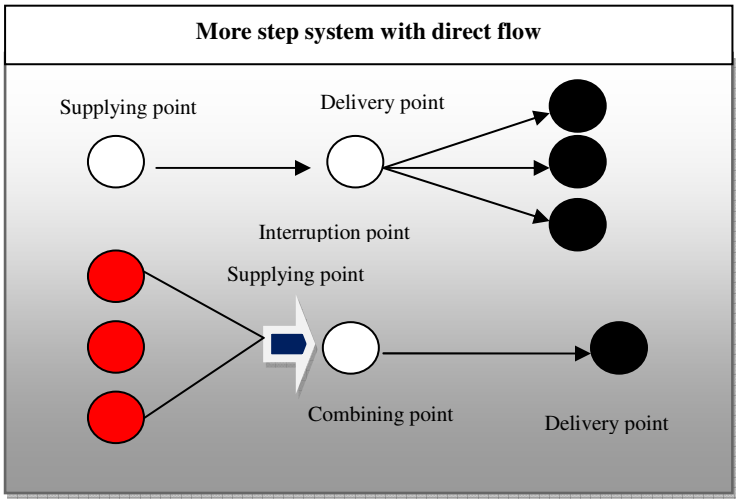


Fig. 2. More step system with direct flow

- Combined system – in this system both direct and indirect material flows are possible. In some cases the distance may be too long and the flow too slow to satisfy the scheduled needs of customer at delivery point. This is the reason why we use distribution points as storage houses. Multi-step system is used more frequently in such cases because the economy of material flow is directly connected to the volume of it.
-

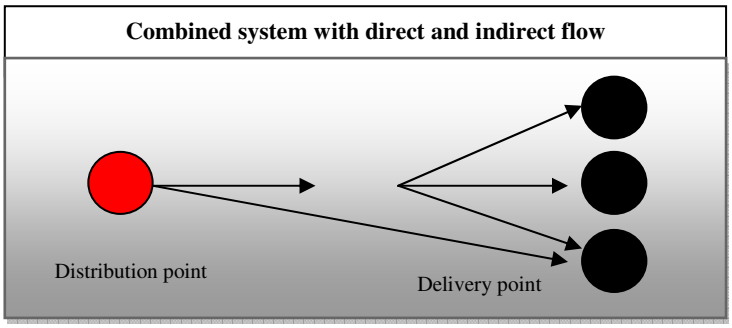


Fig. 3. More step system with direct flow

4. Transporting process

Solving a transporting problem consists in building a strong delivery chain. In this field it is defined as technical and alternative connection of events, in which sources are moved around from supplier to receiver. Transporting chain is a part of material flow specific only for logistic function of transportation. The way to build a transporting chain:

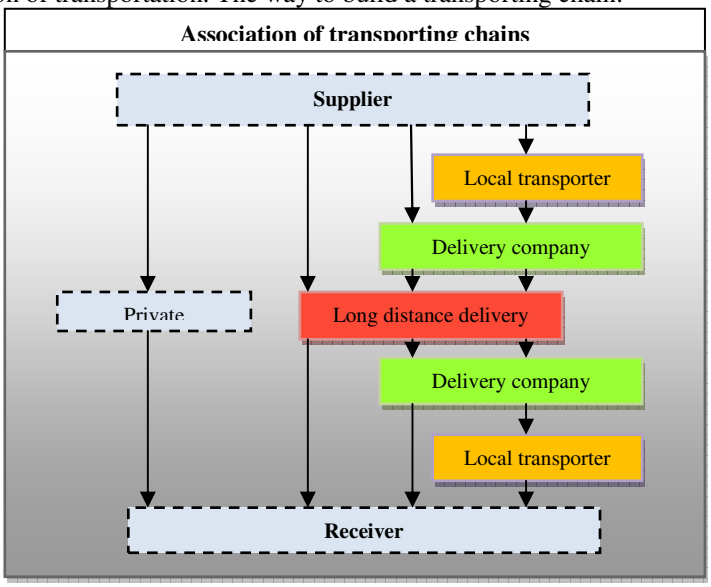


Fig. 4. Association of transporting chain

Two main processes in road transportation:

- Direct – delivery from 'door to door'

- Transportation from one intersection to another– distribution of small packages in intersections and bigger packages between them. Intersections are also used to satisfy another needs e.g. storing.

Transporting chain may be built as one-step or multi-step processes. In one-step process there is only one way of transport needed to deliver between supplier and receiver (direct transport).

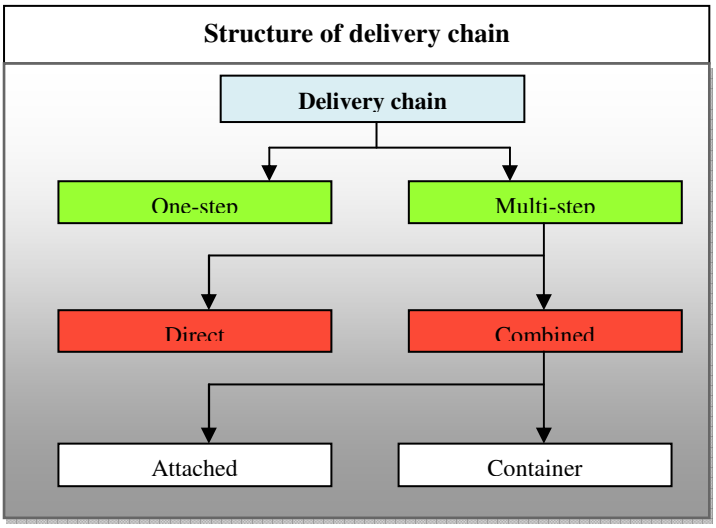


Fig. 5. Sturkture of delivery chain

In multi-step delivery chain there is a change of transports between the supplying and delivering point It is also called interrupted or combined transportation. In combined transportation there is no change on container that is being transported.

5. Conclusion

The goal is a wider focus to fullfill the ligistic features like optimalisation, coordination and synchronisation of all other activities where the concatenation is inevitable for flexible and economical achievement of the resulting effect. The good arrangement of material flow is also important. The policy of systematic integration technique of material flow is in effect, so it can prevent redundant manipulation operations, so they could be easily automated. Each material flow can work only when informations arrive reliably and correctly on the right place, in the right time.

The information can:

- minimize the stock-keeping with better control of the supplies, better coordination of suplier-purchaser relations
- change the stock-keeping of final products to raw products or raw materials
- minimize the traffic with better coordination of all the links in the traffic chain

References

[1] Terminology of Intermodal Transport, Glosarry as appoved by the Ministers of Transport (ECMT) Bruxelles, november 2005

[2] http://www.clm 1.org, Definition for logistic, Council of Logistics Managements, Oak Brook 2001, December 2005

[3] Bigoš P. - Kiss I. – Ritók J.: Materiálové toky a logistika, Vydavateľstvo Michala Vaška, Prešov 2002

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Impacts of Toll Collection Introduction on Haulers

[*]Miloš Poliak
[*]University of Žilina, Faculty of Operation and Economics of Transport and Communications, Department of Road and Urban Transport, Univerzitna 1, 01026 Žilina, Slovakia,
poliak@fpedas.uniza.sk

Abstract. This paper describes impacts of toll collection introduction on haulers. There is described current and prepare status of charges for use of roads in fist element of paper. Paper includes tables of current and prepare rate for using of roads and figures current and prepare tolling scope in Slovak republic. There is described impact of implementation of electronic toll on hauler in further element of paper.

Keywords: toll, hauler, road, rate, transportation.

1. Introduction

Germany, Austria and Czech Republic have introduced electronics toll. Electronic toll collection represents a system of charging the users for using segments of road infrastructure. With the electronic toll collection, the hauler bears cost of infrastructure according to the distance actually travelled and thus one can consider this system to be more just compared to the system based on vignette purchase. Slovak republic predict introduction electronics toll since 1. January 2010. Toll rates are ratified in Slovak republic on the present and our rates are ones of the most highly in the European Union [1].

The aim of this paper is to describe to tolls change in Slovak republic and to state impacts of toll collection introduction on haulers.

2. Current and prepare status of charges for use of roads

At present, the payment for use of selected segments of highways, high-speed roads and 1st class roads is derived from the gross weight of a vehicle and validity period of a highway vignette. Topical payment rates related to use of roads by heavy vehicles are presented in Table 1 and are stated to the Act No. 428/2008 Col.

Vignette type	Total vehicle weight	
	3,5 - 12,0 t	more than 12 t
Nine month	495 €	810 €
One month	55 €	90 €
One week	24 €	40 €
One day	8,60 €	10 €

Tab. 1. Payment rates for use of selected segments of highways, high-speed roads and 1st class roads.

The current vignettes-based charging does not allow charging the users according to the distance travelled on the road they use thereat this system will replaced the electronics toll in Slovak republic since 1. January 2010.

The Act No. 25/2007 Col. on Electronic toll collection for use of selected road segments sets a precondition that the toll rate for 1 km of a selected road segment is set separately for the vehicle category from 3.5 t to 12 t (gross weight), 12 t and more (gross weight) and motor vehicles designed for transport of more than nine persons, including a driver. Moreover, the manner of toll rate calculation must also take into account alt least the EURO emission class and the number of axles of the vehicle.

The toll rates are set to the Act No. 350/2007 Col. that appoints to toll rates for use of selected road segments. The Act No. 350/2007 Col. sets special toll rates for highways and high-speed roads (table 2) and special lower toll rates for 1st class roads (table 2).

Vehicle	Vehicle's category	highways and high-speed roads			1st class road		
		Euro 0 - II	Euro III.	Euro IV, V, EEV	Euro 0 - II	Euro III.	Euro IV, V, EEV
Trucks	3,5 t - 12 t	0,093	0,086	0,083	0,070	0,063	0,063
	more than 12 t - 2 axles	0,193	0,183	0,179	0,146	0,136	0,136
	- 3 axles	0,202	0,193	0,189	0,153	0,146	0,143
	- 4 axles	0,209	0,199	0,196	0,156	0,149	0,146
	- 5 axles	0,206	0,193	0,189	0,153	0,146	0,143
Passenger cars	3,5 t - 12 t	0,090	0,086	0,083	0,066	0,063	0,063
	more than 12 t	0,186	0,176	0,173	0,139	0,133	0,110

Tab. 2. The valid toll rates for highways and high-speed roads and for 1st class roads.

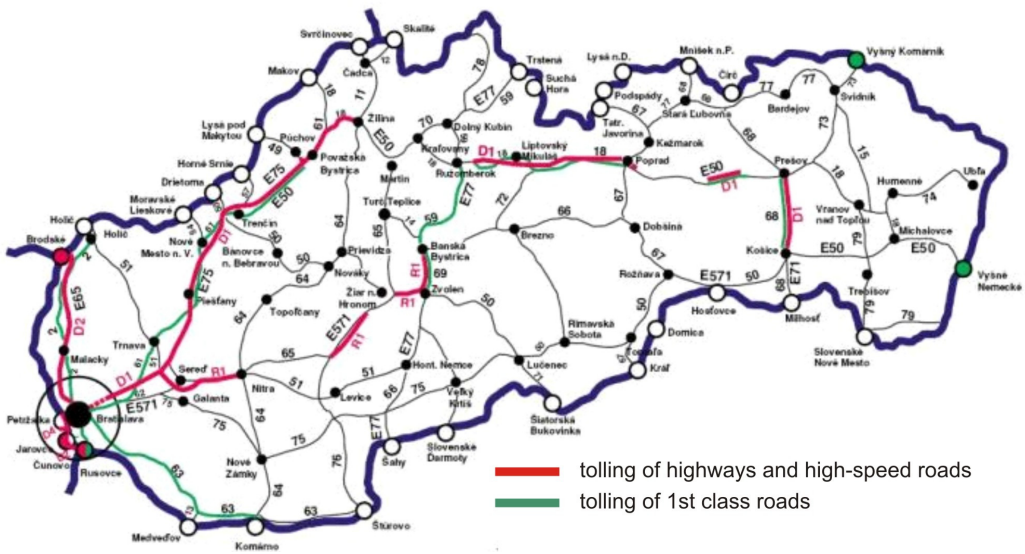


Fig. 1. Current tolling scope (on the 1. January 2009).

Change of cost of haulers will induced to change volume tolling of roads in Slovak republic too. On the present are tolling 715 km roads (figure 2), after implementation of electronic toll will be tolling about 2 400 km roads (figure 3). It is increase to tolling about 336 per cent.

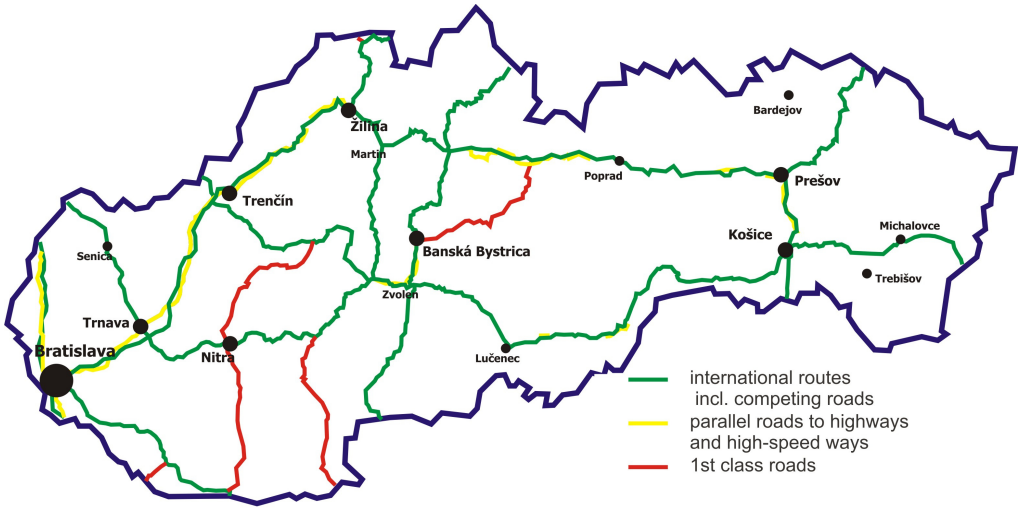


Fig. 2. Tolling scope after implementation of electronic toll.

3. Determination of impact of implementation of electronic toll on hauler

Cost's change for using of roads are impacted to change level of rates and to change volume tolling of roads too. Cost's changes for using of roads are analyzed in sample of concrete hauler in the following element of this paper. The hauler operates vehicle combination with maximal total weight 40 t and with 5 axles. The vehicle verifies emission class of engine of vehicle Euro 3.

Method of analyze is described on example in transport goods from Šaštín-Stráže to Ružomberok. Transport's distance is 230 km. Impact of implementation of electronic toll is described in table 3. Transport is routed to tolling roads from Nové Mesto nad Váhom to Žilina and 1st class roads from Žilina to Ružomberok. The hauler bears the brunt of tolling roads 28.26 € by distance 230 km. Costs for one km are 0.1229 €/km.

Stretch of a road	Road's category	Distance (km)	Rate (€/km)	Stretch of road's cost (€)	Transport's cost (€)
Šaštín-Stráže - Senica	free	20	-	-	28.26
Senica - Rohov	free	5	-	-	
Rohov - NM/Váhom	free	44	-	-	
NM/Váhom - Žilina	highway	95	0.196	18.62	
Žilina - Ružomberok	1st class road	66	0.146	9.64	

Tab. 3. Impact of implementation of electric toll on hauler in transport from Šaštín-Stráže to Ružomberok.

The cost of others transports are calculated similar method:

- costs are 0.1706 €/km in transport from Trenčín to Ružomberok (distance -140 km),
- costs are 0.1168 €/km in transport from Hruštín to Ružomberok (distance – 40 km),
- costs are 0.1524 €/km in transport from Rimavská Sobota to Ružomberok (distance - 157 km),
- costs are 0.1623 €/km in transport from Prešov to Ružomberok (distance – 160,5 km),
- costs are 0.1178 €/km in transport from Levice to Ružomberok (distance – 149 km),
- costs are 0.1046 €/km in transport from Muráň to Ružomberok (distance – 130 km).

The costs of hauler for using roads will increase in case implementation of electronic toll in Slovak republic. It is not to calculate to average cost per km exactly, because cost increase is very influenced by routing of the road and share of routing of the road on tolling roads. This fact is described by analyze of impact of implementation of electronic toll on haulers. Results of analyze is costs increase at intervals of 0.1046 €/km to 0.1706 €/km.

4. Conclusion

Forasmuch as is impossible to look for further internal reserves of haulers because income of haulers is about 0.6 – 0.8 € per km in January 2009 and costs of hauler are about 0.9 – 1.0 € per km in January 2009. Haulers should have to remove costs increase to customer of transport.

In present, haulers and forwarders should have to speculate about calculate of tariff or method that will use to move costs increase in price for customers of transpost.

References

[1] GNAP, J. – KONEČNÝ, V. – POLIAK, M. – ŠTETINOVÁ, A.: Electronic Toll System in the Slovak republic – Tolling Scope and Impacts; special study executed by University of Žilina, Faculty of Operation and Economics of Transport and Communications, Department of Road and Urban Transport, 2007

[2] KONEČNÝ, V.: Rozsah spoplatnenia cestnej siete a jeho determinanty v súvislosti so zavedením elektronického mýta v SR; Národohospodářské aspekty dopravního systému – 7th international scientific Conference of Ústav ekonomiky a managementu dopravy a telekomunikací Fakulty dopravní ČVUT v Praze, 28. march 2007. – Prag; FD ČVUT, 2007; ISBN 978-80-01-03706-5.

[3] PÁNIS, M. – KALAŠOVÁ, A.: Car monitoring information systems; Transport systems telematics – 8th International Conference; November 5-8. 2008; Katowice-Ustron; Poland; ISBN 978-83-917156-9-7; s. 59-64

[4] POLIAK, M.: Predpokladaný vývoj sadzieb elektronického mýta v niektorých európskych štátoch a jeho dopady z hľadiska dopravcov. Emisné zóny.; Proceeding of 11. special seminary Aktuálne problémy v podnikaní v cestnej doprave – CEDOP 2009; Agroinštitút – Convention hall; 4. – 5. 2. 2009; Nitra; ISBN 978-80-8070-975-4; s. 144-155.

[5] ŠTETINOVÁ, A.: Freight transporter's delay and loss of society, 7-th European conference of young research and science workers; Žilina June 25-27. 2007; Slovak Republic; Section 2: Economics and management - part 2 (L-Z).; Žilina; University of Žilina, 2007.; ISBN 978-80-8070-707-1; p. 141-144.

[6] Act. No. 25/2007 Co.

[7] Act No. 413/2007 Co.

[8] Act No. 350/2007 Co.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Current Trends and Drivers of Change in Logistics

*Marian Pozor
*University of Economics in Bratislava, Faculty of Business Management, Department of Production Management and Logistics, Dolnozemská cesta 1, 852 35 Bratislava, Slovakia, {mpozor}@gmail.com

Abstract: This article pointed to trends in modern logistics and the way these trends lead to changes in logistics systems. Every organization has to have an idea of where it is positioned in the market and know how to identify opportunities from changes in the market. From this point of view, they need to be prepared to be very flexible towards changes. Only with quick adaptability and good decision making can a company acquire and retain a competitive advantage in the global market.

Keywords: Logistics, logistics system, trends, change.

1. Introduction

These times are characterized by the excess of supply on the market and hence by huge amount of competitors. We are living in the era of the buyer and this shift from the market of seller to the market of buyer results in the following trends in modern logistics. Trends of modern logistics are being influenced by acquiring of competitive advantage on the global market.

2. New Requirements on Logistics

With regard to the trends stated above, companies today are about to undergo important changes and their future depends mostly on how well they can adjust to these new possibilities and requirements.

- on the consumer market, there is a „dictate“ of customers, survival of producers depends on the extent to which they can flexibly adjust to changes in customers‘ requirements
- there is an increased interest in the products with unique functional properties, serial manufacturing and the length of a product life cycle have decreased
- the depth of production programmers has increased, causing the increase of the number of suppliers and of the importance of outsourcing
- production cycle times have decreased, resulting in the higher frequency of small volume supplies
- there are now higher expectations for flexible, reliable, price-convenient and good quality transport servicing
- the competition is getting tougher as a result of increasing quality of new products and because of new players entering the market
- as a result of the globalization of economics, raw materials and products can be acquired on any world supply market

- requirements of consumer market can make use of production capacity in any location in the world and distribute finished products from this particular location to any consumer market under the most economically convenient conditions

3. Current Trends of Modern Logistics

3.1. Globalization

Globalization makes the source markets more and more international and continental and the international competition on the consumption market toughens. Another effect of globalization is the growth of importance of international production specialization and cooperation.

3.2. Technical revolution

As a result of the informatization, international integrated intranet information networks are being created, extranet global information networks are growing and so is the importance of e-commerce.

3.3. Application of special technologies

Application of special technologies shortens the product life cycles and speeds up the development and usage of new materials.

3.4. Customer oriented market

Market with customer orientation heightens the ratio of special and unique requirements as well as the intensity of competition battle. New conditions of market competition emerge:

- new criteria for quality appraisals
- reduction of production turn-around times,
- reliability and accuracy of a the supply,
- the size of portfolio of the after-sale servicing of the customer.

3.5. Innovation

The main goal of innovation is to lower the logistic costs, however, an increase of the importance of creating new services that would better address the needs of the customers is expected within the next few years. Innovative approaches of the transporting and logistic companies differ to a great extent. Innovations in logistic companies are initiated almost exclusively by the *market*. These companies derive their innovations from experience. They often develop individual solutions for the customers without further possibility to apply this solution somewhere else on the market. Conversely, the initiation in transporting companies tends to be *internal,* where the base for strategic planning is created from technological perspective. Products and services are developed in accordance with the strategic plan and their introduction to the market is coordinated centrally and from the perspective of the company as a whole.

3.6. Strategic partnerships

It is necessary to improve the process of forming strategic partnerships in a supply chain, taking advantage of e-commerce possibilities with regards to optimalization concepts.

These trends lead to changes in logistics systems:

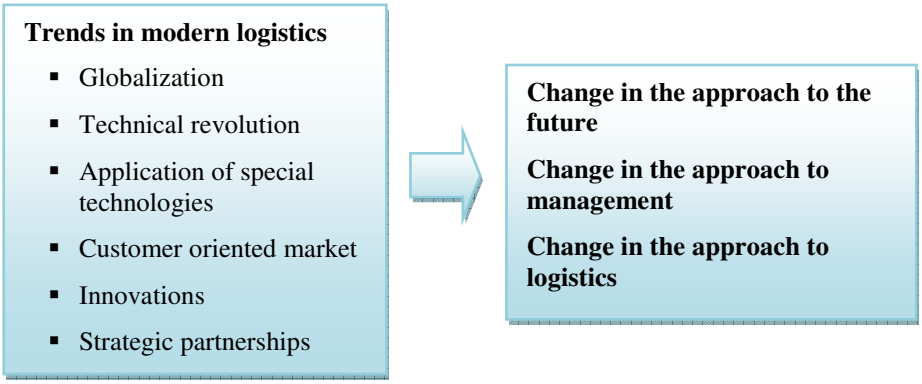


Fig. 1. Trends lead to changes in logistics systems.

4. Changes in Logistics Systems

4.1. Change in the approach to the future

Change in the approach to the future constitutes a completely different look at the future as compared to the one companies have had so far. The aim is not to foretell bright future, but conversely - imagine the future that companies can actively create themselves. Company has to have an idea of where its position on the market is going to be, has to know to identify the opportunities and to avoid the threats.

The key skill of the company has to be the originality – not striving for increasing the market value at all costs, but rather trying to create new segments and take over these segments as the first ones. The result of this approach is focusing on customers needs and fulfilling his needs.

4.2. Change in the approach to management

Change in the approach to the future is the basis for changes in management. These changes constitute a new perception of basic notions definitions such as company, labor, and competition.

Competition must not be perceived in a solely negative way. Borders among competitors according to this new perception of competition are diminishing or crossing each other. Competition is not perceived as a contest for distribution of market influence but as a possibility to take advantage of new opportunities as well. Winners in this contest are those who are able to find and satisfy the needs of customers of which the other companies have not been aware.

4.3. Change of the approach to logistics

New perception of logistics stresses out that logistics is inseparable part of company management. The level of logistics services is a result of well functioning and good quality logistics chain. New approach to logistics does not focus on competition among producers, but on competition among logistic chains as wholes.

References

[1] BAKOŠOVÁ, H. *Trendy a možnosti ďalšieho vývoja logistiky, 5*. Odborná konferencia doktorandského štúdia s medzinárodnou účasťou, Brno 2003

[2] PERNICA, P. *Logistický Management*, Praha 1998

[3] mesačník Trend vydanie 6-08 – *Inovace v logistice*

[4] mesačník Trend vydanie 10-07 – *Cesty k zlepšovaní dodavatelského retezce*

[5] PERNICA, P. *Logistika pro 21. Století*, vydavateľstvo Radix s.r.o., Praha 2005, ISBN 8086031594

[6] C. K. PRAHALAD, VENKATRAM RAMASWAMY – *Budoucnost konkurence*, vydavateľstvo Management Press 2005, ISBN 8072611267

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Review of the configuration selection methods for Reconfigurable Manufacturing Systems (RMSs)

[*]Marcin Rak
[*]Kielce University of Technology, Al. Tysiąclecia Państwa Polskiego 7, 25-314 Kielce, Poland

Abstract. Rapid changes in market demand brought about need for manufacturing systems that are more adaptive. The Reconfigurable Manufacturing Systems were developed to stay competitive in new markets conditions. In order to fulfill all requirements for new products and changes in system capacity, the best system configuration must be chosen. This paper presents brief survey of system configuration selection methods for new generation manufacturing systems. The most important properties of this methods were outlined.

Keywords: Reconfigurable Manufacturing System, System Configuration, Reconfiguration Smoothness, AHP.

1. Introduction

Reconfigurable manufacturing system is based on new manufacturing paradigm[1]: Exactly functionality and capacity needed exactly when needed, introduced on Michigan University. RMS combined general properties of DMLs (Dedicated manufacturing Lines) and FMS (Flexible Manufacturing System). The key characteristics of RMSs are[1,2]: modularity, integrability, convertibility, customization, diagnosability.

RMS consist with modules (hardware and software), that can be easily added, removed or replaced to react on change in market demand, government regulation, or introducing a new technologies. Modular structure of RMS empowers easy re-configuration and re-organization on each level: system, software, control, machine and process. There is a need for development of new or adopting existing theories and approaches for optimal selection of the best configuration for manufacturing system to produce desirable part families. This paper deal with methods for system configuration selection, and some of this theories are described in details.

2. Survey of configuration selection technique

Different aspects of reconfiguration and system design have been extensively studied by many researchers. Abdi proposed a strategy for the selection of the most appropriate layout for each configuration stage using Analytical Hierarchical Process (AHP) model. In this work the emphasis is on the layout reconfigurability, cost, quality and reliability[3]. Xiaobo, Wang and Luo proposed a stochastic model of RMS that was divided on four parts: a framework, optimal configuration, optimal selection policy and performance measure. They classified all required products into a few product families (which consist with similar product) and stated that each product family corresponding with one system configuration[4,5,6,7]. Ren, Xu, Wang and Tan adapted Timed Event Graph (TEG) in order to model the cyclic reconfigurable flow shop. Using this method they tried to evaluate changes in system performances under different

configurations (different combinations of modules and machines) and chose optimal configuration defined as the one with the minimum cycle time and the minimum number of pallets[8]. Youssef and ElMaraghy developed a metric to evaluate impact of the configuration on smoothness and easiness of reconfiguration process called Reconfiguration Smoothness (RS). This metric involves cost, time and effort indispensable to change system configuration from one to another. Authors utilized case study from literature to select better from two demand scenarios for the manufacturing system using RS metric[9].

Galan developed a mathematical model for selection the best set of product families and their production scheduling when the alternative routings for product exist in the manufacturing system [10]. The presented model has been tested with 35 instances from the literature (adapted from the Cellular Manufacturing Systems). To obtain the results within a reasonable computing time two heuristic procedures was proposed: Specific Heuristic and Tabu Search Metaheuristic. Ismail, Musharavati, Hamouda and Ramli implemented the genetic algorithm enhanced by specific heuristic for Manufacturing Process Planning Optimisation (MPPO)[11]. Their case study based on the system consisted of sixteen processing modules arranged in four stages. They utilized two algorithm in order to find optimal solution: modified genetic algorithm without a customized threshold operator (MGAWTO) and modified genetic algorithm with a customized threshold operator (MGATO). The obtained result shown that the MGATO is a better technique for modeling MPPO. Maier-Speredelozzi, Hu and co-authors described methodologies for evaluating the overall performance of different system configuration[12]. Three aspects of the performance evaluation methods was discussed: productivity, quality, scalability and convertibility. The case study based on system composed of six machines with four different configuration (one pure serial and one pure parallel, and two hybrids configuration).

3. Concept of the Reconfiguration Smoothness (RS)[9]

RS metric developed by Youssef and ElMaraghy takes into consideration three levels of reconfiguration, namely: market-level (TRS), system-level (SRS) and machine-level reconfiguration smoothness (MRS). The integrated RS representing smoothness and easiness of reconfiguration between two configuration is defined by equation:

$$RS = \alpha TRS + \beta SRS + \gamma MRS\ , \tag{1}$$

where all coefficients lies in <0;1>, and:

$$\alpha + \beta + \gamma = 1. \tag{2}$$

All components representing different levels of configuration are defined as follow:

$$TRS = \varepsilon TRS_m + (1-\varepsilon) TRS_d \tag{3}$$

$$SRS = \phi SRS_s + \varphi SRS_m + \lambda SRS_f \tag{4}$$

$$MRS = \nu MRS_d + (1-\nu) MRS_o\ , \tag{5}$$

where: all coefficient lies in <0;1>, and:

$$\phi + \varphi + \lambda = 1. \tag{6}$$

Components TRS_m and TRS_d representing changes related to use (add/remove) of machines and machine modules accordingly. Components SRS_s and SRS_m representing changes related to machines and station accordingly, and SRS_f representing changes related to number of material flow paths. Components MRS_d and MRS_o representing changes related

utilization of machine modules and operation cluster assignments accordingly. It is recommended by authors that:

$$\begin{cases} \beta > \gamma > \alpha \\ \varepsilon, \nu > 0.5 \end{cases} \tag{7}$$

To examined this methodology a case study from the literature was utilized. All calculation of RS metric for two consecutive configuration was provided, and sensitivity analysis for different metric parameters was performed.

4. AHP in a manufacturing systems[3]

Analytical Hierarchical Process (AHP) is one of the multi-criteria decision making methodologies that was developed by Thomas Saaty in 1980. By employing AHP, the complex problem can be decomposed to a hierarchical order. Abdi applied AHP in order to assess the objectives, criteria and layout configuration for selecting the most appropriate system layout configuration. Four objectives was determined: reconfigurability, cost, quality, reliability. Two of them (reconfigurability and cost) was decomposed into few criteria that must be strictly ranked with respect to system performance requirements (three levels of importance was proposed: low, medium, high). The alternatives layouts was defined as shown below:

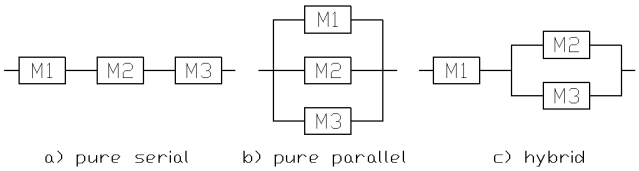


Fig. 1. The possible configuration for three machines.

In order to select the best configuration, the pair-wise comparative analysis of elements of built model (with respect to the element(s) at higher level(s) of the hierarchy) is performed and overall evaluation of the configuration layout possibilities is obtained.

5. Timed Event Graph for system configuration selection[8]

Ren, Xu, Wang and Tan have used timed event graph (4-tuple Petri Net) for modeling of reconfigurable flow shop (see fig. 2). In order to find the optimal system configuration (configuration with minimum cycle time and minimum number of pallets) two mixed-integer program (MIP1 – the minimum cycle time, and MP2 – minimum number of pallets) based on TEG properties was proposed. Reconfigurable flow shop described in [8] was modeled using 4-tuple Petri Net TEG=(P,T,F,K_0), where:

$P = P^b \bigcup P^r \bigcup P^{c_1} \bigcup P^{c_2}$ – is the set of places, where:

$P^b, P^r, P^{c_1}, P^{c_2}$ – are the sets of buffer, resource, unmarked command and marked command places accordingly,

T – is the set of transitions (transition $t_{k,j}$ denotes the operation of job J_k on machine M_j),

$F = F^b \bigcup F^r \bigcup F^{c_1} \bigcup F^{c_2}$ – is the set of directed arcs, where:

$F^b, F^r, F^{c_1}, F^{c_2}$ – are the sets of directed arcs that go from or to buffer, resource, initially unmarked command and initially marked command places accordingly,

K_0 – is the initial marking.

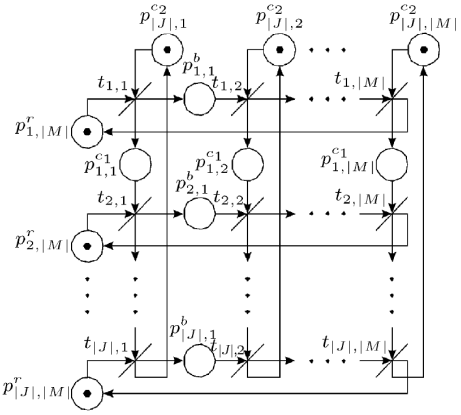


Fig. 2. The TEG model of reconfigurable flow shop[8].

6. Conclusion

The selection of the best system configuration in order to fulfill new market requirements is a cornerstone issue for manufacturing systems designers and plant managers. This paper deal with system configuration selection methods studied by many researchers. There is a need for improving an existing methodologies or development of new strategies that will take into consideration all costs and efforts related to change of system configuration.

References

[1] MEHRABI, M. G., ULSOY, A. G., KOREN, Y. *Reconfigurable manufacturing systems: keys to future manufacturing.* J. of Intelligent Manufacturing Systems, Vol. 11, No. 4, pp. 403-419, 2000.

[2] KOREN, Y., HEISEL, U., JOVANE, F., MORIWAKI, T., PRITSCHOW, G., ULSOY, G., VAN BRUSSEL, H. *Reconfigurable manufacturing systems.* Annals of the CIRP Vol. 48/2/1999.

[3] ABDI, M. R. *Selection of layout configuration for reconfigurable manufacturing systems using the AHP.* ISAHP, Honolulu, 2005.

[4] XIAOBO, Z., WANG, J., LUO, Z. *A stochastic model of a reconfigurable manufacturing system. Part 1: A framework.* International Journal of Production Research Vol. 38, No. 10, pp 2273-2285, 2000.

[5] XIAOBO, Z., WANG, J., LUO, Z. *A stochastic model of a reconfigurable manufacturing system. Part 2: Optimal configurations.* International Journal of Production Research Vol. 38, No. 12, pp 2829-2842, 2000.

[6] XIAOBO, Z., WANG, J., LUO, Z. *A stochastic model of a reconfigurable manufacturing system. Part 3: Optimal selection policy.* International Journal of Production Research Vol. 39, No. 4, pp 747-758, 2001.

[7] XIAOBO, Z., WANG, J., LUO, Z. *A stochastic model of a reconfigurable manufacturing system. Part 4: Performance measure.* International Journal of Production Research Vol. 39, No. 6, pp 1113-1126, 2001.

[8] REN, S. CH., XU, D., WANG, F., TAN, M. *Cyclic reconfigurable flow shop under different configurations modelling and optimization based on timed event graph.* Acta Automatica Sinica Vol. 32, No. 1, 2006.

[9] YOUSSEF, A. M. A., ELMARAGHY, H. A. *Assessment of manufacturing systems reconfiguration smoothness.* International Journal of Advanced Manufacturing Technology Vol. 30, No. 1-2, 2006.

[10] GALAN, R. *Model and heuristics for scheduling in reconfigurable manufacturing environments.* IPROMS, Submitted in 2007.

[11] ISMAIL, N., MUSHARAVATI, F., HAMOUDA, A. S. M., RAMLI, A. R. *Manufacturing process planning optimisation in reconfigurable multiple parts flow lines.* Journal of Achievements in Materials and Manufacturing Engineering Vol. 31 Issue 2, 2008.

[12] ZHONG, W., MAIER-SPEREDELOZZI, V., BRATZEL, A., YANG, S., CHICK, S. E., HU, J. *Performance analysis of machining systems with different configurations.* Proceedings of the Japan USA Flexible Automotion Conference, Ann Arbor, MI, 2000.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Client Preferences in Getting Information about Commercial Transportation in the West Pomeranian Region

[*] Grażyna Rosa
[*] University of Szczecin, Faculty of Management and Services Economics, Department of Marketing of Services, 8 Cukrowa St., 71-004 Szczecin, Poland, grazyna.rosa@wzieu.pl

Abstract. This article discusses the meaning of information as a production and communication factor. The results of research on commercial public transportation in west Pomeranian province was included.

Keywords: commercial transportation, client preferences, information.

1. Introduction

The main feature of the new era of civilization is the development of information as a basic resource for micro- and macroeconomics. There are very common expressions, such as "information society" and "knowledge-based economy."

The importance of this tool is due to technical developments and changes in client preferences. To compete on the market, one must get and transform information, constantly improve the efficiency of information systems, and have specialists for transforming information. Information gains meaning as a fourth factor in production.[1]

For the purposes of this paper, commercial transportation are defined as railway transport (PKP regional transportation), bus transport (PKS and vans), and airplane transport (PLL LOT – airport in Goleniów). Inland transport is not common enough to be considered here.

2. Information as a production factor

The constant improvement of transport and logistic services is eliminating drastic differences between providers, making the most established institutions comparable to developing ones. Getting precise information about client needs is necessary to make accurate decisions. The main tools for getting and transforming information are the Internet, reading equipment, automation of transport and logistic services, etc. For carriers and logistic centers, two attributes of information are especially important: accessibility and reliability. In this regard the most important is the continuation of organization's principles: its mission, values, and so on.[2]

It will only be possible to keep old clients when new ideas are implemented which exceed their expectations. It will be harder for competing businesses to gain new clients. The old, loyal client will be the most important one. Segmenting consumers with classic rules is almost impossible because of constant changes in client preferences. There will be more

[1] Factors of production are work, capital, land [described in some textbooks as material], por. H. J. Warnecke, *Rewolucja kultury przedsiębiorstwa, Przedsiębiorstwo fraktalne*. Wydawnictwo Naukowe PWN: Warsaw, 1999. p. 96.
[2] P. Drucker, *Zarządzanie w XXI wieku*. Muza S..A.: Warsaw, 2000, p. 94

transactions by electronic media. In the future, transport service often be replaced by telecommunications.

The information revolution is effecting competition in three main ways:[3]

1. changing structure of the sector, which changes the rules of competition;
2. improving results;
3. creating new areas of activity, often based on current business operations.

3. Information as a factor of the communication (transportation) process

The process of delivering information consists of the followings parts: sender, coding, information, static, encoding, receiver of the information, feedback (reaction to the information). The following is the structure of the communication process:

a) sender – the source of information (for example, an enterprise which is sending information)

b) coding- the transfer has a symbolic form in this process (transforming an abstract idea to symbols)

c) transferring- the information is directed to a receiver

d) encoding- the process of reading transferred symbols (the symbols are transformed into an abstract idea)

e) answer- information returned to the sender from the receiver

f) static- interference elements in the process (for example, reading symbols not according to the sender's intentions).

Traditionally, communication has been understood as a process of exchanging information between subjects. Today, however, communication is not only the exchange the information, but also a process of creating relationships and communities.

4. Research Results: Assessment of the information system in local commercial transportation in the West Pomeranian province of Poland

The research combined the individual interview method with typical polling methods for marketing research in the analysis of service markets. The research took place between September and November of 2007. Research was simultaneously carried out on railways, bus stops, and one airport in select towns in the area. The size of the trial was determined by two parameters: a 5% margin of error and a correlation significance of 8%. The experiment consisted of 310 polls, with a random sample of people age 18 and older. The main research tool used was a questionnaire.

The intention of the research was to learn travelers opinions and preferences about getting information on, and their levels of use for, different types of transportation.

The most important aim was to find out what information resources are being used, which ones are the most valuable for the respondents, what questions they are asking, what weaknesses are in the information currently offered, and if respondents recognize a need for the reorganization of informing about commercial transportations in the area.

The conclusions of the research are as follows:

[3] M. E. Porter, *Porter o konkurencji*. PWE: Warsaw 2001, p. 92

1. The most popular transport is the bus: 45% of the respondents ride at least once a week. The train: 28%. Only 17% travel by vans as often, because there are not many routes.

2. As the main resource of information, respondents indicated the Internet, information points on railway stations (including tables with arrivals and departure times), ticketing agent, and family/friends. Less important were other media, flyers, catalogs, and tele-information (tele-magazines).

Only 12% of respondents use the telephone as an important means of obtaining information. In this category there was additional research: 29 random bus and train stations were called. The information on bus stations was available (20), though the train station phones were not answered (over a period of 7 days with 3 calls made every 2 hours). Respondents are not including telephone phone information because it is difficult to reach.

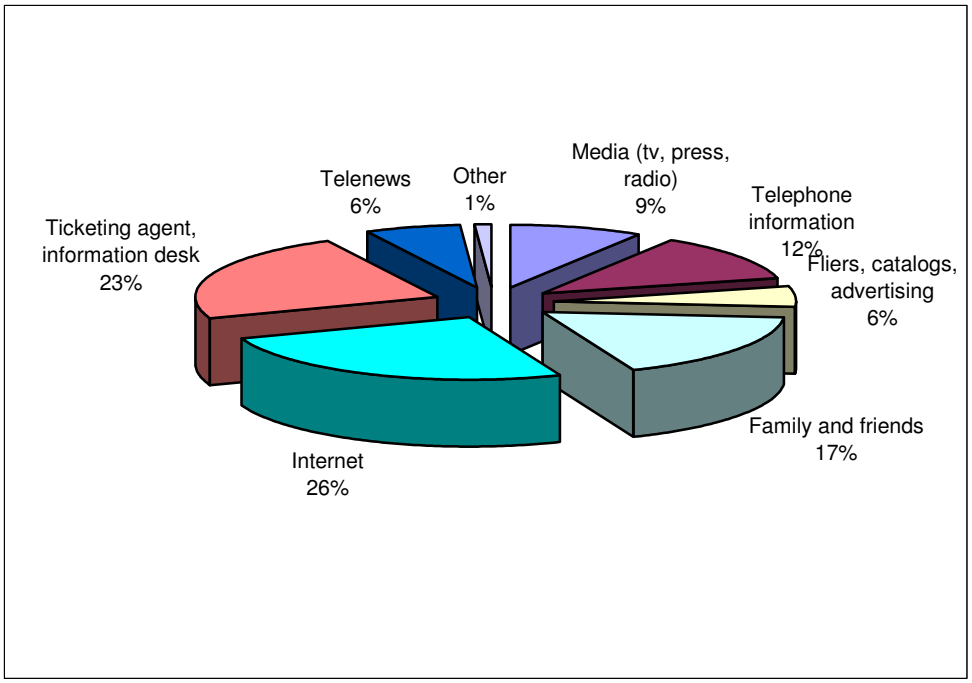
3. Analysis revealed inconsistencies in respondents' answers. The completeness of information for van and airplane transport is rated higher than others, even though most respondents do not use them. Reliability and accessibility in airplane information are both rated low, though airplane transport information is rated the highest overall.

4. Information about bus transport is used the most (33% of respondents), with train transportation in second place (23% respondents). Information about buses (52%) and planes (84%) is used very rarely, explaining the very positive rating: experiences are forgotten, and information is more likely to be obtained in advance.

5. The train information PKP got the most positive ratings:76%. Buses received 69%, with vans at 48% and airlines at 55%. A whole 47% of respondents had no opinion about airplane information (because they not using this mode of transport). Thirty-six percent does not use information about vans (again, they are not using them).

6. The main impeding factors for getting information are:

- non-stop busy phones (50 %)—mainly train transport
- long waiting period for the information (48%)
- difficulties in finding contact information (45%)



Picture. 1 What sources are you using to find information about public transport? (*Mark three answers max, 1-3, where 1 is the most important.)*

Source: independent research

7. Thirty-five percent of respondents know the railway information telephone number. Twenty-four knew the number for bus information; 20% for vans; and only 9% for planes. It is easier to remember the PKP number for train information, because there is only one, national number. Every bus station has its own information line. Knowledge of the PKP Website is at 47%; the bus is 33%; vans, 21%; and Goleniów airport, 31%. Young people with at least secondary education are using the Internet to find important information with ease. Because there are a lot of van businesses, the main problem is finding the right Websites.

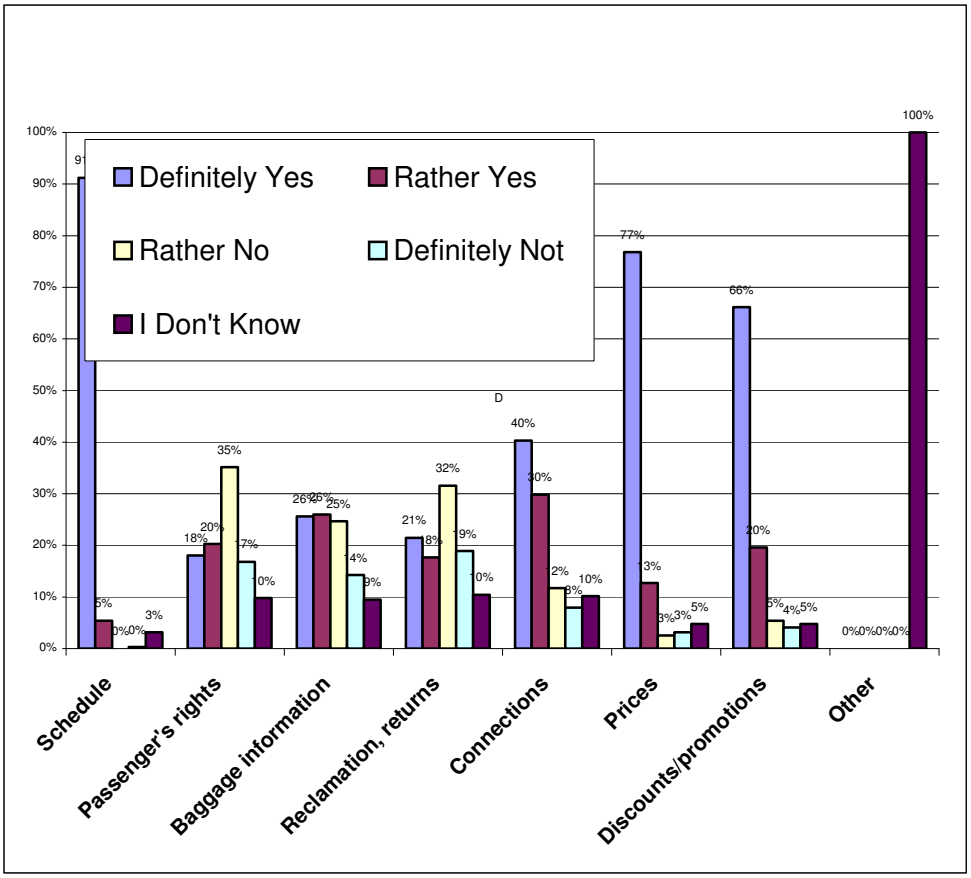
8. About half the respondents claimed to receive discounts for PKP train service, while about 40% claimed discounts for PKS buses. Discounts are often in areas of respondents' interests.

9. Most respondents are looking for information about schedules, prices, and discounts (See Picture 2):

- 96%, schedule;
- 90%, price of the trip;
- 86%, discounts, promotions.

10. In the final question (*Should there be one information system for all kinds of transportation?*), 79% said "yes" and 10% did not have an opinion.

11. Age groupings of respondents were standard: 20-30, 31-40, 40-50, and 50-60. The largest groups of respondents were students (31%) and white-collar workers (26%). The conclusion is that 57% of respondents are constant and quite reliable travelers.



Picture. 2 What kind of information about public transport are you looking for?

Source: independent research

5. Conclusion

To be competitive in the market of commercial local transportation, businesses will need to use information-utilizing procedures proposed by M. Porter[4] :

- rate the intensity of information;
- describe the role of information techniques in sector structure;
- recognize and implement information techniques to achieve market dominance;
- learn how information techniques can be used to create new fields of business activity;
- create plans for the use information techniques.

Intelligent information systems are an important factor in any effective competition strategy, because the market leader must have fast and precise information techniques.

There is also the issue of expenses related to access to work. When the cost of telecommunication is well below the cost of transportation to work, some office employees

[4] Ibid., p.115-119

can work from home. Engineers, designers, computer programmer, accountants, and people making reports and typing can work from home, eliminating the costs (financial and energy-related) of traveling to work. There are many factors to consider here. There is the growing costs of transportation (higher prices of petrol, parking tickets, time of access), office clothing, and building maintenance (including rent, heating, electricity, cleaning and exploitation). Furthermore, distances between work and homes are growing, and roads are crowded, increasing the amount of time spent traveling in relation to the amount of time effectively devoted to work. Meanwhile, the financial costs of energy for equipment (computers, copy machines, and audio and video devices) are relatively lower. Telecommunication is thus another information technique that must not be ignored by professionals in the transportation business.

References

[1] WARNECKE, H. J. Rewolucja kultury przedsiębiorstwa, Przedsiębiorstwo fraktalne. Wydawnictwo Naukowe PWN: Warsaw, 1999.

[2] DRUCKER, P. Zarządzanie w XXI wieku. Muza S..A.: Warsaw, 2000,

[3] PORTER, M. E. Porter o konkurencji. PWE: Warsaw 2001,

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Evolution of the harbor with respect to the development of Szczecin's tourism market (e.g., the Waterfront project)

*Grażyna Rosa, **Tomasz Sondej
*University of Szczecin, Faculty of Management and Services Economics, Department of Marketing of Services, 8 Cukrowa St., 71-004 Szczecin, Poland, grazyna.rosa@wzieu.pl
**University of Szczecin, Faculty of Management and Services Economics, Department of Economic Policy, 8 Cukrowa St., 71-004 Szczecin, Poland, tomasz.sondej@wzieu.pl

Abstract. The Lasztownia area is an attractive place in Szczecin for investors. While there are restrictions based on historical and current considerations (historical development needs to be protected and ownership respected), these issues are not fatal to all investment projects.
New functions of this area will be:

- Tourist function with harbor terminal, yacht harbor, and hotels;
- Recreational function with entreating center;
- Trade with a shopping center and business service;
- Administrative functions with a conference hall and offices;
- Residential areas;
- Production and service functions which combine the above functions; for example, a fish market and crafts.

New transport connectivity will benefit the center of Szczecin and the entire city can be more attractive for investment on both side of the Odra river.
The agreement of the city authority, harbor management, and other cooperating institutions about investment in Lasztownia is opportune, increasing the area's appeal.

Keywords: harbor, tourism market, possibilities of investment.

1. Introduction

This paper discusses problems with changing the industrial character of Szczecin's harbor areas and reestablishing tourism and service markets in Szczecin. Since 1998, Szczecin has been participating in the Waterfront[1] program to develop dock areas in the Baltic region. The program aims to manage historical harbor areas and transform them into attractive tourist destinations. The planned result is to literally face Szczecin once again towards the Odra river.

2. Barriers to the development of Szczecin's tourism market

The main obstacle for the development of Szczecin's tourism market is limited access to the Odra riverside and Lake Dabie Male. There is a lack of adequate facilities (on land and

[1] Final Report: "Waterfront Urban Development – a Network of Cities in the Baltic Sea Region." Szczecin, 2000.

water) for yachting and water sports. The water quality (in the Odra river, Lake Dabie, and Szczecin lagoon) is poor. There is also a shortage of parking space (especially for buses) and a lack of attractive sporting facilities and large venues for festivals. Development of recreational areas near water is slow, and there remains a limited number of areas for water recreation. The Chrobry Embankment, areas of the Pomeranian Dukes' Castle, and Nadodrzanski Boulevard all remain in need of development. There are not enough maritime attractions in the city to help develop the tourism market.

Due to the above limitations, the Lasztownia area near the Old Town are planned to be developed first, according to the highest standards. It is hoped that the renovation of this area will bring a historical function back to Szczecin's industrial and harbor areas. Grodzka Island is planned to be developed for recreational use, and will be connected to the mainland through Dynczycy Channel. The historical importance of Lasztownia requires rebuilding lost urban planning, restoring architectural value, and better utilizing the river.

3. Analysis of the conditions and possibilities of investment in the Lasztownia area

According to an analysis of the areas to invest in and use as city attractions, Lasztownia offers places:

- with historical value;
- with possibilities for further development;
- open for investment.

The Waterfront project's Lasztownia area (approximately 33 hectares) is used extensively. However, there are completely unused parts, including an embankment, a lot of buildings are in poor condition, and a large storage facility, which are all close to the developed areas. The region is divide into invested and uninvested areas. Invested areas include:

- areas with historical value, including pre-war buildings registered and protected as monuments (possibilities of interference are limited, though functionality may be transformed);
- areas where the possibility of development is not limited, including the option of tearing down buildings.

The development of some uninvested areas is also limited by, for example, Szczecin's development plan, which restricts building zones and does not precisely define the boundary of Energetykow street. Further, Castle Route and the embankment also act as obstacles to development.

The whole area is incongruous with Szczecin's city center on the left bank of the Odra river and Energetykow street. It is becoming only transit space between the left and right banks.

The following criteria[2] are used to describe and evaluate the quality of the Lasztownia area:

- Access for public transport;
- Quality and transport solutions (roads, trains, ships) within the city and surrounding areas;
- Ground conditions;
- Landscape configuration;

[2] Ibid.

- Climate conditions;
- Technical infrastructure;
- Historical value;
- Landscape value;
- Technical conditions of buildings;
- Grounds Ownership.

Each criterion has its own rating: very good, good, satisfactory, or bad. These ratings will now be described.

Based on analysis, it has been concluded that access for transport is poor: there are obstacles which slow down transportation service.

Water transportation should be very good because the embankment is long, but its poor condition creates problems, especially consider that this is the only place for barges in winter and Custom-House. However, it is potentially usable.

It is difficult to assess the value of the railway, and so far it has not been included in the plans to develop Lasztownia. While the whole area is well-connected with tracks, the layout is inconvenient. There is also the need for renovation.

The ground is soppy. Laszownia was build on wooden polls.

Landscape configuration is very good for any kind of investment. The ground is mostly flat with slight differences in elevation (1,5- 2,0 m). Plant and animals are not prominent; the flora is poor, so the conditions are not good for animals.

Climate conditions are bad. There are areas with high humidity, fog, strong winds, and cold air. The noise and air pollution are excessive, because of traffic on Castle Route and Energetkow Street.

Considering the current level of investment, the Waterfront project has developed an appropriate level of technical infrastructure, though a sewage problem remains unresolved.

There are old monument buildings, such as Customs-house and the slaughterhouse complex. Historical value is not a barrier to development, provided a return to pre-war plans is not pursued.

Unlike Old Town areas, Lasztownia has not been subject to systematic archeological research. There may be unexpected discoveries during the building process which could slow down many investments.

Without qualification, Lasztownia has landscaping value. The whole area can be seen from the center of the city, Duke's Pomeranian Castle, The Chrobry Embankment, from higher areas of Szczecin, the water, and Castle Route.

Another difficult issue in restoring the Lasztownia area is the ownership of the land. The city owns 20 percent of the area (mainly roads). The remainder is owned by the exchequer, with 63.1 percent of the eternal use.

The results of the valuation are shown on following detailed outline:

- Value according to historical and landscape criteria;
- Value according to land ownership criteria;
- Value according to current development, possibilities of further development, and the results of analysis.

4. Assessment of value (attraction) Lasztownia area

The Lasztowna area is attractive mainly because of its location: it is independent yet connected to the center of Szczecin. There are some possibilities for investing in Lasztownia

to reduce harbor functions and thereby create a supporting area for the city center. The city authority and harbor management are in general agreement on the issues.

Transport problems can limit the area's attraction. Internal transportation solutions, road layout, parking, and transport in surrounding areas are all suited to development plans, though the traffic circle can be a problem (e.g., Sprzymierzonych Square).

The most economically attractive is located between Energetykow Street and Gryf chocolate factory. Placing important public services here would not be commercially beneficial. This is a strategic locale. An investor will be able to create a new character for the entire Lasztowna area, including: administrative functions, tourist services, and residencies. Considering the economic issues, the best option is to build private offices, hotels, and conference centers. It will be necessary to have a service center (shops, doctor, etc.) and a residential area, as well as exhibitions halls, small museums, craft shops, and art shops.

References

[1] Final Report: "Waterfront Urban Development – a Network of Cities in the Baltic Sea Region." Szczecin, 2000.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Analysis of Polish Hospitals Carrying about Quality with Taking Into Account Requirements of Quality Competitions

[*]Joanna Rosak,*Stanisław Borkowski
[*]Częstochowa University of Technology, Department of Management, Division of Production Engineering, 42-200 Częstochowa ul. Armii Krajowej 19"B", POLAND, e-mail: jrosak@zim.pcz.czest.pl, e-mail: bork@zim.pcz.czest.pl

Abstract: Contemporary firms try to attract consumers in different ways, by presenting their own products and services possibly in the most attractive form. To strengthen their own market position businessmen perfect technologies, raise the quality of goods and offered services, and, first of all, adapt themselves to the more and more rigorous norms. It was showed in the article that patient's satisfaction is the most important factor in the hospitals functioning.

Keywords: Quality of medical services, Servqual method**.**

1. Introduction

The World Health Organization for the most important purpose recognize the person's law for the best health, i.e. law for the best health care [1]. Requirements towards the medical staff and towards system of health care are growing constantly and they are obliging to justify reasons for applying concrete methods of treatment, maintenance and rehabilitation. And therefore the estimation of the provisions quality is acting necessary returning the bigger remark for the self-assessment and the verification, often routinely actions undertaken in the way of the internal system of the estimation and the quality control. Various occupational working groups at the hospital, should be interested in the high quality of given provisions and it constant raising. Main reasons for the assurance of the quality are: aiming at the quality improvement [2] of own provisions, understanding that acting of co-workers at the hospital is able to be imperfect, patients' growing sensitivity, fear, that lowering of expenses is able to influence negatively for the quality, aiming at the better usage of existing human resources and subject resources [3, 4].

2. Polish Quality Award

Polish Quality Award – (PQA) is granted to enterprises for initiation of the TQM philosoph that is Management by Quality (fig. 1). A paradigm for PQA is the model of the European Quality Award (EQA). The model contains basic elements of the EFQM Excellence Model (fig. 2) [5, 6]. The PQA model contains 9 criteria for identifying basic areas of the organization activity which must be taken into consideration in every evaluation and organizational analysis. PQA and EFQM differ in scores for particular criteria. Winners and distinction holders of the Polish Quality Award can participate in the European Quality Award. In this way Polish enterprises have a possibility of comparing their successes on the regional, national and European scale.

Fig. 1. Logo of POLISH QUALITY AWARD. Source: http://www.pnj.pl

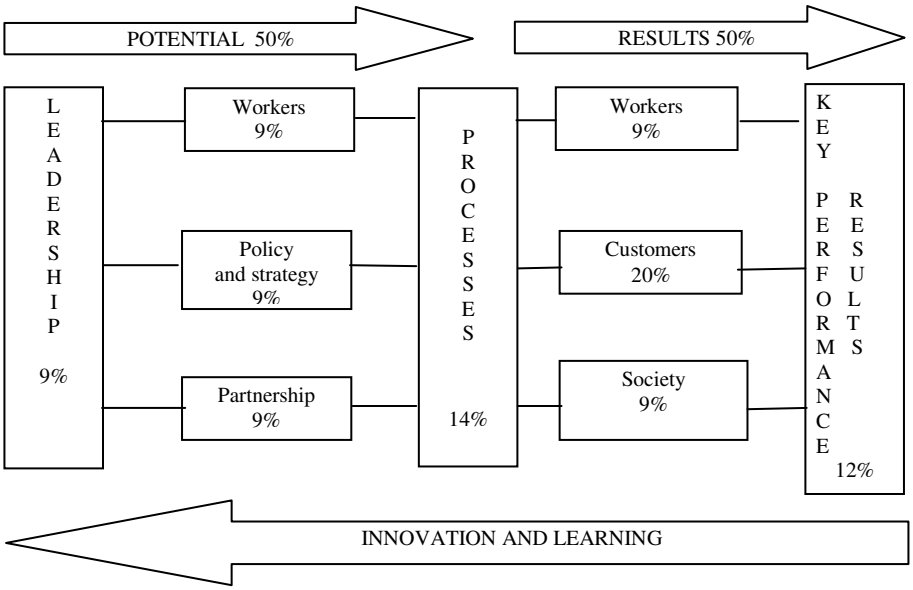


Fig. 2. EFQM Model. Source: Rosak J.: Wykorzystanie modelu EFQM w ocenie jakości usług świadczonych w Zakładzie Opieki Zdrowotnej, [w:] Zarządzanie jakością wyrobów i usług. Oprac. i red. nauk. Borkowski S., Warszawa 2005, Wyd. Menedżerskie PTM, s. 49

Among the different categories of the PQA there can be distinguished: collective, individual and honorable awards. Collective Awards are given to the enterprises which, thanks to initiating TQM (Total Quality Management), brought about the increase of satisfaction of customers, their own employees and other persons connected with the enterprise during past few years (for example, co-operators, suppliers, owners, etc.). In this way they also achieved a considerable improvement of the quality of work, processes, systems, services as well as a market success.

In the category of **the collective competition of the Polish Quality Award**, there can be awarded the following prizes and distinctions: prizes and distinctions for very small production and service organizations (employing up to 20 workers), prizes and distinctions for small production and service organizations (employing from 20 to 50 workers), prizes and distinctions for medium – sized production and service organizations (employing from 50 up to 250 workers), prizes and distinctions for big production and service organizations

(employing from 250 up to 500 workers), prizes and distinctions for very big production and service organizations (employing from 500 up to 1500 workers), prizes and distinctions for great production and service organizations (employing over 1500 workers), prizes and distinctions for public organizations (regardless of the number of employed workers), prizes and distinctions for educational organizations (regardless of the number of employed workers), professor Edward Kindlarski individual prize in the categories of science, practice and promotion, honourable prizes, diplomas for those organizations which went through the third stage of selection (the visit), and were not nominated for prizes and distinctions in the PQA Competition (finalists of the PQA Competition).

Collective prizes are awarded to the enterprises which have been rated highly by experts, judges and members of the PQA Committee. It also refers to Distinctions and diplomas for the enterprises participating in the finals of the PQA. Collective Prizes and Distinctions as well as diplomas for finalists will be awarded to those firms which, by initiating of TQM (Managements by the Quality) have achieved a significant improvement of satisfaction of their customers, employees and persons connected with those firms in the last few years and a considerable improvement of the quality of work, processes, products, services, environment protection, safety and occupational hygiene, satisfaction of authorities and the local community.

Individual prizes are awarded to persons who made a distinguishing contribution the elaboration of TQM theory in Poland or elaboration of TQM system in the enterprise, or else made a significant contribution in the scope of TQM training both in practice and theory. The Prof. Edward Kindlarski Polish Individual Quality Award will be granted to persons who made a considerable contribution to the elaboration of TQM (Management by the Quality) in Poland, achieved significant results in initiating TQM idea in the enterprise or succeeded in providing training in the scope of quality systems, both in practical and theoretical sense or distinguished themselves significantly in the promotion of the Polish Quality Award. Other things also taken into consideration are: initiation of innovative processes and measures and noteworthy publications in the sphere of the quality. The criteria for Individual Prizes have been issued in a separate document under the name "The Prof. Edward Kindlarski Polish Individual Quality Award".

3. Distinctions and Honorable Distinctions of the Polish Quality Award

Apart from the Prizes there can be awarded **distinctions to firms** in all the categories. The distinguished receive a diploma and a possibility to use in correspondence and promotion the Sign and Motto of the Polish Quality Award. There can also be awarded **honorable distinctions to** finalists (participants of the third stage of the process of selection - inspection), then they receive an honorable diploma for the finalist in the Competition of the Polish Quality Award. Polish Quality Award is like a “Certificate” for initiation and improvement of modern methods of management in organizations. The tool of self - assessment and the initiation of modern methods of management, aim at inducing Polish enterprises to adapt their organizational structures to systematical improvement of their work and perception of customers as representatives of the public opinion.

PQA	The max. number of points
Leadership Cooperation with the environment	150/60
Resources	50
Policy and strategy	100
People management. Employees’ satisfaction	80/90
Management with processes/Creation of the value	120

The final result	150
Customer's satisfaction	200
Total number of points	1000

Tab. 1. Criteria of PQA Source: Lisiecka K.: Kreowanie jakości, uwarunkowania - strategie – techniki, AE, Katowice 2002, s. 330 – 331

Candidates for the prize must show that the criteria constituting the potential of the firm finally lead to achieving excellent final results. Every criterion contains a number of elements which ought to be taken into account while working out a self - assessment. **Customer's satisfaction is mostly valued in PQA.** Thus concentration on customer's needs, realization of his requirements and expectations, is considered the most important pillar of the Management by Quality. Prizewinner of PQA competition 2007 in public organization category – health care Has been only one hospital – Voivodeship of Specialist Hospital in Olsztyn.

Distinction of XIII competition edition of PQA got following units of the health care:

- Centre of Oncology of prof. F. Lukaszczyk in Bydgoszcz,
- Krakowski Szpital Specjalistyczny im. Jana Pawła II w Krakowie,
- Voivodeship of Rehabilitating Hospital for children in America near/Olsztynek.

4. Characteristic of the Test Object

A hospital possess II level of the reference is the test object. The hospital is taking diagnostics, the therapy, maintenance, education, the prevention up and with the promotion of health. 20 000 of patients are hospitalized yearly, over 78 000 pieces of advices are given in clinics. The hospital is conspicuous for modern methods of management (outsourcing, controlling). The hospital possesses very well developed diagnostics. It is employing 819 persons, in it 192 doctors and 336 nurses. The hospital is obtaining high position in hospital's rankings organized by various institutions. Positive opinion of hospital patients is oscillating in limits of 97-98% (examination carried out in the form of the questionnaire elaborated by the Centre of Quality Monitoring in Cracow).

5. Prizes and Distinctions of the Test Object

a) III place in the all – polish medical competition MEDICAL PEARLS 2008 (fig 3). A promotion of medical centers operating on the medical market is the purpose of the organized competition, that with range of one's activity and by qualified personnel's participation are influencing on the level of offered products and services - their availability and the quality as well as patients' safety.

***b) Statuette of MEDICAL SERVICE FOR PROPHYLAXIS ANDDIABETES TREATMENT competition*.** Diabetologist and Endocrinologist Division as the only one in Poland joined diabetologist service of the hospital with diabetologist maintenance (fig. 4). The test object thanks to such a labor organization is capable to assure for patients comprehensive diabetologist service, on that full diagnostics (USG), education both diabetologist and dietetic is combining for.

c) SAFE HOSPITAL 2008. The ranking is being carried out by the Centre of Quality Monitoring. Public centers many specialist and oncology they are being evaluated in 7 categories: management, the quality of maintenance, the medical treatment, the quality of services for the patient, certificates of the quality and complaints, comfort of the residence and the analysis of undesirable events. Among 256 medical centers, the test object was found on

18 place in 5 editions of the all-Polish Ranking of Hospitals, published 28 October 2008 through the log "Rzeczpospolita".

d) Certificate of the Microbiology Examinations Credibility 2004.

e) Gold Poppy - prize granted in readers' plebiscite of "Olsztyn Newspaper".

Fig. 3. Statuette of MEDICAL SERVICE FOR PROPHYLAXIS ANDDIABETES TREATMENT competition. Source: http://www.wss.olsztyn.pl

6. Analysis of Medical Services Quality

An analysis of patients' (fig. 5) and personnel's (fig. 6) satisfaction of provided medical services quality was carried out based on Servqual method [2, 7, 8]. 20 patients and 20 workers of the tested hospital were subjected to examinations.

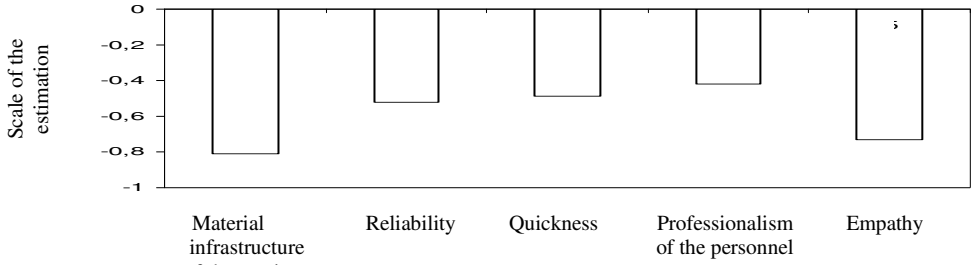


Fig. 4. Estimation of the medical services from the patient's view**.** Source: Own study

It can be seen from figure 5, that patients evaluate highest personnel's professionalism. Lowest however the material infrastructure and the empathy. In the figure 6 it was presented an evaluation of quality determinant from the point of personnel's view.

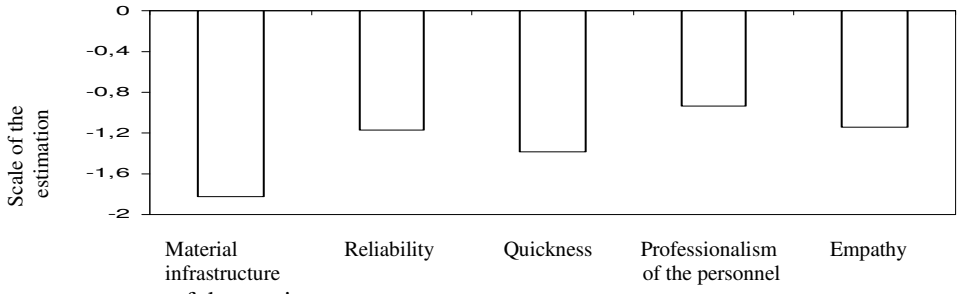


Fig. 5. Estimation of the medical services from the personnel's view. Source: Own study

Personnel of the analyzed test object estimated highest professionalism competence and reliability of services, lowest however material infrastructure of services.

7. Conclusion

Results of examinations and their analysis showed that a quality of provided services is a factor of success in development of medical centers in the sector of the health care. It is extremely important issue, because refers to invaluable values that are the life and the health. Characteristic features are conditioning the level of patient's satisfaction of the health service his individual requirements and potential of institutions, providing medical services [7]. Activity of health centers - apart from clinical correctness of executed provisions - care of the patients satisfaction should be characteristic [8]. Medicine of XXI age is expensive and it is necessary to expect that expenses will grow still [9, 10, 11.12]. The impatience and aggression connected with law level of medical services is letting more strongly know about themselves in society. And therefore it is necessary to search for other, original solutions, that aim is to raising the quality of medical services [13]. Participation in quality competitions and rankings is one of the solutions, very beneficial for hospitals.

References

[1] http://www.mz.gov.pl.

[2] BORKOWSKI S.: *Problemy rozwiązywania problemów w zarządzaniu*. Wyd. Wyższej Szkoły Zarządzania i Marketingu, Sosnowiec 2004.

[3] BORKOWSKI S., ROSAK J., BLASKOWA M.: *Utilizing Human Resources for the Specification of Importance the Company Problems*. [w:] Improvement of Quality Regarding Processes and Materials 2007. Elaboration and Scientific Editing Borkowski S., Tillova E, Wyd. Menedż. PTM, Warszawa 2007.

[4] BURDA K.: Analiza problematyki satysfakcji pacjenta w powiązaniu z zagadnieniami dotyczącymi jakości opieki zdrowotnej, Antidotum 01/2003.

[5] LISIECKA K.: *Kreowanie jakości*, Wydawnictwo Akademii Ekonomicznej, Katowice 2002.

[6] RECHA M.: *Polska Nagroda Jakości*, kategoria Organizacje Publiczne, Problemy Jakości 9/2002.

[7] ROSAK J., BORKOWSKI S.: *Doskonalenie poziomu jakości usług medycznych w oparciu o metodę SPACE*, [w:] Zarządzanie i marketing, Wyższa Szkoła Zarządzania i Marketingu, Zeszyty naukowe, Zeszyt 5/2004, Sosnowiec 2004.

[8] ROSAK J.: *Aspects of client satisfaction in the health care in Poland*, rozprawa doktorska, promotorzy: Borkowski S., Čorejová T., Uniwersytet Żilinski, Żilina 2006.

[9] WYGLĘDOWSKI M.: *O zawodzie lekarza kilka słów*, Częstochowska Gazeta Lekarska 3/2008.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

The Consolidation of European Stock Exchanges

[*]Aleksandra Ruchniewicz
[*]University of Gdansk, Institute of International Business, Armii Krajowej 119/121, 81-824 Sopot, Poland, {olaru}@poczta.onet.pl

Abstract. The stock exchanges represent one of the most dynamic sectors in the global economy. The structure of exchanges' business is changing rapidly and strong competition is the main factor of the changes. In Europe, as well as all over the world, the stock exchanges face the problem of how to survive in the future. The exchanges, seeking to maintain theirs marketplace, create linkages in the form of alliances or mergers and acquisitions. This paper reviews the ongoing process of stock exchanges consolidation and analyses the place of the WSE in this process.

Keywords: consolidation, capital market, stock exchanges, the Warsaw Stock Exchange.

1. Introduction

Exchanges have been changing very rapidly in the last two decades. Specific policy changes (domestic financial reforms and capital account liberalization) and advances in technology (advanced computers and other forms of communication) have aided in their transformation [1]**.** We observe various powerful trends reshaping exchanges' industry exchanges such as: competition, consolidation, deregulation, privatization and globalization [6].

The natural trend, in changing circumstances, is for exchanges to pursue a strategy of increasing their scale and reexamine theirs business model with the goal of being well positioned in the worldwide exchange business. The stock exchanges face a choice between three main options. First of all, they can try to prosper by themselves by reducing costs and increasing revenues. Secondly, they can form larger markets by establishing cross-border linkages (without outright merger and takeovers) with other bourses. And finally, they can participate in M&A processes and build large consolidated exchanges.

The formation of alliances or mergers and acquisitions can lead to important benefits for the financial sector. The stock exchanges have been shown to display economies of scale, both in operations and in their trading of stocks [5]. There are also significant benefits of consolidation for investors and issuers such as improved financial services, decreased transaction expenses, and reduced costs of raising capital (see Tab. 1).

Investors	Issuers
Access to markets over multiple zones	New listing possibilities
More efficient and cheaper access to the various instruments	New capital raising opportunities
Diversification of the pool of investment opportunities	Easier access to both local and international market
Improved market quality and liquidity	Lower cost of capital

Tab. 1. Benefits of stock exchanges' consolidation.

Despite the benefits offered by the consolidation of the exchanges, there are several barriers to this process which include:

- the existence of differences in local laws,
- infrastructure differences,
- different operating procedures and trading mechanisms,
- different financial reporting and regulatory standards
- different currency and culture.

However, these barriers should not influence the consolidation among exchanges from European Union as the capital market of the Union is becoming more and more integrated.

2. Examples of Consolidation in European Stock Exchanges' Industry

Consolidation seems to be one of the most important trends in the exchange industry worldwide, mainly in Europe and in America [4]. In Europe, consolidation of exchanges seems to be a natural trend as they now share a common market and a common political body. With the formation of European Union, many barriers to cross-border trading has been reduced. For example, the introduction of the euro has given the investors the opportunity to spread their investments on several countries without any exchange-rate risk involved. The introduction of the common currency was one of the most important developments changing the cross-border trading in Europe. The emergence of an equity culture across Europe was the next significant factor. The European countries which used to rely on bank-oriented financial system (banks were major players in the market and they provided financing for the companies) changed into equity-oriented system (equity became a popular method of financing).

Within the European Union, financial markets have become more integrated and the stock markets undertake strategic alliances, mergers and acquisitions in order to establish consolidated exchanges and so gain the economies-of- scale advantages. The examples of consolidation among European exchanges include the formation of NOREX, OMX and Euronext as well as the merge of the London Stock Exchange with Borsa Italiana.

In 1998, Stockholmsbörsen and the Copenhagen Stock Exchange signed an agreement to form the strategic alliance – NOREX. In 2000, Iceland Stock Exchange and Oslo Exchange joined the group. Currently, NOREX consists of the exchanges in Oslo, Stockholm, Helsinki, Copenhagen and Reykjavik, Riga, Tallinn and Vilnius. The alliance acts as a single securities market, using the common trading platform – SAXESS.

In another consolidation, six European exchanges have formed OMX (see Tab. 2). OMX was established in Stockholm in 1984 and merged with the Stockholm Stock Exchange in 1998. In 2003, it merged with HEX – the owner of the exchanges in Finland, Estonia and Latvia. In 2004, OMX became the strategic owner of the Vilnius Exchange. In the next year, OMX merged with Copenhagen Stock Exchange. And in 2007, OMX merged with the American exchange, forming NASDAQ OMX Group.

OMX exchanges	NOREX members
Stockholm Helsinki Tallinn Riga Vilnius Copenhagen	Stockholm Helsinki Tallinn Riga Vilnius Copenhagen Reykjavik Oslo

Tab. 2. The structure of OMX and NOREX.

Euronext is a result of the consolidation of five European exchanges. In March 2000, Paris Bourse, the Amsterdam Exchange and the Brussels Exchange formed Euronext, an integrated European stock market. In 2001, Euronext acquired the London International Financial Futures and Options Exchange (LIFFE) and in 2002 merged with Portuguese Exchange. In 2006, Euronext and the New York Stock Exchange (NYSE) announced their "merger of equals" and in 2007, NYSE-Euronext was formed – the first global exchange [2]. And on 1 October 2008 NYSE-Euronext acquired the American Stock Exchange [11].

In 2007, two large European exchanges merged - the London Stock Exchange with Borsa Italiana.

These examples show, that the consolidation among stock exchanges is a strong and ongoing process, changing the stock exchanges' landscape worldwide. Despite the global financial crisis, which is the consequence of the high-risk mortgage crisis in the USA, world exchanges continue to function properly and continue to merge.

3. WSE and Process of Exchanges' Consolidation

As the financial business is changing very fast, local stock exchanges have to foresee their position on the future capital markets. The Warsaw Stock Exchange has reexamined its business model and adopted the development strategy for the coming years. The bourse aims to strengthen its position in the Central and Eastern European region and some steps have been undertaken to conduct this goal.

Although, mergers and acquisitions, and strategic alliances are not the goals of WSE development strategy the exchange has joined the on-going process of exchanges consolidation. On 12 October 2007, the exchange became an owner of 1,8% of Sibex share capital [3]. Sibex is the Romanian exchange – the Sibiu Monetary Financial and Commodities Exchange. In July 2008 the Warsaw Stock Exchange acquired 25% stake in Innex – Ukraine's second largest stock exchange. The WSE had planned to buy a stake in the Prague Stock Exchange but in 2008, the Wiener Börse bought the majority holding in the Prague exchange. Currently, the WSE is a shareholder in two European exchanges, but is planning to buy the Sofia Stock Exchange if the Bulgarian Government wants to sell it.

According to the current strategy, in 2009 The Warsaw Stock Exchange, controlled so far by the Polish State Treasury, will be privatized and will list its own shares. There are a few large exchanges (NYSE-Euronext, NASDAQ OMX, London Stock Exchange and Deutsche Börse) interested in acquiring the majority stake in the Polish exchange.

4. Conclusion

Competition, driven by the deregulation of stock exchanges, technological progress and internationalization of the securities markets, has already changed the global exchange

industry. The stock exchanges are improving their services or offering new venues. Every exchange has to reexamine its business model with the goal of being well positioned in the worldwide securities market of the future. The natural trend in changing circumstances is for exchanges to pursue a strategy of increasing their scale. The process of consolidation seems to be the one of the most important ways of the scale increasing.

There are a lot of benefits of the consolidation for stock exchanges as well as for the investor and the issuers, for example:

- The integration of the exchanges is a way of creating more efficient and liquid market and creating competitive advantage.
- for issuers, the consolidation means lower cost of capital and access to international market,
- for investors, the consolidation brings cheaper and efficient access to various investment opportunities.

In the last few years the consolidation of the exchanges gathered speed. The European stock exchanges create alliances or mergers and acquisitions within the European borders and beyond these borders. As the process of consolidation has become the international trend, there is need of the global regulatory framework and the global supervisory coordination.

We can not predict the future structure of world's stock market. The consolidation seems to be an inevitable trend in the long run but how fast and far will it go? Will there be a place for local stock exchanges or will they have to join consolidation processes?

With the pressure from investors, for lower costs, improved liquidity, access to trading in international market and the growing competition among exchanges, the continued consolidation in the exchanges' industry must be expected and seems that The Warsaw Stock Exchange is going to merge with other exchanges to create a bigger and more efficient market.

References

[1] ADAMSKA, L. *Procesy konsolidacji giełd w Europie z perspektywy Giełdy papierów Wartościowych w Warszawie*. Banki i Kredyt, no 5, 2003.

[2] GOSS-STRZELECKI, T. *NYSE Euronext wystartowała*. Parkiet, no 3304, 2007.

[3] KOZIEŁ, H. *Sibiu otwarte na Warszawę*. Parkiet, no 3700, 2008.

[4] NAWROT, W. *Finansowanie firm na rynkach zagranicznych*. Warszawa: Cedewu, 2005.

[5] PAGANO, M. *Trading Volume and Asset Liquidity*. Quarterly Journal of Economics 104, no. 2, 1989.

[6] ROSE, P. S. & MARQUIS, M. H. *Money and capital markets: financial institutions and instruments in a global marketplace*. New York: McGraw-Hill/Irwin, 2008.

[7] World Federation of Exchanges (2008). Focus, 188.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Multi-layer Flow Management Model in Supply Chain Management

*Michal Salaj
*University of Žilina, Faculty of Management Science and Informatics, Univerzitna 8215/1, 01026 Žilina, Slovakia, Michal_Salaj@yahoo.com

Abstract: Definition of the Multi-layer flow management model scope. This scope should be taken into consideration as a basis for creation of a synergic and holistic setting for a collaborative supply chain management. The approach is not based on the analysis of each operation and process and their "sub-optimization", rather relies on a holistic view, that takes into account strategies, goals, systems, geographical dispersion, time dispersion, demand patterns and product portfolios of all parties incorporated into the collaborative supply chain through synergic connections.

Keywords: Multi-layer flow management model, Supply chain, Flow management, Collaborative supply chain, Value stream, Synergy, Holistic approach.

1. Introduction

The speed of information, loose of geographical allegiance of entities, radical changes in demographics on the globe and great shifts in the dynamicaly emerging and dissapearing connections, are causing that the factor change, meant in this paper as a managed and aimed activity, in the means of ability to adapt to the new conditions, ability to search and define new solutions, alternatives and ways, ability of continuous improvement and others, is becoming the main theme of these days for the managements.

The need for optimization of design, management, control and coordination of the value stream flows in these days is becoming even bigger challenge in the light of the actuall global recesion and changes ongoing in all fields. Even further, these activities, or changes, are not an internal problem to the organizations any more. The globalization, spread of the markets, changes in demands, etc. are causing that the collaboration and a collaborative supply-chain must emerge to deal with the needs, wants, demands and expectations of the end-customer.

As to the collaboration in the supply chain, this theme has been widely discussed in many years, and a wealth of concepts is available at hand. As an example Efficient Consumer Response (ECR) in the fast moving consumer goods sector, or Vendor Managed Inventory (VMI), Collaborative Planning, Forecasting and Replenishment (CPFR) or Supply-chain Reference Model (SCOR) initiatives provide a rich basis of strategies for the establishment of collaboration amongst supply chain partners.

These models, strategies or philosophies are by them self powerful tools that can establish a well defined links between the entities. While many successful implementations have been reported, Toyota and Wall-Mart just as examples, there has not yet been bigger spread that was originally hoped for. One of root-causes for the slow progress to date, may be due to a lack of a holistic and synergic approach in design, management, control and improvement of the collaborative supply-chains from the point of view of changes.

The goal of this paper is to present a starting point for an approach that can be used in definition, management, control and improvement of the collaborative supply-chain, with the aim at the holistic view and synergies that emerge from the links not only between the entities but also operations, services, products, strategies, etc. and incorporates the change as an all the time present process.

I draw upon models that are already developed and used, with more over successful implementation in real world, to illustrate what companies need to do, to fully benefit from the collaborative efforts.

The outcome of this is the Multi-layer flow management model as presented in Fig. 1.

I conclude that the efficiency and effectiveness of any collaborative supply chain relies on the integration of internal and external operations and processes into one synergic setting. This setting cannot be based only at the analysis of each operation and its "sub-optimization", but really needs to be approached from a holistic view, that takes into account not only operations but also, people, cultures, strategies, goals, systems, geographical dispersion, time dispersion, demand patterns and product portfolios of all parties incorporated into the collaborative supply-chain.

2. Concept of the Supply Chain and Value Stream

This part of the text is presenting a brief depict of the basic philosophies how to approach the flow management issues.

2.1. Supply chain managemnt

In the 1980s the term Supply chain management has started to spread dramatically in the vocabulary of the management. This had the goal to express the need and effort for integration of the whole chain of processes, from the original suppliers to the end users.

The basic idea of this integration into the supply chain is to get higher efficiency and effectiveness in the whole process of serving the customer, from the starting point to the end-user.

This effort is supported by the idea that, if all relevant information is available to the users, the supply chain as a whole has better starting point for the absolute goal and that is to serve the customer demand. This should lead to better sales, lower inventory, lower leadtimes, higher flexibility and better quality.

The supply chain management can be perceived as another evolutionary step, that starts with all the functions, operations and processes as defined and used by logistics and moves through their integration not only internally, but especially externally, into higher levels of functionality and thinking.

2.2. Value streams

Value stream mapping is a very commonly used technique in Lean management to identify opportunities for improvement. In a build to the standard form Shigeo Shingo is suggesting that the value adding steps should be drawn across the centre.

All the non-value adding steps should be then drawn as vertical lines at right angles to the value stream. This method of visualization separates the value stream, so the responsible people, mostly management can take the propper decisions about the improvement focus.

This method was and is still popular because it is spreading the philosophy of value added vs. non-value added operations.

The better the condition of the value stream (the ratio between the value added and non-value added steps defined by the customer), the better starting point we have to serve the customer's needs as the basic goal of each organization.

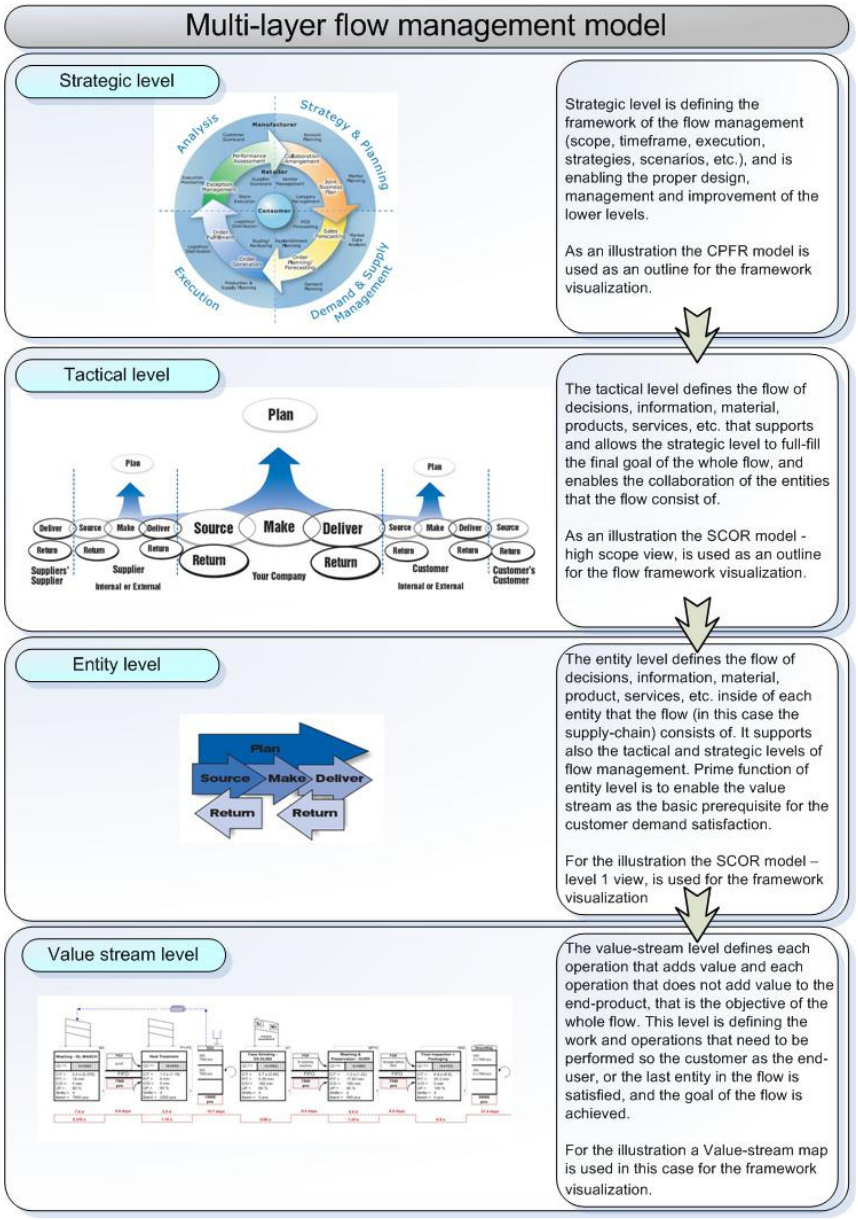


Fig. 1. Multi-layer flow management model.

3. Multi-layer Flow Management Model

The previous mentioned philosophies of supply chain and value added vs. non-value added operations are leading us to the idea of interconnectivity between the suppliers and

customers at the most basic level – value stream and via the basic connections between the entities defined in the entity level.

This degree of connectivity depends on many factors. It is not the aim to define and classify all of those in this paper. But we can assume that at some point of this connectivity a collaboration state emerges. The collaboration state is achieved, when not only the value streams (first level) and information flows (entity level) are connected, but also a coordination framework exists and is spread throughout the supply chain with the goal of its optimization at all stages and in all forms.

This coordination is achieved through a tactical level (third level) of flow management model based on the idea of an integrated management system build through the management systems of all participating entities. Such a system can be only effective and efficient when a proper system of "agreements" or strategies is setuped.

This is when a strategic level of the flow management model comes into consideration and use. The strategic level is defining the framework of the flow management. The framework consists of such themes as scope, timeframe, execution, strategies, scenarios, rules of engagement, and others that need to be considered when the collaboration is setuped between all the entities incorporated into the supply chain. The strategic level is through this system of "agreements" enabling the proper design management, control and improvement of the lower levels of flow management.

There is no rule which is saying how to start implementing the model. There are many approaches, and each situation will trigger a different implementation plan. It is but more effective when we setup the framework, then introduce the information coordination and management basis for the supply chain and as the last step we implement the changes in the flows. The figure 1.1 is showing the Multi-layer flow management model with all four levels. As for the representation of processes in those layers, I chose successful models used by many companies worldwide for supply chain optimization.

4. Conclusion

The goal of this paper was to present a starting point for an approach that can be used in design, management, control and improvement of the collaborative supply chain, with the aim at the holistic view and synergies that emerge from the links not only between the entities but also operations, services, products, strategies, etc. and incorporates the change as an all the time present process.

References

[1] DISNEY, S.M., and TOWILL, D.R. *Bullwhip Reduction in Supply Chains: The Impact of VMI*, International Journal of Operations and Production Management, Vol. 23, No. 6, 2003

[2] FISHER, M. L., *What is the right supply chain for your product?*, Harvard Business Review, March-April, 1997

[3] FISHER, M. L., *Supply chain inventory management and the value of shared information*, Management Science, Vol. 46 No. 8, 2000

[4] HOLMSTROM, J., SMAROS, J., DISNEY, S.M. and TOWILL, D.R., *Collaborative supply chain configurations: The implications for supplier performance in production and inventory control*, 8th International Symposium of Logistics, Seville, 2003

[5] STERMAN, J. D. *Modeling Managerial Behavior: Misperceptions of Feedback in a Dynamic Decision Making Experiment*, Management Science, Vol. 35, No. 3, 1989

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Index Benchmarking – Tool for Competitiveness Increase

*Daniel Salava
*University of Pardubice, Jan Perner Faculty of Transport, Department of Transport Management, Marketing and Logistics, Studentska 95, 532 10 Pardubice, Czech Republic, daniel.salava@upce.cz

Abstract. The article deals with indexical benchmarking, which is the effectual instrument of competitive advantage increasing in market-friendly oriented environment. The Benchmark Index is a database comparison based on key figures which allow enterprises to compare themselves with other enterprises of their branch on a national or an international level. The independent branch comparison and the consolidation of characteristic numbers go beyond financial characteristic numbers. As a result the company gets a benchmarking report, with formed and compared relevant characteristic numbers. Then it is necessary to take suitable arrangements.

Keywords: Please benchmarking, comparison, benchmark index, SME, finance, turnover, criteria.

1. Introduction

The globalization and intensive competition cause a huge concern about reasons and causes, why some companies are extraordinarily successful, other ones just average and some other are even dissolving. It is basically the recognition of the strong and weak points of correspondents as well as of our own company. The article deals with indexical benchmarking, which is the effectual instrument of competitive advantage increasing in market-friendly oriented environment.

2. Impulse for Index Benchmarking

Within the whole range of enterprises and majority occupation ratio (e.g. approximately 70 percent) of all employees, the small and medium sized enterprises (SME) are an important factor in the every developed market economy. During the last few years the innovation intensity and sales share from new products was decreasing in SME of some economies (e.g. Germany). Therefore it is important to enforce the productivity and the ability to innovate new products especially in SME. There is great potential with the open handling of performance assessments and improvement action plans in SME. Benchmarking offers the possibility for the overcoming of information deficits and discovering of improvement capabilities.

Furthermore benchmarking in particular for SME focuses at effectiveness, comprehensibility and the evaluation of the own position in the competition.

Figure-based index benchmarking offers the possibility for SME from every branch to execute a time saving and cost effective benchmarking with a world wide database which is updated regularly. This database is called the Benchmark Index.

3. The Benchmark Index

The Benchmarking method for SME, the Benchmark Index, represents a characteristic numbers comparison with industry internally competitors and serves the implementation of Best Practices in the enterprise. The Benchmark Index is a database comparison based on key figures which allow enterprises to compare themselves with other enterprises of their branch on a national, as well as on an international level. It can be used also among various branches, but informational value of this comparison in rather limited.

The key figure comparison is based on a database which was developed in the United Kingdom in 1996. Today, it comprises more then 100.000 datasets from enterprises around the world. In the context of the pilot project REACTE (1999- 2001), the Benchmark Index was proved of value as a holistic tool for analysing and benchmarking which focuses particularly small and medium sized enterprises.

4. Principles

The relevant data of the SME are raised with a standard questionnaire. By means of a substantial benchmarking questionnaire, it interrogates the enterprises about the relevant financial and management key figures as well as about their business excellence evaluations. The data will be validated and entered into the data base. The comparison has to be made anonymous. After the validation and making the received data anonymous they are entered online in the database of the Benchmark Index.

After that, the enterprises whose data-profiles enable a significant comparison of their key figures are selected by means of defined benchmarking criteria like the code of the branch (SIC-Code), the number of employees or the annual turnover. In other words this next step is the main core of the whole benchmarking process: selection of the benchmark criteria (turnover/year, number of employees and standardised branch code) and the choice of a sample of enterprises in the data base, which can be compared.

Then, for the assuring of benchmarking efficiency, within a short time period, a result report is generated, which regards respective characteristic numbers of the perspectives in the comparison.

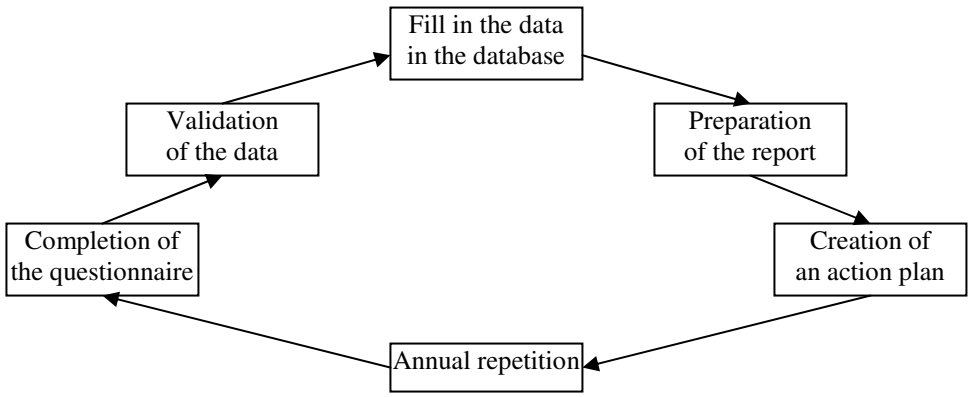


Figure 1: Index Benchmarking Cycle
Source: Frauhofner IPK [3]

5. Results and Benefits

As result of the automated process of comparison, the attending enterprises receive a strength and weakness profile in form of a detailed report which is developed on the basis of their data. The consequences of the key figure benchmarking allow a well-aimed conclusion on the current level of particular management and enterprise methods and detect possible problem areas as well as existing potentials.

In the report the results are shown in four perspectives: finances, customers, process as well as learning and development (based on the Balanced Scorecard Model, BSC) and relevant characteristic numbers. There is a statistically as well as a graphically illustration of the results. During the composition of characteristic numbers it was made certain that with a minimum number of data a force of expression as high as possible can be achieved concerning the total enterprise and its partial aspects.

The results of the report can be used to discuss and interpret the relevant strengths and open potential in each case in the context of the enterprise. The outcomes of the benchmarking make further conclusion and evaluation of relevant and individual management practices of the enterprise possible. As a result of the discussion with the board of the management a verified action plan will be created to implement the changes.

In the next year after the implementation of the results the Benchmark Index should used again as a check.

The following benefits can be generated by Benchmarking especially for SME:

- direct benefits:
    - positioning within the own branch,
    - uncovering of potentials by comparisons and appropriate adaption of existing practices of other enterprises,
    - defining of future success factors,
- indirect benefits:
    - benchmarking as a support of the requirements of the QS 9000, DIN ISO TS 16949 and ISO 9000:2000 for the protection of quality standards in the enterprise,
    - branch internal comparisons,
    - comparisons as a pre test for a bank rating and/or for ISO certifications,
    - transparency and standardisation of processes and characteristic numbers.

6. Experiences

The experiences with the use of this Benchmarking methodology in SME showed that mostly (re-)certifications give an impact to interpret Benchmarking as a initiation to search for important solutions.

On the other hand it was augmented from the SME, that this kind of benchmarking can also be used as a pre step rating before taking a bank rating .

The independent branch comparison and the consolidation of characteristic numbers go beyond financial characteristic numbers. This method offers more than a comprehensive comparison for SME.

There is the possibility to execute a benchmarking comparison for every SME. In each branch, with up to 500 employees and up to 100 millions Euro turnover per year. The service includes a comparison of the enterprises within this sector. As a result the company gets a benchmarking report, with formed and compared relevant characteristic numbers.

7. Conclusion

Benchmarking can have extra significant impact on organization function. It destroys common paradigm, helps to keep organization in operational condition and provides models leading to excellency. The aim of benchmarking is to set the goals for organization to start realistically process of improvement and to understand changes necessary to this improvement.

References

[1] Czech Benchmarking Index [online]. Praha, Program of Support, Business and Innovation, Consulting Praha, updated 08. 03. 2008 [cit. 2009–25-02]. Available on WWW: <http://www.czechinvest.org/benchmarking>

[2] Benchmarking Cycle [online]. Praha: VcvsCR. Available on www: <http://www.benchmarking.vcvscr.cz>.

[3] Fraunhofer IPK. Available on <http://www.benchmarking.fraunhofer.de/en/Benchmarking/kennzahlenbenchmarking>

Note: This article was wrote as a part of solution of researchal project nr. 1F83A/014/520 „Proposal of Index Benchmarking Methodology for Logistic Centres“.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Economic Orientation of Airports

[*]Alena Novák Sedláčková
[*]University of Zilina, Faculty of Operation and Economics of Transport and Communications, Department of Air Transport, Univerzitna 1, 010 26 Zilina, SlovakiaAlena.Sedlackova@fpedas.uniza.sk

Abstract. The airport can be an economic subject or commercial company. In this meaning you can see the airport as the airport operator's organization, which has all operating functions and has a direct or indirect profit from operating or commercial activities on the airport. The trends in ownership of airports are very interesting. The ground principles are divided on the historic background and on the degree of liberalization of air transport market in that country, where the airports are situated.

Keywords: Air Transport, Liberalization of Airlines, Airports.

1. Introduction

The liberalization of the air transport market occurring in Europe between 1987 and 1997 led to a strong development of the competition level between airlines. The influence of liberalization is observable in the types of ownerships of airports. The full state ownership is changing on private ownership, which is more effective. That is the same situation as on the airlines market, but liberalization of airports is slower than liberalization of airlines.[1] These put pressure on airports to get more efficient airport services. Airports have always been recognized as an essential component of the national aviation system, they were only considered as being a platform providing the necessary services to airlines operations, without having a specific role in the air transport market development. As a consequence, commercial activities were not much developed by airports. This explains why airports property was always publicly managed while commercial activities, when needed, were outsourced to private companies.

2. Changes in the Airport Ownership

The strong changes in the air transport network structure coming from airlines bankruptcy and airlines consolidation too. The onset of low cost companies has influence on the changes in airport services. All these changes in the demand for airport services associated to the lack of capacity at some airports showed the importance of the investment issue for airports. Indeed, the traditional airports management model, fully dependent on state decisions, revealed not enough reactivity to the quick and deep changes affecting the air transport market.

Aware of this lack of efficiency, most of European governments tend now to consider airports as potential profit-making enterprises and tend to change the airport ownership and management model. Typical for some European countries (such as Spain, Greece, Poland, etc.), airports remain owned and managed by the state, two main trends tend to develop in Europe: devolution and privatization of airports. They are completed by evolutions in the management models.

Devolution consists in a definitive transfer of jurisdiction by the central government to a distinct juridical entity under public law. In this case airport management can be either done by the owner or outsourced. The airport devolution consists in transferring part or full of the airport ownership from the states to regions, city council, local authority and/or chamber of commerce. [2]

The objective of such a change in airport status is to give to airports a larger autonomy (in particular on the financial planning) by directly involving local and regional authorities in their strategies of development. This form of devolution is therefore generally the first step before a privatisation. Stats having chosen such changes in airport status indeed often aim in a further step (not yet planned) at transferring part or all of the airport ownership to private companies.

On the other side privatization consists in selling part or all of the airport ownership and management to a private company. In case of partial privatization, devolution can be combined with privatization. The objective of the devolution with privatization is to give the airport a commercial orientation.[3] Since they aim at optimizing the rate of return on their investments, private investors have stronger incentives for cost control and efficiency, as well as for seeking new revenue opportunities. A public-private partnership can be considered as being a first step toward privatisation.

The privatisation of airports can be partial or full. In case of partial privatisation, the national state still owned a share of the airport while in case of full privatization the airport fully belong to private investors.

The full privatisation of an airport leaves a total freedom to the airport owner and manager to choose the way to maximise the airport profit. In case of full privatization operations relative to the infrastructure as well as to the management are made by a private company that aims at earning revenues to cover the infrastructure investments and earn a fair return on investments.

The next trends in the airport evolution are new characteristics of multi–airport management. Indeed the management of several airports goes from a management of all the airports of a country in case of state ownership and management to a management of several airports in a given country or in different countries. If this can be a priori surprising this does not means that the objectives of profit maximising are not reached. Indeed, owning and managing several airports located in the same metropolitan areas may be a success key to improve the economic efficiency of all these airports. In particular, owning the primary as well as secondary airports of the metropolitan area may be an efficient way to control the competition level between the airports and to develop complementary airports. Hence, the natural trend of secondary airports to focus on niche markets stressed by De Neufville can be more easily and efficiently controlled so as to be not only profitable for the secondary but also for the primary airport.[4]

In Europe, multi-airport ownership in a metropolitan area exists in London, Paris or Frankfurt. In United Kingdom, the British company BAA indeed owns and manages London Heathrow, London Gatwick and London Stansted airports. In France, ADP owns and manages both Paris airports: Orly and Charles De Gaulle. In Germany, Fraport owns and manages Frankfurt main airport and owns at 65% Frankfurt Hahn airport.

An additional trend is the investment in the ownership of several airports located in different geographical areas in a same country. For instance in Germany, Fraport owns 30% of Hannover airport and 51% of Saarbrücken airport.

A last trend in Europe is the investments in the ownership of foreign airports. For instance the UK Company BAA owns 75% of Budapest airport.

3. Necessity of the Economic Regulation of Airports, yes or no?

All these factors have substantial influence on economic of the airport. The relevant moment is to finding the balance between the airport capacity and expenses on it. The fundamental cost items are staff costs, maintenance expenses, depreciation, amortisation and impairment (operating expenses). There has to be balance and suitability between the expenses and revenues. The basic idea of business is effort of achieving a profit. The fundamental revenue items are airport taxes, parking fee, security fee, handling revenue, landing fee, financial revenue and other commercial revenues.

The situation on the air transport market is difficult. In the past it was regulated market. In 1983 started deregulation process on the world's air transport market and now we are thinking about regulation on the liberalised market. Economic regulation of natural monopoly demand shoots up on the air transport market. The question is, if the airport is the natural monopoly or not? The Samuelson localized the position of air transport somewhere in the middle between the natural monopoly and perfect competition. When we want to identify, if the airport is natural monopoly or not, we need to divide the airports activities in some special areas:

1. aeronautical services
   - Operating (police and security, ambulance, first aid, fire brigade and etc.)
   - Handling (cleaning aeroplane, check-in...Etc.)
2. non-aeronautical services (commercial services)
   - restaurants, hotels, bars
   - Banks, shops...

We need to know, if we want to regulate only aeronautical or non-aeronautical activities of the airports.

The specialists claim that the airport is geographically limited natural monopoly. This position is very important. The regulators secure compliance of rules of maximum level of aeronautical charges. The legal environment plays an important role for the airport competitiveness. In particular regulations on the aeronautical charges that are different between countries will impact the airport competitiveness compared to other airports.

Competition from other airports is at best limited if not non-existent. Market power enables airports to raise their prices, and to extract rents from the customers. Therefore the rationale for regulating airports has seldom been questioned. Regulation aims at controlling costs and prices, and quality of services.

4. Conclusion

Furthermore, the independence of the regulator and transparency of regulatory process in most European countries shows room for improvement. Only in the UK, Ireland and Netherlands do we find regulators independent from the airport owners or managers. In most countries the functions of ownership and regulation are not separate, and regulation lacks transparency. The European Commission proposes to have a single regulatory system all over the EU, with an independent regulator in each country. In the year 2007 was issued the Directive of the European Parliament and of the Council on airport charges**, COM** (2006) 820**.**

The question is, if is it enough? For as is very interesting the decision of Civil Aviation Authority (CAA) of Great Britain from March the 11-th 2008. The decision is about the economic regulation of Heathrow and Gatwick airports. The CAA´s purpose in its economic regulation of price-controlled airports is the reasonable interests of the users to promote the

development of efficient and profitable airports in the UK. It does this through setting price controls and other conditions every five years. These conditions limits the amount of revenue which each airport operator to operate efficiently, to invest in response to users needs, and to deliver a high standard of service to passengers and airlines. We consider this rule appropriate, because CAA can change charges every five years. Everything depend on the situation on the air transport market and on airports. Maybe this decision is the beginning of new era and it can by example for other states, how to regulate their airport charges.

References

[1] MCCARTHY,C.,MC DONNELL,J.: *Late arrival: A Competition Policy for Europe´s Airports,* Davy Stockbrokers, 2004, Dublin

[2] LAPLACE, I., LENOIR, N., MALAVOLTI-GRIMAL, E.,KAZDA, A., TOMOVA,A.,BADANIK,B.:*Future Airport Strategies,* In: CARE- 7-th EUROCONTROL Innovative Research Workshop & Exhibition, December 2008

[3] TRETHEWAY, M.: *Airport ownership, management and price regulation*, InterVISTAS Consulting Inc. Research conducted for the Canada Transportation Act Review, March 2001

[4] DE NEUFVILL, R.**:***Management of multi-airport systems: a development strategy*, Working paper, Technology and Policy program, Massachussetts Institute of Technology

[5] Directive of the European Parliament and of the Council on airport charges**, COM**(2006) 820

[6] The economic regulation of Heathrow and Gatwick airports, decision of CAA, March 2008

[7] DOGANIS, R.: *The Airline Business.* New York: 2. vyd.-Routledge, 2006. 307s. ISBN10: 0-415-34614-2

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

FMEA Method Utilization in the Quality of Goods Evaluation

[*]Jacek Selejdak
[*]The Częstochowa University of Technology, Faculty of Management, Department of Production Engineering, Armii Krajowej 19 B, 42 – 200 Częstochowa, Poland, jacek.s@zim.pcz.czest.pl

Abstract. In the article to evaluate the quantification of identified discrepancies in woven fabric production the FMEA method was applied. As a result of conducted investigation the corrective and preventive action was proposed. On the base of received results it was shown that the higher value (270) RPN was reached for weft fault. It was affirmed that if we want to eliminate weft fault have to be first of all introduced control between individual operations and also detailed inspection and machine maintenance.

Keywords: quality, fabric, FMEA

1. Introduction

Generally fabrics incompatibilities can be divided into two types: weaving and finishing. To weaving errors are included [1]:

1. warp errors:
- scars – one-thread or many-threads breaks and also yarns distance caused by defective reed. Causes of their creation are: improperly tied knots, improperly operating wrap gauges, wrong reed or incorrectly threading warp threads through reed,
- foreign threads in warp - this incompatibility is formed as a result of negligence in spinning process,
- wrong warp production – this incompatibility is formed as a result of improper work of supply and receiving device in loom,

2. weft errors:
- weft breaks - missing parts of the weft in the fabric width. They are formed as a result of incorrectly formed mule cop, too low weft strength or incorrect gauge functioning,
- weft growing thicker - in certain sections of the fabric there is arrangement of two wefts or arrangement of thicker weft. Causes of incompatibilities occurrence are weft thickness unevenness or pulling out thread caught with any part of the mechanism,
- widening and density - rare or thicker weft stripes, formed as a result of improperly operating receiving device,

3. weave errors – they are formed as a result of weaving one or more threads inconsistent to the weave report. Causes of incompatibilities occurrence are incorrectly carried out threading or improperly found weft thread,
4. other: weft slants, sockets, inadequate warp threads weaving, knots, loops, weft strands, wrong selvages, selvage tearing, making pollutants, stains, holes. To finishing errors are included:
5. singeing and bleaching errors:
- streaks and stripes formed during creased and folded fabrics singeing,
- stains and holes formed as a result of poorly managed singeing and bleaching process,

6. dyeing errors:

- uneven dyeing in direction of fabric length - there is diversification in hue from dark to become brighter, or vice versa. Causes of incompatibilities occurrence are uneven adding dye to the vat or variable pressure of squeezer rollers,
- transverse or longitudinal strips - cause of their occurrence are local warp density diversifications or of the weft despite that dyeing process was carried out correctly,

7. printing errors:

- local not printing occurring during fabric folding on the printer,
- butterflies - on fabric surface occur marks in the form of small colourful spots. Cause of occurrence is printer pollution,

8. other: discrepancies of the model element, breaking, pattern, one side print, slant, pattern blurring.

2. The analysis of incompatibilities fabric with FMEA method application

For analysis of identified incompatibilities there was created a team consisting of experienced personnel, perfectly knowing technological process of fabrics production [2]. Among them there was chosen an animator, who was leading the group, during quantification of particular incompatibilities with use of FMEA method [3, 4, 5]. Results of the incompatibilities analysis with use of FMEA method are presented in table 1. Team which is carrying out analysis set RPN critical value at level 120. Based on table 1 there was drawn up graphical presentation of RPN for individual incompatibilities (figure 1).

No	Incompatibilities type	Incompatibilities results	Incompatibilities causes	Priority number				Repair actions
				SEV	OCC	DET	RPN	
R1	Incompatibility with model	Failure of requirements concerning product quality.	Not obeying technological regime.	4	6	4	**96**	Between operational controls of production process; obeying technological instruction.
R2	Stains, spots	Unaesthetic, reduction of product quality.	Lack of hygiene, employee inattention.	6	6	2	**72**	Between operational controls of production process; obeying cleaning and disinfection procedures.
R3	Weft errors	Failure of requirements concerning product quality; product is not suitable for use.	Not obeying technological regime; wrong machines work.	5	9	6	**270**	Between operational controls of production process; detailed machines control, inspections.
R4	Crushes	Unaesthetic of product look.	Wrong setting of pressing temperature.	7	6	2	**84**	Between operational controls of production process; obeying technological instruction.
R5	Undershoots	Failure of requirements concerning product quality; product is not suitable for use.	Not obeying technological regime; wrong machines service through employee.	5	5	6	**150**	Between operational controls of production process; detailed machines control.

R6	Teaseling	Technological system error.	Not obeying technological regime.	5	4	3	**60**	Between operational controls of production process; detailed machines control, inspections.
R7	Colour hues	Failure of requirements concerning product quality.	Not obeying technological regime; wrong machines work.	7	7	4	**196**	Between operational controls of production process; obeying technological instruction.
R8	Folds	Failure of requirements concerning product quality.	Wrong machines setting, machine failure.	6	5	2	**60**	Between operational controls of production process; employees training in machines service issue.
R9	Defects	Unaesthetic look, reducing product quality.	Not obeying technological regime; wrong machines work.	6	3	5	**90**	Between operational controls of production process; obeying technological instruction, inspections.
R10	Striped	Unaesthetic look, reducing product quality.	Not obeying technological regime; wrong machines service through employees.	5	8	5	**200**	Between operational controls of production process; obeying technological instruction, inspections.
R11	Inappropriate shrinkage	Failure of requirements concerning product quality; product is not suitable for use.	Wrong machines setting, machine failure.	8	4	2	**64**	Between operational controls of production process; detailed machines control, inspections.
R12	Warp errors	Unaesthetic look, reducing product quality.	Not obeying technological regime; employee inattention.	7	4	2	**56**	Between operational controls of production process; employees training, devices modernisation.
R13	Errors from yarn	Failure of requirements concerning product quality.	Not obeying technological regime; wrong machines work.	5	5	3	**75**	Between operational controls of production process; detailed machine control, inspections.
R14	Incompatible metric area	Unaesthetic look.	Employee inattention.	6	4	3	**72**	Between operational controls of production process; employees training, devices modernisation.
R15	Dyeing errors	Unaesthetic look, reducing product quality.	Employees inattention, failure of technological regime; wrong machines work.	5	3	7	**105**	Between operational controls of production process; reprimand employees working at dyeing stand.

Tab. 1. Sheet of FMEA method with reference to fabrics incompatibilities.

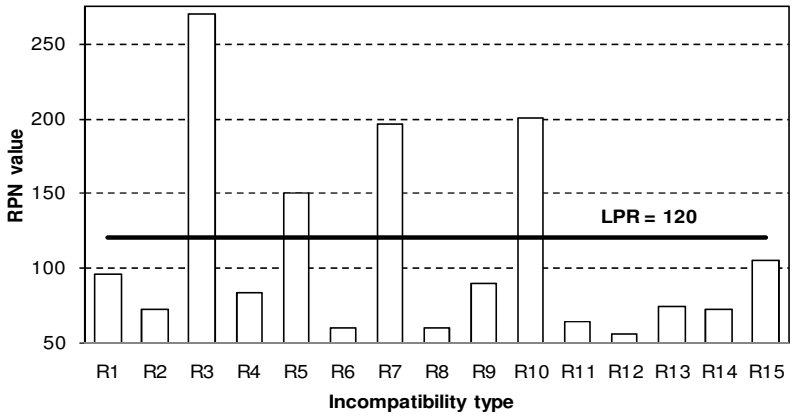


Fig. 1. Graphical presentation of results (RPN values) received on basis of FMEA method for fabrics incompatibilities.

Based on received results it was found that 4 of incompatibilities exceeded RPN critical value, namely weft errors (RPN = 270), undershoots (RPN = 150), colour hues (RPN = 196) and striped (RPN = 200).

3. Summary

Usage to researches the FMEA method allowed to show which incompatibilities play a key role. At an assumed by researched team level of RPN = 120 it was found that 4 incompatibilities exceed critical value (weft errors, undershoots, colour hues and striped). The highest value of RPN = 270 was found for weft errors, then for striped value of RPN = 200, for colour hues RPN = 196 and for undershoots, which cause weakened fabric effect, which have to be cut RPN = 150.

Parameters of machines and devices settings, used in this process should be consistent with technological documentation and strictly observed. Introduction in company of precise and systematic between operational controls, maintenance and inspections of machines and also motivating employees to precise obeying the technological parameters significantly allowed to reduce critical incompatibilities occurring in technological process of fabrics production.

References

[1] MASAJTIS, J. *Analiza strukturalna tkanin*. PAN - Oddz. Łódź. Łódź, 1999.

[2] BORKOWSKI, S., ULEWICZ, R. *Zarządzanie produkcją. Systemy produkcyjne*. Wyd. II, Ofic. Wydaw. Humanitas. Sosnowiec, 2008.

[3] BORKOWSKI, S., ULEWICZ, R. *Practical Applying of the FMEA Method in Order the Obtaining the Anticipated Quality Level of Galwanotechnical Coast.* Kvalita a spol'ahlivost' technickych systemov. 11 Medzinarodna vedecka konferencia. Nitra, 2006.

[4] ZUABI, S., SELEJDAK J. *Use of Method FMEA (Failure Mode and Effects Analysis) in Car Industry.* Advanced Manufacturing and Repair Technologies in Vehicle Industry. 17-th International Colloquium. Zielona Góra-Łagów, 2000.

[5] MAZUR, M., ULEWICZ, R. *Wykorzystanie metody FMEA dla zapewnienia jakości procesu wytwarzania linki sprzęgła samochodowego.* Nowe technologie i osiągnięcia w metalurgii i inżynierii materiałowej. VIII Międzynarodowa Konferencja Naukowa. T. 1. Częstochowa, 2007.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Forwards and Options on Polish Foreign Exchange Market

[*]Iwona Sobol
[*]University of Gdansk, Institute of International Business, Armii Krajowej 119/121, 81-824 Sopot, Poland, {isobol}@ek.univ.gda.pl

Abstract. Currency risk is inherent in activities of most of enterprises engaged in foreign trade transactions. The most effective way of managing this risk is using of derivatives, especially forwards and currency options. In Poland those transactions started to be offer in 1992 but it was not until the introduction of floating exchange rate regime in April 2000 that their real development started. As long as Poland does not adopt euro Polish companies are exposed to high risk and thus need derivatives to secure their future revenues. It should be noted however that those instruments have to be used in a proper way since otherwise they can be a source of huge losses.

Keywords: foreign exchange, derivatives, risk, forwards, options

1. Introduction

Financial risks are inherent in activities of most of enterprises. The most effective way of managing those risks is using of derivatives. There are different definitions of derivatives. One of the most commonly used is that a derivative is an instrument the value of which is derived from the value of an underlying asset. There are two main kinds of underlying assets: commodities and financial instruments. Derivatives based on commodities have a very long history. They were already known a few hundred years ago. The financial derivatives have been present on the market only since the beginning of the 1970s of the 20th century when the system of Bretton Woods collapsed and floating exchange rates were introduced. The first exchange that launched financial derivatives was Chicago Mercantile Exchange. In 1972 it opened a separate pit for currency futures trading called International Monetary Market [1]. In the 1980s derivatives started to be extensively traded outside regulated exchanges in what is known as the "over-the-counter market" (OTC) in which banks and other financial institutions design contracts tailor-made to the specific needs of their clients [2].

As it was mentioned the first financial derivatives were based on foreign exchange rates. Although nowadays other derivatives are characterised with higher turnover, currency derivatives are still very important instruments that help enterprises manage foreign exchange risk. Forwards and OTC options are the most frequently used derivatives by companies. The Polish market of those two instruments is described in this paper. A special attention is paid to the current situation on the market of currency options.

2. The characteristic of currency forwards and options

2.1. Forwards

A forward is the simplest instrument that allows exporters and importers to hedge currency risk. It can be defined as a purchase/sale of the referred currency in the future at the exchange rate agreed upon on the transaction date. The rate of exchange at which such a

purchase or sale can be made is known as the forward exchange rate. The calculation of the forward rate is based upon spot rate and interest rates differential between the two currencies for the term in question. If a currency has a lower interest rate, its forward rate is higher than spot rate. And conversely a currency with a higher interest rate, has a lower forward rate than spot rate.

Although the forward contract is a very simple instrument, it has significant advantages resulting from the fact that the future rate is fixed on the transaction date First of all, it protects against possible change of the exchange rate and related loss. Secondly, the fixed rate allows for better finance management in the company and accurate planning of cash flows.

2.2. Currency options

A currency option (foreign exchange option, fx option) is a contract which gives the buyer (the holder) the right, but not the obligation, to buy or sell a fixed amount of underlying currency, at a fixed price (strike price, exercise price) sometime in the future. Buying an option involves an up-front cost called "premium" which is received by the option writer. Like forward contracts, currency options eliminate the spot market risk for future transactions. Unlike forward contracts, they do not oblige the option holder deal if the spot rate is more favourable than the option's strike price. As the name implies, there is an option to deal or not. There two main types of options: calls and puts. If the option's contract gives the holder the right to purchase the underlying currency at a predetermined price from the other party the contract is known as a call option. Conversely, the buyer of a put option has the right to sell the underlying currency at a specified rate.

Figures 1 and 2 illustrate four main options strategies: buying a call (long call), selling a call (short call), buying a put (long put) and selling a put (short put).

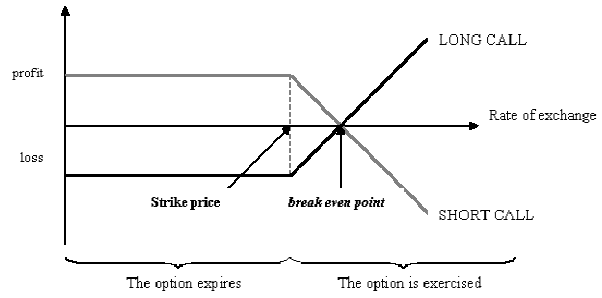


Fig. 1. Call option strategies

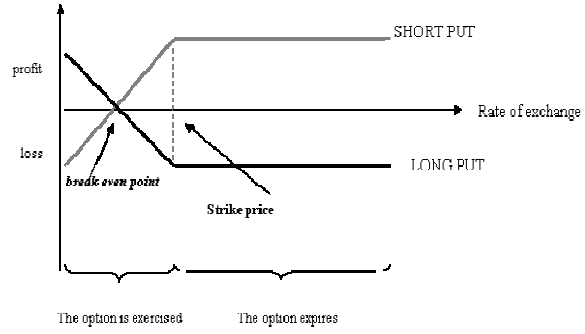


Fig. 2. Put option strategies

As the above figures show the losses of the buyer of both put and call options are limited by the option premium while the losses of the option writer are unlimited. Hence buying the option is much less risky strategy than selling the option.

Buying or selling options are rather simple strategies. In practice they are often parts of more complex structures.

3. Current situation on Polish market of currency forwards and options

According to the survey conducted by National Bank of Poland[1] the average daily turnover in the forward market amounted to 527 million US dollars in 2007. The forward transactions are mainly used as hedging tools by exporters and importers. Since the volume of international trade increased steadily in recent years an increase in forward trading could have been observed (Tab. 1). Polish enterprises usually settle their foreign contracts in EUR and that is the reason why EUR/PLN transactions are the most prevalent in the market. In 2007 they had 58% share in total turnover.

	2004	2007	Percentage change (at current rates)
Forwards	329	527	60
FX options	177	343	94

Tab. 1. Average daily turnover on Polish market of fx forwards and options (in million US dollars) [4]

Currency options are less popular than forwards. In recent years however their turnover grew even more dynamically than turnover of forward transactions. In April 2007 it reached the level of 343 million US dollars and was 94% higher (at current rates) in comparison with the value of transactions concluded in April 2004 (Tab. 1). Although more recent official figures are unavailable it can be presumed that 2008 was even better with regard to fx options turnover. However, it was also the year, that brought crisis and turmoil in Polish foreign exchange market which caused heavy losses of companies engaged in fx options trading.

At the end of 2008 and the beginning of 2009 currency options were probably the most often cited financial instruments in Polish media and the reason why many Polish companies can be discouraged from the derivatives market in the near future. What happened on Polish market of currency options?

From March 2005 until August 2008 the Polish currency was continuously appreciating, which was a very unfavourable situation for Polish exporters. The simplest method of securing their revenues from rising zloty was selling forward contracts. A lot of companies, however, chose another method. They were buying put options. Since the holder of an option is required to pay a premium to an option writer and exporters were reluctant to bear this cost they were offered by banks more complex strategies. Those strategies called “zero-cost” options consisted of buying put options (long put strategy) and selling call options (short call strategy) at the same time. Exporters sold options so as to receive a premium which would cover the premium they had to pay for taking a long position in put options. But to reduce the entire premium from a put option, they had to sell a call option of higher value, which meant that those “zero-cost” strategies were structures with substantial financial leverage. Actually they could no longer be called hedging instruments. They were speculative tools since by selling options enterprises exposed themselves to currency risk.

From 2005 until the mid 2008 companies concluding the “zero-cost” options gained very high profits. As a consequence some of them made transactions with more than one bank,

[1] The Survey of Foreign Exchange and Derivatives Market Activity is organised by Bank for International Settlements and conducted every three years by central banks, participated in the project. The last survey was conducted in 2007.

exposing themselves to even higher risk. Even during the zloty's historical peak in summer 2008 (PLN/EUR 3,27 on 8 July 2008) Polish exporters believed it would continue to appreciate and hence still concluded "zero-cost" options strategies. However in autumn 2008 the rate of exchange unexpectedly changed direction and during the next half of year zloty depreciated almost 40%. As a result a lot of companies suffered heavy losses (e.g Ciech, Ropczyce, Zelmer) and some of them even filed for bankruptcy (e.g. Elwo, Odlewnie Polskie). State-owned companies and about 45-46 firms listed on Warsaw Stock Exchange were among the enterprises that were seriously affected by options trading.

The total losses on options transactions are not known. According to Polish Financial Supervision Authority (Komisja Nadzoru Finansowego) the negative valuation of the involvement by enterprises in foreign exchange options amounted to 9 bn on 13 February 2009 PLN [3]. However some of the options contracts expire in 2010 and foreign exchange rates change all the time, so the outcomes of options trading by Polish enterprises are difficult to forecast.

A lot of blame for the losses of Polish exporters was put on banks. They were faulted for selling complex options strategies without explaining their clients the risks with those structures associated. According to some even more serious allegations banks knew that in the second half of 2008 trend would change but still in summer 2008 encouraged their clients to conclude bearish strategies. It should be mentioned however that the losses suffered by the enterprises will weigh on banks' results. Thus both the banks and the companies should be interested in reaching some compromise which would result in cutting the losses of enterprises and thereby reduce the losses of banks.

4. Conclusion

Currency derivatives are instruments that are designed to help financial institutions, enterprises and individuals to take and manage foreign exchange risk. In Poland they started to be offered at the beginning of 1990s but it was not until the adoption of floating exchange rate regime in April 2000 that their real development started. The other factors that have contributed to the rapid growth of currency derivatives in Poland in recent years include: a greater focus on risk management, a growing competition between institutions offering those instruments and an accommodating regulatory environment.

The recent turmoil in foreign exchange market has shown however that currency risk consciousness of Polish enterprises was not so high as it had been presumed. The sizeable losses suffered by some companies trading in fx derivatives and as a consequence very negative publicity those instruments received can discourage some companies from hedging in the future. It could have a very negative impact on their revenues since as long as Poland does not adopt euro, Polish exporters and importers are exposed to very high foreign exchange risk. Thus it should not be questioned that enterprises need derivatives. It should be noted however that those instruments have to be used in a proper way since otherwise they can be a source of huge losses.

References

[1] WALMSLEY, J. *New Financial Instruments*. 2nd ed. John Wiley and Sons, Inc., 1998.

[2] PILBEAM, K. *International Finance*. 3rd ed. Palgrave Macmillan, 2006.

[3] *Note on Exposure of Polish Companies to FX Derivatives*. Komisja Nadzoru Finansowego, 11 March 2009.

[4] *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity*. National Bank of Poland, 2007.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Using Knowledge in Competition

[*]Tomasz Sondej
[*]University of Szczecin, Faculty of Management and Services Economics, Department of Economic Policy, 8 Cukrowa St., 71-004 Szczecin, Poland, tomasz.sondej@wzieu.pl

Abstract: Offers can also change (including material products or service, associated services, customer service, and information provided to the client). The influence of information technology on competition can be considered in terms of a value chain When building a strategy for competition, enterprises must consider the possibility of utilizing information technology for development.

Keywords: Knowledge, competitive advantage, competition.

1. Influences of Information Technology

The development of information technology affects change in competition in the following ways [1]:

1. Changes in a sector's structure can cause changes in competition, including changes in access to supplies; markets; increasing competition between existing businesses or new competitors; and changes in segments and branches. For example, communication with a client during a service; managing relations with a client. The effects of the evolution of a sector on competition can be observed in service enterprises with large geographic scales as well as enterprises which focus on local markets. The development of information technology makes it possible for local businesses to compete with national or even international enterprises.
2. Information technology allows one enterprise to become dominant. For example, a service enterprise which has better information technology will create better logistics systems than others.
3. New areas of activity may be created which are often based on service enterprises' previous activities; for example, in the financial service sector.

Offers can also change (including material products or service, associated services, customer service, and information provided to the client).

The influence of information technology on competition can be considered in terms of a value chain. [1] Information technology *"influences only those activities related to value, making it possible for businesses to become dominant by utilizing changes in the range of competition."* [1] Information technology changes costs in every link of a value chain [1] and affects the diversity of a business's orientation. It allows for the quick adjustment to new demands, as well as individualized offers, especially in customer service. In addition, information technology allows businesses to increase their range of competition (geographical as well as in terms of the relation between sectors and segments; segmentation is more precise, and it is also possible to build new client relations), which affects a business's competition strategy, especially when they first enter a market, acting locally and treating all clients similarly. Information technology alone makes it possible for enterprises to quickly improve

their ability to access clients and increase their scale of activity (e.g., in traditional sectors like restoration and installation).

New fields are developing as an effect of information techniques and technological developments. These can be created in several ways [1]:

- Technological developments create new possibilities: Primitive reason;
- New fields can spawn from different fields; for example, service for new a sector: Derivative reason;
- New activities may be created within pre-existing areas of activity (e.g., a new segment of service), broadening the previous range of activity.

2. Core Competences

When building a strategy for competition, enterprises must consider the possibility of utilizing information technology for development. One way of understanding the role of resources in achieving and maintaining dominance is known as the resource-based view. "*The message of the resource-based view school is: to understand the source of an organization's success, its configuration of unique resources and skills which need to be understood*." [2] A skill is the ability to use specific resources for specific activities which build dominance in competition. [2]

Hamel and Prahalad regard resources and skills as a single concept: core competence. According to them, the source of dominance in competition is the ability "*to build main skills cheaper and faster than the competition, which are generating new products. The real source of dominance is the ability of managers to consolidate technology and productive skills in the whole corporation and to transform them into competencies, which allow specific business departments to quickly adjust to changing circumstances.*"[3]

According to Hamel and Prahalad dominance should be built in whole corporation. Independence of an economic unit in capital group is leading to lack of synergy in using main competitions and coordination in activities [4].

The essence of competition according to Hamela and Prahalad is knowledge, accumulated in specific skills which can be used in creative ways for the whole corporation's use. Core competencies are not applied directly to final products or markets, but rather allow businesses to create technologies which can then be used in various products and markets. [4]

Core competencies are basic to the creation of a whole line of products or an assortment, and can be used to create new products and/or facilitate entrance into new markets. [4]

The conception of core competence is based on the theory that cycles of technological change are accelerating. The dynamic of social and economy changes is also more intense, causing rapid creation of new activities, new customers' needs, and radical changes in traditional sectors. [5] Traditionally, competition should be based on costs and prices, quality, the speed of introducing new products, and fast reactions to customers' needs. The future for competition is the ability to introduce completely new products and create new sectors. [5] Businesses should take part in the creation of the future by introducing changes which are the most productive for it. [5]

The concept of core competence is recognized as a strategic paradigm: searching for and creating new resources as the foundation of competition. This strategy includes the follow elements: the challenge of competition, looking towards the future, mobilizing for the future, and reaching the future before others. It means creating new products, finding new clients and markets (redefining a trade or creating a new one). [6] An enterprise's core competence is its set of skills and technologies with the following features:

- a large contribution in value as seen by the client, providing him with essential profits;

- diversity of competitors as a consequence of being unique and difficult to imitate: competitive uniqueness;
- possibility of expansion, creating opportunities to develop new products (or services). [6]

Members of the resource-based view school have aspired to explain why resources and skills are becoming so important and valuable (becoming "core competencies").

The reasons have been classified into two groups [2]: **Consultants** - strategic resources are core competencies when they are:

- Valuable, because they produce efficiency and adaptability to environmental changes; in the service sector, for example, client and other information is stored in databases, including dates of delivery and cooperation, staff and their qualifications, and information about new technologies).
- rare, because when all or most competitors use the same resources, there is no dominance. Even in service sectors, for example, new technology and techniques (e.g., new equipment and software are needed to search information) are required, and are not enough to ensure dominance (every contractor can try to get new equipment and software). Rarity of resources guarantees the possibility of uniqueness.
- difficult to imitate. If a resource can be replaced internally or bought from other sources, if it raises qualifications of personnel, or if different enterprises get information from a common source, then that resource cannot be a source of constant dominance in competition. The opinion of a business and brand are particularly difficult to imitate. Conversely, it is relatively easy to imitate: a product's style and staff qualifications (not competence). In addition to the rarity of resources, the following are important: uniqueness (place, patent, concessions, etc.), history (building a brand and reputation, and other resources based on current events; competitors cannot repeat history to use it), and obscurity of reasons and effects (competitors and even management cannot always identify all of the factors of a business's success; even if competitors duplicate the primary resources, they will not succeed on the market, because customers will not accept them);
- effectively organized and used. Enterprises which are first to create valuable, unique, and difficult-to-imitate resources can be dominant in competition for some time, even if their resources are not used very effectively. With time, when competition arrives on the market, such enterprises are forced to rationalize their costs to compete with the competition's prices;

Theoreticians, who point to the following sources of dominance [7]:

- diversity of enterprises as a result of present and future access to resources, and the ability to use them. In this way, some businesses become the most effective, and others less; the market eliminates less effective businesses, allowing the strongest companies to win the biggest profits while also giving a chance for survival to those businesses which are not as successful at utilizing resources;
- limited mobility of material and non-material resources resulting either from physical, financial, or (in the case of human resources) psychological limitations. Resources may appear with, or be used with, other resources which are impossible to imitate, thus creating a barrier to the mobility of resources and the ability to profit from them;
- limitation *ex ante* of competition which can be understood as a difference in knowledge level about resources' value and uniqueness in the future. K. Obłój ephasizes that ". . . there is never an equal chance and there are always limitations in access to resources"[2];
- limitation *ex post* of competition, maintaining uniqueness of unusual resources by enterprises which will guarantee the continuation of dominance.

In both formulations, knowledge is a key source of dominance (Tab. 1 shows sources of dominance for service enterprises, considering knowledge as a resource with strategic meaning.).

The following are key strategic factors of success:

- resources which create important, relevant value;
- resources which enable the generation of new ideas and new sources of value;
- resources which are rare;
- resources which are impossible or difficult to buy;
- resources which are impossible or difficult to copy;
- resources which are impossible or difficult to replace;
- resources which are complementary (each facilitates the development of the other);
- resources which are specific to enterprise and thus are difficult to transfer;
- resources which respond to the next strategic factors of the sector [8].

It is important that enterprises treat knowledge as a highly valuable resource and create unique methods for its creation and use. To increase the possibility of continued dominance in competition, knowledge needs to be original and inaccessible to other businesses.

M. E. Porter criticizes dominance theories based on basic capabilities, resources with critical meaning and key factors of success, proving that the main factor for dominance is the ability to adjust activities to different situations [1]. This includes general adjustments as well as specific adjustments to various strategies which increase uniqueness. [1]

Lp.	Conceptual approach to sources of dominance	Conception of competition	Characteristics of sources
1	Core competencies	Key competencies having the main impact on competition should be created and developed. They are the long-term base for competition.	Primitive origin. Ability to create innovations as a effect of having key competencies, knowledge and technology. Having the biggest influence on apparent value and knowledge about the future.
2	Effective abilities	Businesses should adjust choice of optimal markets and products.	Primitive origin. Effective abilities and the right choice of terminal markets. Sources of dominance: architecture, opinion, ability to recognize effective abilities.
3	Learning organization	Learning to increase satisfaction of beneficiaries (including clients). New solutions to old problems.	Primitive origin. Knowledge storage and implementation.
4	Enterprising	Systematic innovation, finding and utilizing opportunities to satisfy customers.	The source of dominance is management: looking for and exploiting new opportunities.
5	Time dominance	Time dominance: faster service, faster production and supply, faster R&D cycles	The source of dominance is focusing on time and optimization.
6	Information and information systems	Using new forms of communication with environment, especially with clients. Better management is an effect of understanding information processes.	The source of dominance is using new systems for storing and transforming information. Using information tools.
7	Virtual enterprises	Competing with a system's organization makes it possible to be active in different geographic markets, under different political and economic conditions.	The source of dominance is creating enterprises on the Web. The main goal is the choice and rules of an enterprise's cooperation.

Tab. 1. Conceptions of competition dominance sources in service enterprises based on resources including knowledge. [5]

Adjustments may take the following forms [1]:

1. simple accordance of every activity (function) under a general strategy which produces harmonious activity and increases dominance;
2. reciprocal valuing of activities which synergistically produces dominance;

3. optimizing efforts: coordination and information exchange, reducing work (including a reduction in the amount of time and work wasted).

In adjustment—irrespective of which form - the system is more important than the parts, because dominance is the result of the whole process.

3. Conclusion

Ultimately, Porter does not negate the meaning of knowledge as an origin of dominance. The foundations and theoretical constructions of the resource-based view school are criticized. Value chains and adaptation, which the author refers to mostly with respect to the modern economy, are based on organization, markets, innovation (research and development), knowledge, etc.

References

[1] Porter, M.E. *Porter o konkurencji*. PWE: Warsaw, 2001

[2] Obój, K. *Strategia organizacji*. PWE: Warsaw, 2001.

[3] Prahalad, C.K. and Hamel, G.. The Core Competence of the Corporation.

[4] Harvard Business Review1990, 68(3)

[5] Z. Pierścionek: Strategie konkurencji i rozwoju przedsiębiorstwa. PWN: Warsaw, 2003

[6] Hamel, G. and Prahalad, C. K *Przewaga konkurencyjna jutra*. Business Press: Warsaw, 1999

[7] Peteraf, M. A. The Cornerstone of Competitive Advantage: A Resource Based View, *Strategic Management Journal* 1993, nr 14

[8] Stankiewicz, M. J. Konkurencyjność przedsiębiorstwa. Budowanie konkurencyjności przedsiębiorstwa w warunkach globalizacji. TNOiK: Toruń, 2002

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Clusters in Poland- Evaluating the Possibility of Achieving a Competitive Advantage in Cluster

[*]Jolanta Staszewska
[*]Silesia University of Technology, Gliwice, Poland, staszewjm30@poczta.fm

Abstract. Clusters are example of organizational innovation in local and regional systems.
Action of clusters is under outer and inner condition. Many companies are not convinced to the profitability of cooperation and they do not trust their partners. Despite these, clusters' initiatives have their supporters. Structures of clusters have been identified in many countries and 40 clusters have been identified in Poland in 2006. This article has aim – to present possibility innovation of organizations in Poland. Fundamental methodical is analysis of description and no primary source information's.

Key words: Network of enterprises, cluster, innovativeness, small enterprises

1. Introduction

Network solutions in enterprises and creating networks of enterprises are not a novelty in the global aspect. However, for the market economy of the developing countries they are the original and modern attitude.

In Poland cooperation based on clusters is only beginning to exist.

Many companies are not convinced to the profitability of cooperation and they do not trust their partners. Despite these, clusters' initiatives have their supporters.

About 40 existing clusters' initiatives in different areas [1] have been identified in Poland in the second half of 2006. Subjects are connected with each other by cooperative and competitive bonds – research and development areas are taken into consideration. The network groups of Polish enterprises are based on the following connections: enterprise-enterprise, enterprise-local authorities, enterprise-science and research area and public institutions [5]. Competitiveness, interaction of connections, mutual direction of development, cooperation within a particular area and competitiveness in other areas are the characteristics of the connections.

2. Development of clusters in Poland

The network concept in an organization concerns connections between internal units, when their mutual dependence changes into mutual benefit.

An interesting solution for an organization is fractal and holon concept. In the first case of fractal organization, an enterprises management gives away the power and competences and an employee gains new possibilities, but at the same time he/she has bigger responsibility and higher risk is involved..

Separated fractals have features of an independent organization but they use all the functions of a parent organization.

Central functions cannot be abandoned in an fractal organization but a fractal does not have to remain within a parent organization. It can become independent and then an external network of connections is created.

The presented solutions concern internal networks in organizations which give a company a greater operational efficiency [6].

Cluster concepts are much more interesting and innovative solution from a competitive point of view. They are based on the enterprises' external cooperation. Enterprises cooperating in one area can be competitive in other areas. They often receive support from external units such as research centers, research and development centers, universities and local authorities.

Cluster initiatives are not a novelty, but in Polish conditions they are an innovative solution firstly for a region's development and secondly for competitive increase of small and medium size enterprises.

Clusters seem to be a good solution for small enterprises which would not be able to solve their market problems independently.

In case of clusters, cooperating enterprises can be grouped according to the following rule:

- closely cooperate with a leader – the biggest and leading enterprise,

- create groups of enterprises with similar potential and size,
- create groups around an external subject – universities, research and development units.

Organization of clusters can begin from the bottom as a result of interested parties' initiative or it can be due to of external and supportive initiatives. In each case, the connection network indicates faster pace of getting good economic results as well as better position on the market.

The Institute of Market Economy Research in Poland carries out research regarding the functioning of the cluster systems. It has been said that high-tech clusters and traditional industry clusters develop most intensively. High technology clusters are mainly pharmaceutical and cosmetic enterprises.

A visible dependence of profitability, export and technological advancement of products and cooperation's intensity with research-development area has been noticed in these groups. Polish pharmaceutical and cosmetic groups in Warsaw and Łódź as well as electronic groups in Warsaw show the highest number of features of mature clusters.

Similar groups in Krakow represent worse level. The pharmaceutical and cosmetic cluster in Łódź is based on strong connections with research and development area and IT and consulting area. This cluster cooperates intensively in other countries, through trade and training system of employees.

The cluster in Warsaw is based mainly on the Polish market and its levels of cooperation are intensively institutionalized, which is different from the above mentioned one. This situation applies to pharmaceutical and cosmetic industry. However, in case of electronics, a strong cooperation with local authorities and other countries can be noticed.

High-tech clusters in Poland show tendency to be near big agglomerations with a number of academic centers.

High technology clusters operate also in Katowice, Gdańsk, Poznań and Wrocław regions.

Apart from the above mentioned clusters, there are also connections between traditional areas, mainly in furniture making, leather industry, fish industry, plastic materials and building trade.

Subjects connected with food industry in Warmińsko-Mazurski region show the strongest features of cluster.

Furniture making cluster develops intensively in Wielkopolska. There are about 2000 companies. Fabric industry is located in Bielsko region. In Dolny Śląsk we can see buiding network as well as in Świętokrzyski region. Clusters of fishing industry are located in the north of Poland.

It has been said , that the effectiveness of building networks is the lowest in comparison with others. The effectiveness among enterprises and research and development area is the highest. In service area, the development of cluster networks is limited. However, tourist cluster is beginning to develop in the southern part of the Silesian region.

The identified clusters in Poland, particularly in Central Poland, have been defined as innovative and they have significant relationship with authorities, academic centers and other countries.

3. Stimulation of the clusters' development in Poland

Stimulation of the clusters' development in Poland is mainly based on the following operations: coordinative, analytical, information and training as well as supporting the clusters' initiatives.

In relation to coordinative and training operations, ventures in the area of public policy have been taken. Therefore, interdisciplinary Working Group regarding the Policy of Clusters' Support and National Contact Body regarding clusters have been created. Academic centers identify and analyze the clusters of cooperating enterprises [2].

Training of the employees, entrepreneurs, representatives of research, development and administration can be noticed in the information and training area. The following things are prepared: conferences, internet data, intellectual data as well as platforms of communication. Support of the clusters' development is mainly based on the introductory, regional and national projects. Their aim is to collect experience and get the effect of demonstration. Polish regional programs of clusters' support are put into life in particular regions. They receive 150 000 euro a year [3].

The initial results from the experience of Polish clusters indicate that the support can be examined at two levels: creating good frame conditions and supporting the initiatives.

There is some risk involved in supporting clusters' initiatives. Initiatives are created solely to receive public support. The lack of business leadership and weakness of the surrounding environment, e.g. from the administration area, have been observed.

Termination of the cooperation takes place usually after public financial support is over, and the need of gaining profit does not last for long.

To reduce the risk, several questions are asked: how much support should be given?, how long should it last for?, how long should be the period of co financing?, should clusters' support have 'firm' feature focused on infrastructure and machinery or 'soft' feature focused on self realization. These are the problems which other markets, which have innovative character and similar to the Polish market, also have to deal with.

According to the Institute of Market Economy Research, conditions of the success of the Polish clusters concern mainly (in order): partners' mutual trust, common engagement and analysis of the problems, setting realistic aims, setting leaders' authority, positive attitude to changes and existence of local patriotism.

As to the efficiency of clusters' policy the most important are:

- supporting of the clusters which have significant dominance,
- avoiding being subjected to one specialist,
- engagement in the highest possible number of stakeholders.

Certain profits for the enterprises have been observed in a short period of time – information about the surrounding environment, listing of the possibilities and new meeting places. In medium period, the benefits are the common marketing, common projects, new business possibilities and the change of attitude of public authorities. In the long term period there is an increase if attractiveness of enterprises, access to specialized resources, common projects B+R and new business possibilities [4]

4. Conclusion

The cluster's concept is a new way of thinking about making operations competitive in national economy and on international markets.

Structures of clusters have been identified in many countries, they indicate high innovativeness and strong competitive position.

In post socialist countries clusters give the chance to stimulate regional development, they support innovativeness and they help to create to work places.

References

[1] pod kierunkiem BOJAR,I. ,2006, Badania Politechniki Lubelskiej – nie publikowane, Politechnika Lubelska, Lublin, 28 maj 2006.

[2] WOJNICKA E., 2004. Klastry w Polsce- teoria i praktyka. In:Innowacje, rocz.7, 2004,nr. 21, s.17-18. ISSN 1505-697X.

[3] SZULTKA S., 2006, Programy i instrumenty stymulowania rozwoju klastrów.Możliwości wykorzystania funduszy strukturalnych na lata 2007-2013,(online).Gdańsk: Uniwersytet Gdański, dostępne:http://www.klastry.pl

[4] SZULTKA, S., DZIERŻONIOWSKI, R., 2006., Klastry- konkurencyjność przez współpracę 2006, Instytut Badań nad Gospodarą Rynkową ,Spotkanie Klubu Innowacyjnych Przedsiębiorstw, Poznań kwiecień. 2006.Inne źródła.osobna komunikacia

[5] FOLTYS, J.,2002, Outsourcing jako metoda wspomagania restrukturyzacji. Wyd. Akademii Ekonomicznej w Katowicach, Katowice 2002

[6] KLISIŃSKI,J., MARCINKIEWICZ, K., 2008, Zarządzanie marketingiem turystycznym, TexPartner , Katowice,2008

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

How PRINCE2 can Complement PMBOK

[*] Soňa Stránska, [**]Iveta Kremeňová
[*]University of Žilina, Faculty of Operation and Economics of Transport and Communications, Department of Communication, Univerzitna 1, 01026 Žilina, Slovakia, sona.stranska@fpedas.uniza.sk
[**]University of Žilina, Faculty of Operation and Economics of Transport and Communications, Department of Communications, Univerzitna 1, 01026 Žilina, Slovakia, iveta.kremenova@fpedas.uniza.sk

Abstract. PMBOK is the recognized (de facto) standard of project management knowledge. In the UK and Europe, PRINCE2 is the project management methodology of choice, and is required by the UK government for all projects it commissions. This paper will provide an overview of the PRINCE2 method and examine the similarities and differences between PMBOK and PRINCE2. Finally, it will suggest how these two project management approaches relate to and can complement each other, and how the PRINCE2 approach can provide added value to a PMBOK knowledge base.

Keywords: project management, PRINCE2, PMBOK, ISO 9000.

1. About PRINCE2

PRINCE2 (short for "PRojects IN Controlled Environments") is the de facto standard in the UK. It was developed for and is used extensively by the UK government, and is widely used in the private sector, in the UK and internationally. PRINCE2 is in the public domain, offering non-proprietary best-practice guidance on project management. Anyone may use this methodology, and the manual describing PRINCE2 can be purchased through online booksellers, as well as through the UK government website. PRINCE2 is supported by a rigorous accreditation process, including accreditation of training organizations, trainers, practitioners and consultants. PRINCE2 is a Process-based, structured methodology that highlights how eight particular Components, when understood and effectively addressed, can additionally reduce risks in all types of projects. While PRINCE2 is based in the same ground as the PMBOK, it spotlights a number of areas to concretize PMBOK, and answers the question "how do I apply these concepts in my projects?"

1.1. The structure of PRINCE2

PRINCE2 does not claim to be as comprehensive as the PMBOK. PRINCE2 is based on the principles of the PMBOK, as any project management methodology must be. PRINCE2 extracts and focuses on the elements ("components") which it identifies as being crucial to the successful assessment and completion of a project. It constructs a process to tie those elements together to reduce overall project risk, and provides techniques to support them. While "The Guide to the PMBOK" offers a loose, general approach to integrating the Knowledge Areas, PRINCE2 suggests an effective way to organize them. In essence PRINCE2 says: "using *these* elements in *this* way is the most effective way to *reduce project risk* and *maintain quality* within the project."

PRINCE2 components and processes are consistent with the PMBOK, but PRINCE2 does not include all the knowledge areas and details specified in the PMBOK. PRINCE2

focuses on critical areas, so a project manager still needs to draw on the full depth and range of the PMBOK and other sources to complete project management work. The intention of PRINCE2 is to organize and supplement project management knowledge. It assumes that those learning and working with this methodology have a level of experience that enables them to fill in the details that PRINCE2 omits. In PRINCE2 the scale and content of its Processes, Components and Techniques should be adapted to the size and nature of the project.

1.2. PRINCE2 components

PRINCE2 is comprised of 8 elements, or "components". They are: Business Case, Organization, Plans, Controls, Management of Risk, Quality in a Project Environment, Configuration Management, and Change Control. They roughly map against the PMBOK Areas of Knowledge as follows:

PMBOK Knowledge Area	Comparable PRINCE2 Components
Integration	Combined Processes and Components, Change Control
Scope, Time, Cost	Plans, Business Case
Quality	Quality, Configuration Management
Risk	Risk
Communications	Controls
Human Resources	Organization (limited)
Procurement	Not Covered

Tab.1. Comparison of PMBOK Areas of Knowledge and PRINCE2 Components

These components are not as comprehensively defined as the Areas of Knowledge. For example, PRINCE2 covers PMBOK's Time and Cost Management within its discussion of Plans — but only insofar as the development of time and cost information is necessary at the relevant plan level.

2. PRINCE process overview

PRINCE2 Stages

To provide the appropriate decision gates at the right level of the project, PRINCE2 projects are broken down into Stages, much like the Phases of the PMBOK process model. PRINCE2 calls for decisions about the project *as a whole* to be made prior to looking at any developmental work. PRINCE2 differentiates the start up, planning and close for the *overall* Project ("Starting a Project," "Initiating a Project" and "Closing a Project") from the activities to start up and close down *each of the Stages* ("Managing Stage Boundaries").

The actual Executing and Controlling of the developmental work (from Feasibility or Requirements onward) shows up at the *Stage* level, through "Controlling a Stage" and "Managing Product Delivery." Project oversight (by the Project Board) occurs *throughout* the project through "Directing a Project." "Planning" is a generalized process that is accessed at all levels of the project, as needed.

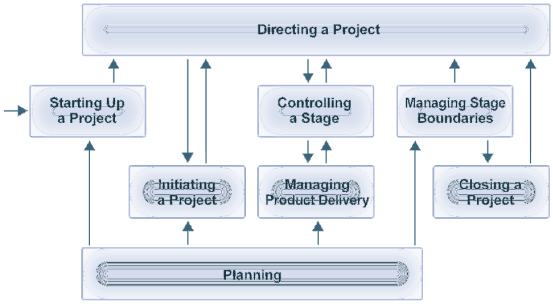


Fig.1. PRINCE2 Process model

"Starting Up a Project" enables a controlled start to the project. It occurs once in the project life cycle, providing the groundwork for project management and oversight, and viability evaluation. This process creates the Project Board, and ensures that resource requirements are understood and committed to the first Stage, "Initiating a Project".

"Directing a Project" operates throughout the project, and defines the responsibilities of the Project Board in its oversight of the project. Like its location in the process model diagram, it sits *above* and interacts with many of the other processes. It provides the mechanisms for authorizing the project, approving continuity at the completion of each Stage, and closure of the project (all based on the Business Case). "Directing a Project" is the framework for supplying input to the project manager, receiving requests from the project manager for information and assistance, and making decisions. This is the only process in which the Project Board is active (other than "Starting Up a Project," when the Board is first formed). All other processes are guided by the Project and Team Managers.

"Initiating a Project" occurs once in the project life cycle. It lays out the view of how the *overall* project is to be managed, and sets it down in a "contract" called the Project Initiation Document (PID). The intention of the PID is to provide a common understanding of the critical elements of the project (similar to the results from PMBOK's Planning process). "Initiating a Project" also calls for resource commitment by the Project Board to the first developmental Stage of the project.

"Planning" is the common process for several other processes in PRINCE2. Plans are produced by identifying the project's required deliverables, the activities and resources necessary to create them, and the management and quality requirements – all at a level consistent with the control requirements identified in the PID. Use of a common module highlights the concept of a consistent, coherent approach to all planning.

"Controlling a Stage" provides guidance to the Project Manager in managing the project on a day-to-day basis. It includes: work authorization and receipt of work; issue and change management; status collection, analysis and reporting; viability consideration; corrective action; and escalation of concerns to the Project Board and other resources. "Controlling a Stage" is iterative, and is repeated for each developmental Stage of the project.

"Managing Product Delivery" is part of PRINCE2's work authorization system. It is the mechanism for the performers of technical work (teams, individuals and contractors) to agree on work to be performed, report on progress, complete the work, and return it. It occurs as frequently as work packages are authorized.

"Managing Stage Boundaries" manages the transition from the completion of one work Stage to the commencement of the next Stage. It includes assurance that work defined in the Stage has been completed as defined, provides information to the Project Board to assess the ongoing viability of the project (done in "Directing a Project"), develops plans for and obtains authorization for the next Stage of work, and records lessons learned.

"Closing a Project" is the mechanism to transition the project back to the organization. It closes out the project, whether closure is precipitated by completion of the work, or premature termination. In either event, "Closing" picks up lessons learned and project experiences for organizational records. For completed work, its goal is to ensure that the work has been completed to the Customer's and Management's satisfaction, all expected products have been handed over and accepted by the Customer, and arrangements for the support and operation of project products are in place. [1]

PRINCE2 does not have "core" and "facilitating" processes; all components and processes are integrated into a *single* flow, which clarifies the relationships among all of them.

2.1. Strengths of PRINCE2

PRINCE2 has a number of impressive and useful features that distinguish it from other project management methodologies. Its strength lies in its common-sense approach. Each of the following features supplements what the PMBOK provides -through a very specific focus, or by offering a perspective beyond the PMBOK.

Organization and the Project Board

Perhaps the most significant of PRINCE2's features is the concept of the Project Board. PMBOK refers to a 'project sponsor' in general terms, and suggests the role the sponsor should be playing in supporting the project. PRINCE2 is more specific — it calls for a *Project Board* to provide oversight and support in a clearly delineated way. (While PRINCE2 does not *require* the use of any particular feature — such as a Project Board — it does spell out the most robust way to apply that feature, in a manner that would do most to reduce overall risk to the project.)

In most projects, "authority" (the control of resources) is separated from "accountability" (consequences of success or failure): senior management has authority (but often not held accountable for success or failure of the project), while the project manager is held accountable (with insufficient authority over the resources to ensure completion of work). PRINCE2 calls for an accountable Project Board to *own* the project, helping to ensure their commitment to getting the work completed. At the same time, the Project Board grants authority to the Project Manger by explicitly committing resources as the project progresses. The PMBOK suggests this will happen under *certain* organizational structures; PRINCE2 believes it can be implemented in *most* environments.

The process model calls for the Board to be identified early on, in "Starting Up a Project". PRINCE2 understands that if a Project Board cannot be assembled to represent the above interests (Business, User, Supplier), it is unlikely that there is sufficient support for the project to succeed. (This is an example of how PRINCE2 ties together *what* has to be done with *why* with *when* it should be done to be most effective.)

Business Case-based decision-making

The Business Case (focusing on the *entire* scope of change to the business that is affected by the project) is a PRINCE2 component, but its importance cannot be overemphasized. Responsibility for the Business Case belongs to the Project Board *and* the Project Manager. The Project Board creates and *owns* the Business Case; the Project Manager *provides the information* that enables the Project Board to evaluate it and also ensures that the Business Case is considered in project decisions. PRINCE2 drives home the notion of explicit go/no-go decisions — *based on the Business Case* — in the start-up and initiation of the project, and at the end of each Stage (see Figure 2).

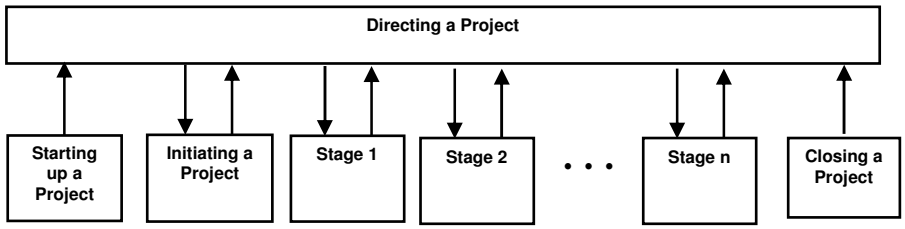


Fig.2. Business Case Review (in "Directing a Project") by the Project Board

Product-Based Planning

The initial element of PRINCE2's Product Based Planning technique — the Product Breakdown Structure — echoes PMBOK's Work Breakdown Structure in identifying the constituent parts of the project deliverables. PRINCE2 continues the logic of focusing on deliverables (since *they* are the goal of the project, *not* the activities), by providing an additional step to this technique: explicating those deliverables through *Product Descriptions*. PRINCE2 calls for a Product Description (for each product/deliverable for which it is needed), comprising these important characteristics: why it is being created; what it is made up of; the source of materials and the tasks needed to create it; what it should look like when it is done; the resources and skills needed to create it; the criteria for accepting it; and how we will make sure that it meets its criteria.

These traits shape and clarify expectations, and help assure the right product will be created the *first* time around, not shaped by afterthoughts. These elements together also serve as a baseline reference for *changes* to the Product. The thoroughness of PRINCE2's Product Descriptions vigorously supplements the PMBOK's approach. This emphasis on Product Descriptions helps ensure that a sound and agreed basis is established for scope management, earned value management, and quality management. Product Descriptions provide clarity for time and resource estimates, and risk management, and they are the core of Work Packages.

Quality Reviews

The PMBOK spends extensive time on quality control, and numerous tools and techniques for accomplishing it. They are largely geared towards a physical product environment. Virtually all internal project deliverables (those needed to manage the project itself) and many of the intermediate and client-centered deliverables, however, are text- or graphics-oriented (reports, web sites, specifications, etc). PRINCE2 provides an excellent, tested technique for doing quality control on such products - the Quality Review. It lays out the steps and resources needed to assess the conformance of such deliverables, using Product Descriptions as the basis for evaluation. Techniques like this, to provide guidance on handling this challenging quality situation, are difficult to find. This technique can be lifted as a whole and used in *any* project environment (a capability shared by many aspects of PRINCE2).

ISO9000 and Project Maturity Models

Many organizations have become focused on bringing their project management up through maturity models (such as OPM3, Capability Maturity Model, and others). At the same time, they find themselves believing they have to invent a new methodology that will provide the backbone for the project management dimension of this undertaking. PRINCE2 was constructed to be in conformance with ISO9001 requirements from its inception, so it becomes a valuable reference - or *core* - for the development of the project management aspect required by *all* these maturity models. *Its "open" (non-fee) availability means companies do not have to make huge capital investments to build a methodology from scratch, or buy one (often very costly) from a vendor.* [2]

3. Conclusion - Combining the best of PRINCE2 and PMBOK

PRINCE2 is not meant to stand on its own and needs experience and the depth of PMBOK to fill it out, so it makes most sense to study the PMBOK and get a PMP first. But after Project Managers receive their PMPs, they often ask "Where do I start? How do I put all of this together to actually *run* a project?" PRINCE2 becomes useful at this point, because it can shape and direct that knowledge. Here are several approaches to getting value out of PRINCE2. PRINCE2 was designed in an integrated manner, so a project manager can get the most out of it when it is used in its entirety. But there are elements of PRINCE2 that can be lifted and applied directly in *any* project environment. Neither of these approaches requires deviating from a "PMP" or "PMBOK" environment.

Use it for its unique approaches and insights into project management. Read the PRINCE2 manual, or read the manual and take a PRINCE2 course. Get a grasp of how the "package" as a whole works. Focus on the elements that can be most easily transplanted into your current environment. The most straightforward elements are: Product Descriptions, Change Control, Issue Management, Quality Reviews and Work Packages (all discussed under "The Strengths of PRINCE2"). None of these require "permission" from authorities outside the project, so they are easily implemented by the Project Manager. They can even be used by project teams or in sub-projects. As these approaches and techniques become accepted by stakeholders and others on the project, consider using other aspects of PRINCE2. Because of PRINCE2's integrated approach, if you use most of PRINCE2's approach to a specific piece in the first round, you can add features in almost a plug-and-play manner. Features like Project Boards can be powerful when implemented, but require greater buy-in and commitment from stakeholders to succeed, so put these off until greater interest is shown by management.

Use it as the proven, low-cost basis for your company's methodology. Get to know PRINCE2 and consider using it as the core of your company's new project management approach -perhaps along the lines of "PMBOK and PRINCE2-Together". Suggest it to management, selling it through its credibility wherever it has been implemented (internationally), and its open (no-fee) availability. Remind management that, when used in an integrated manner, it will support your company's fulfillment of any future "maturity" plans. Propose that a small group create a prototype project management methodology built around PRINCE2, to build understanding and to plan out how to integrate it into your organization's environment. (You can do research on how PRINCE2 has been used via the website of the accrediting body, the APM Group. They also have case studies on how to implement it.) Your core group should consider getting themselves accredited in PRINCE2, so you are all sure your team understands how to use it most effectively.

References

[1] OFFICE OF GOVERNMENT COMMERCE. *Managing Successful Projects with PRINCE2 Manual 2005,* 2005.

[2] PROJECT MANAGEMENT INSTITUTE. *A Guide to the Project Management Body of Knowledge (PMBOK Guide),*2004.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Application of the Benchmarking Method for Evaluation of the Regional Operational Programmes in Žilina Region

[*]Mariana Strenitzerová
[*]University of Žilina, Faculty of Operation and Economics of Transport and Communications, Department of Communications, Univerzitná 8215/1, 010 26 Žilina, Slovakia,
Mariana.Strenitzerova@fpedas.uniza.sk

Abstract. Presented benchmarking method for the operational programmes of regional development evaluation was verified by analysis of five operational programmes prepared for the European regions (NUTS2 and NUTS3 level) located in different parts of Europe. This contribution describes to application of the benchmarking method in Žilina region.

Keywords: evaluation, regional development operational programme, benchmarking, problem diagnosis, problem definition, programme theory, implementation aspects.

1. Introduction

A "programme" concept is contemporary used in many fields of knowledge and practice. Analysis of programmes´ specificity shows that their concepts, framework, organisation and implementation aspects cannot be assessed without referring to wider context of strategic planning, within which programmes are perceived as first stage of a policy or development strategy implementation. In strategic approach development planning bases on the following elements of strategic choice (fig. 1):

- mission – defining the role of a organisation in surrounding,
- policy, strategy – defining general direction of desired changes, including goals and objectives formulation,
- goals and objectives – determining achievements by an organisation assumed values, the position in a given period of time,
- programmes and projects – being sets of measures, projects, tasks by which a policy or a development strategy is implemented and assumed goals and objectives are achieved,
- resource allocation – consisting in utilisation of human, financial, material, organisational, technical resources to realise programmes and project in accordance with defined goals and objectives.

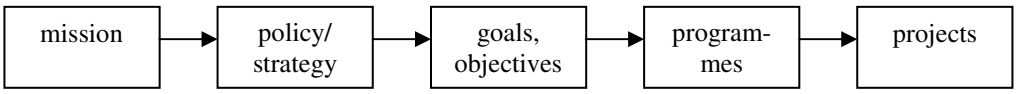


Fig. 1. Basic relations among elements of strategic choice

1.1. Types of development programmes – operational programme of regional development

There are a lot of development programmes which characterise different scale, complexity, structures as well as content-related and organisational components. One of the

basic criterion of distinguishing development programmes is the criterion of direct spatial impact of a programme effects. According to the criterion of spatial impact development programmes can be categorised as:

- international,
- trans-border,
- national,
- regional,
- sub-regional,
- local,
- sub-local.

An operational programme of regional development usually has extended structure which includes: references to strategic choices of higher levels (like mission, strategy, policy, goals). In this approach operational programmes of regional development can include broad scope of intervention like, for example:

- strengthening entrepreneurship of a region inhabitants,
- strengthening competitiveness of region economy,
- revitalisation of post-industrial zones and housing areas,
- solutions for social problems,
- modernisation and redevelopment of road infrastructure,
- modernisation and redevelopment of water and sanitation systems,
- promotion of tourism attractiveness of a region,
- development of sports and recreation,
- strengthening cultural activity of a region.

2. Evaluation of operation programmes of development by the benchmarking method

The idea of proposals of new method for evaluation of operation programmes of regional development appeared form few premises, which generally can be divided into two groups: arguments connected with socio-political conditions of contemporary European regional development management and the assumptions linked with the logic of operational programmes of regional development framework.

Identification and analysis of a program theory is conceivable in the context of regional development theories and also in respect to specific inter-regional conditions, including those being the driving forces (having essential impact on a given region development). This allows for examining the cause-effect relations formulated in operational programmes and in consequence for evaluation of possible (*ex-ante* evaluation) or (*mid-term* and *ex-post* evaluation) effectiveness, efficiency, feasibility of proposed solutions.

Objectives formulated in the process of designing the evaluation method for operational programme of regional development include:

- ensuring the ability for drawing the conclusions about effectiveness and efficiency of solutions proposed in an operational programme taking the form of priorities, objectives, measures, projects in relations to strategic choices of higher levels (e.g. EU, national policy) and policy of smaller territorial units being a part of a region,
- creation of a pattern of an operational programme framework/construction within a benchmarking analysis that enables for operational programmes comparison, and also for identification of conclusions for possible modification of a programme records during *ex-ante* and *mid-term* evaluation, in particular. By applying the benchmarking

method in *ex-past* evaluation, conclusions draw upon the pattern should explain reasons of a programme success or low effectiveness and efficiency.

Proposed evaluation method includes benchmarking dimensions, which are the evaluation criteria derived from the basic elements of an operational programme structure like: a problem diagnosis, a problem definition, a program theory, and implementation aspects.

A **problem diagnosis** is recognised as quantitative and qualitative analysis, carried out in order to identify specificity of a region, described by specific inter-regional conditions being a driving forces, i.e. impacted importantly on a region development. These conditions are groups of resources, potentials, products along with their features, which can be used in processes of a region development (for example: human resources, social infrastructure, technical infrastructure, natural resources, financial resources, tourisms, offer, investment offer, etc.). The evaluation criteria relating to a problem diagnosis is **"correctness"** defined as precise and faultless identification, including description and analysis, of inter-regional conditions, which determine a region specificity, being simultaneously a driving force for its development.

A **problem definition** is a set of partial problems along with their hierarchy and scale included in an operational programme, prepared on the base of a problem diagnosis. The evaluation criteria relating to a problem definition is "**rightness"** defined as a right/proper/suitable choice of partial problems in respect to: specific inter-regional conditions being driving forces, strategic choices of higher levels (the EU, national policy), and policy of smaller territorial units located in a region.

A **programme theory** was defined as set of priorities, objectives, measures, projects included in an operational programme, based on elements of socio-economic theories of regional development. The first evaluation criteria relating to a programme theory is its "**adjustment**" defined as right choice of priorities, objectives, measures, projects in respect to: specific inter-regional conditions being driving forces, strategic choices of higher levels (EU policy) and policy of smaller territorial units located in a region. The second evaluation criteria for a programme theory is "**relevance"** defined as adequacy of a programme theory scope included in priorities, objectives, measures, projects in respect to the hierarchy and scale of the partial problems, described in a problem definition.

Implementation aspects of an operational programme are perceived in the context of human and institutional resources directly participated in its realisation. The evaluation criteria for organisational aspects considering human and institutional resources, is "**organisational feasibility"** defined as: ability of people and institutions for proficient operational programme implementation. Within the implementation aspects social dimension was also identified, which is described by such attributes like: identity, attitude towards changes, resourcefulness, entrepreneurship, creativity, social capital, networking, etc. The evaluation criteria connecting with social dimension is: the "**social feasibility**" defined as ability of given regional community to active participation in realisation of a program theory.

The general scheme including the evaluation criteria for operational programme of regional development in relation to the basic elements of the programme structure, were presented in the tab. 1.

Elements of operational programmes of regional development	Evaluation criteria
Problem diagnosis	Correctness of a problem diagnosis
Problem definition, i.e. set of partial problems with their hierarchy and scale	Rightness of a problem definition
Programme theory, i.e. priorities, objectives, measures, projects	Adjustment of a programme theory
	Relevance of a programme theory
Implementation aspects	Organisational feasibility
	Social feasibility

Tab. 1. General scheme of the evaluation criteria for operational programme of regional development

The procedure used in the benchmarking method of evaluation of operational programmes of regional development is made up of three stages. The first is connected with **determination of the evaluation subject,** understood as a given operation programme of regional development. Within the stage also collection of information concerning strategic choice of higher levels (i.e. the EU, national policy) and about policy of smaller territorial units is followed.

The second stage of the procedure is linked with **evaluation of elements of a given operational programme** according the criteria: correctness of problem diagnosis, rightness of problem definition, adjustment of a programme theory, relevance of a programme theory, organisational and social feasibility.

The third stage means **overall evaluation of a given programme** including methodological framework / construction, rightness of proposed solutions, which allow for drawing a conclusions concerning a programme effectiveness, adjustment of a programme theory to specific inter-regional conditions, strategic choices of higher levels and policy of smaller territorial units, social and organisational feasibility. Concluding is made up by using a comparative analysis of evaluation findings derived form the second stage in relation to benchmarking pattern. The outcomes of comparative analysis should be useful for possible modification of a given operational programme elements (in *ex-ante* and *mid-term* evaluation) or for explanation of a programme degree of effectiveness and efficiency (in *ex-post* evaluation).

3. Application of the benchmarking method in Žilina region – overall evaluation of the operational programme

Evaluation of the ROP Žilina carried out on the bases of individual criterion showed that it is the operational programme situated among modal programme, the inter-regional programme and the political programme. The ROP Žilina is similar with the modal programme within the evaluation criteria correctness of a problem definition, rightness of a problem definition, for which the value of assessment is: 'correct' and ' fragmentary right choice of partial problems' e.g. right problems with reference to inter-regional conditions and partly right to the strategic choices of higher levels and partly fight to aspects of the policy of smaller territorial units located in the Žilina region.

The ROP Žilina is similar to the inter-regional programme within the criterion adjustment of a programme theory in dimensions: the existing inter-regional conditions and the strategic choices of higher levels for which it was assessed as: 'adjusted to inter-regional conditions and not adjusted to strategic choices of higher levels'. It is strongly seen especially for example the strategic choices like: trans-national and interregional cooperation, tourism,

protection of the nature and country, and culture. This can makes the ROP Žilina not as efficient and effective like it could be.

The 'relevance of a programme theory' criterion, which value is: 'low degree of relevance of a programme theory', makes the ROP Žilina near to the defective programme. Despite of relatively proper records of the diagnosis and problem definition, proposed solutions in reference to the Žilina region's problems seems to be insufficient. This makes the ROP Žilina effectiveness can be limited.

The 'organisational feasibility' and 'social feasibility' criteria both were assessed with the value of: 'average feasibility'. The level of organisational capital in the region as well as the level of its social capital are average in correspondence to rather high complexity of measures and projects of the ROP Žilina. Overall evaluation of the ROP Žilina region in the form of the benchmarking table was shown in the tab. 2.

4. Conclusion

The benchmarking method for the operational programmes of regional development evaluation was verified by analysis of five operational programmes prepared for the European regions (NUTS2 and NUTS3 level) located in different parts of Europe, having diverse inter-regional conditions and unique history and different socio-economic development level. Intentional choice of dissimilar regions, in the field of their development directions - recorded in the operational programmes - comparison, showed that each of them, although to different extent, strive to reconcile the inter-regional conditions with the strategic choices of higher levels (like the *Community Strategic Guidelines* and *National Strategic Reference Framework*) and the policies of smaller territorial units located within them.

The proposed benchmarking method for the operational programmes of regional development evaluation can be a tool for concluding about a programme's efficiency and effectiveness on the base of the adjustment degree of priorities, goals, measures, project to inputs and the existing inter-regional conditions. The detailed qualification and determination of the efficiency and effectiveness levels (especially in the *ex-ante* evaluation) requires further researches linked for example with building the portfolios like: 'efficiency - effectiveness' or 'efficiency - relevance'. The development of this field of studies, that is increasing the application abilities of the method allowing for concluding about a programme's efficiency and effectiveness on the base of cause-effect relations, seems to be especially interesting. In consequence, it can allow for its application in *ex-ante* evaluation of the operational programmes without omitting and excessive simplifying of a programme's impact, as it takes places in quantitative approaches.

Continuing of researches under the proposed benchmarking method should also take into consideration the better identification of organisational and social capital, which at the current stage of the method development, have been dealt with an initial manner.

The benchmarking method is also helpful in identification of the cause-effect or the logic inconsequences in the operational programme framework. They can appear among: diagnosis, priorities, objectives, measures, projects, the existing inter-regional conditions, financial inputs, organisational and social capital. Further research, within this field, can be a start point for a new approach of regional development planning on the operational level or for improvement of the existing ones, including planning the operational programmes of regional development with the theory-based evaluation approach, focused on a region's specificity as well as on the scale and hierarchy of a region's problems and challenges.

The evaluation criteria	**Possible values of assessment**								
A. Correctness of a problem definition	correct			correct for some specific inter-regional conditions			incorrect		
B. Rightness of a problem definition:									
B2. specific inter-regional conditions being driving forces and policy of smaller territorial units	right choice of partial problems	fragmentary right choice of partial problems *(right problems with reference to inter-regional conditions & partly right problems in respect to a policy of small territorial units)*	fragmentary right choice of partial problems *(partly right problems with reference to inter-regional conditions & right problems in respect to a policy of small territorial units)*	fragmentary right choice of partial problems *(right problems with reference to inter-regional conditions & not right problems in respect to a policy of small territorial units)*	fragmentary right choice of partial problems *(partly right problems with reference to inter-regional conditions & partly right problems in respect to a policy of small territorial units)*	fragmentary right choice of partial problems *(partly right problems with reference to inter-regional conditions & right problems in respect to a policy of small territorial units)*	fragmentary right choice of partial problems *(partly right problems with reference to inter-regional conditions & not right problems in respect to a policy of small territorial units)*	fragmentary right choice of partial problems *(not right problems with reference to inter-regional conditions & partly right problems in respect to a policy of small territorial units)*	wrong choice of partial problems
C. Adjustment of a programme theory:									
C1. specific inter-regional conditions being driving forces and strategic choices of higher levels	compatibility	fragmental compatibility *(adjusted to inter-regional conditions & partly adjusted to strategic choices)*	fragmental compatibility *(partly adjusted to inter-regional conditions & adjusted to strategic choices)*	fragmental compatibility *(adjusted to inter-regional conditions & not adjusted to strategic choices)*	fragmental compatibility *(partly adjusted to inter-regional conditions & partly adjusted to strategic choices)*	fragmental compatibility *(not adjusted to inter-regional conditions & adjusted to strategic choices)*	fragmental compatibility *(partly adjusted to inter-regional conditions & not adjusted to strategic choices)*	fragmental compatibility *(not adjusted to inter-regional conditions & partly adjusted to strategic choices)*	incompatibility
C2. specific inter-regional conditions	compatibility	fragmental compatibility *(adjusted to*	fragmental compatibility *(partly*	fragmental compatibility *(adjusted to*	fragmental compatibility *(partly*	fragmental compatibility *(not adjusted*	fragmental compatibility *(partly*	fragmental compatibility *(not adjusted*	incompatibility

being driving forces and policy of smaller territorial units		*inter-regional conditions & partly adjusted to a policy of smaller territorial units)*	*adjusted to inter-regional conditions & adjusted to a policy of smaller territorial units)*	*inter-regional conditions & not adjusted to a policy of smaller territorial units)*	*adjusted to inter-regional conditions & partly adjusted to a policy of smaller territorial units)*	*to inter-regional conditions & adjusted to a policy of smaller territorial units)*	*adjusted to inter-regional conditions & not adjusted to a policy of smaller territorial units)*	*to inter-regional conditions & partly adjusted to a policy of smaller territorial units)*	
D. Relevance of a programme theory	high degree of relevance of a programme theory		minimally required degree of relevance of a programme theory		excessive degree of relevance of a programme theory		low degree of relevance of a programme theory		
E. Organisational feasibility	high organisational feasibility		minimally required organisational feasibility	average organisational feasibility	surplus of organisational feasibility		great surplus of organisational feasibility		low or lack of organisational feasibility
F. Social feasibility	high social feasibility		minimally required social feasibility	average social feasibility	surplus of social feasibility		great surplus of social feasibility		low or lack of social feasibility

Tab. 2. The benchmarking table. Evaluation of the ROP Žilina

References

[1] Regionálny operačný program. Ministerstvo výstavby a regionálneho rozvoja Slovenskej republiky. Bratislava, 2007 (The Regional Operational Programme. Ministry of Construction and Regional Development of the Slovak Republic, Bratislava 2007)

[2] Národný strategický referenčný rámec Slovenskej republiky na roky 2007-2013. Ministerstvo výstavby a regionálneho rozvoja Slovenskej republiky. Bratislava, jún 2007 (National Strategic Reference Framework. Ministry of Construction and Regional Development of the Slovak Republic. Bratislava, june 2007)

[3] Strategická časť Regionálneho operačného programu NUTS II SLOVENSKO – STRED. Európska akadémia, nezisková organizácia, Banská Bystrica, január 2008

[4] Štúdia uskutočniteľnosti strategickej časti Regionálneho operačného programu NUTS II SLOVENSKO – STRED. Európska akadémia, nezisková organizácia, Banská Bystrica, 2008

[5] Socioekonomická analýza, Analýza SWOT Žilinského samosprávneho kraja, Banskobystrického samosprávneho kraja. Európska akadémia, nezisková organizácia, Banská Bystrica, január 2008

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

The Possibility of Obtaining an Additional Capital by Insurance of Shares

*Milan Šustek
*University of Žilina, Faculty of Operation and Economics of Transport and Communications, Univerzitná 1, 01026 Žilina, Slovakia, {milan_sustek}@fpedas.uniza.sk

Abstract. At the time of global economic crisis, most companies are facing many problems. One of them is certainly a lack of funds. Therefore, firms reach for bank loans, but they can not always get the credit, because also the banks have the problem with the available funds. They actually caused the whole crisis. The aim of this report is to draw attention to another form of financing, the issuance of shares that may solve the lack of liquidity in periods of recession. The article is describing the process of issuing shares and comparing the advantages and disadvantages of financing through issuing shares. However, it is not a full guidance on the issue itself, but it may help to obtain the basic orientation in the subject.

Keywords: financing, issuance of shares, broker, foreign exchange.

1. Introduction

Global economic crisis reached a major part of the world's businesses. The main problems of large companies are low demand and low status of liquid funds. The second problem is usually solved through a credit, whether by drawing bank loans or issuing bonds. These solutions have in these days several disadvantages, which are based on the uncertain economic situation in the future. The additional issue of shares shows as one of the effective options. Since this is relatively demanding, in the next section I'm describing the basic steps which need to be taken for issue of shares and comparing issue of shares with the issue of bonds in terms of their advantages and disadvantages.

2. Capital acquisition in joint stock companies

A joint stock company is the operative legal form for large enterprises. In the past, small and medium enterprises were the basis for corporate. Large enterprises were built up as a result of the development of successful small businesses. They already have in the developed economies decisive position large companies that concentrate around them a great number of cooperative small and medium-sized enterprises and often initiate their emergence. Joint stock companies achieve the initial equipment by the basic capital, issue of shares and their placement on the capital market. Of course, it is possible to obtain not only the initial funding, but if necessary, additional funds needed for investments or for covering the lack of liquidity caused, for example, by the financial crisis.

3. Technique of the share issue

Emissions technology itself is quite difficult and costly matter, and therefore, any enterprise that decides to choose the form of issue of shares, should take these factors into account.

Technique of the issue of shares varies according to the character of joint-stock companies, which they are emitted for. Some joint stock companies are small, their actions are almost not traded, they are owned by only a small number of people, usually bythe company managers. We call them privately owned companies. Issue of shares by establishing of this company, or to increase its share capital, is usually a private issue. The issuer usually places the shares alone (without the Investment Bank mediation), in this case we speak about the own issue (or about the sales of free-hand).

On the other hand, shares of larger companies are owned by many investors, most of them are not participating in the management of the company. The shares of these companies are normally and regularly traded on the stock market. We characterize them as publicly owned. This group can be further divided into:

- companies whose shares are not admitted to trading on the stock exchange, their rates are not officially recorded and published exchange, their shares are sold and bought on the open capital market,
- companies whose shares are officially admitted to trading on the stock exchange.

Issuance of shares is a complicated procedure. Issuing company must at first decide about the size of capital that is wanted to get and about the type of issued shares. Followed by selection of a mediator who would place the issue on the primary market through initial public offering (IPO-Initial Public Offering).

On the session of the issuer and an intermediary, the way of how the intermediary (banks, brokers) receives the shares is found. The most frequent solution is that he assumes to take the entire issue from the issuer for an agreed price. This means that at the moment of issue, he will pay the full agreed price and he assumes full responsibility for the placing on the market.He also bears the full risk that during share placing their rating may decrease, and that he will get less than he paid. He also takes a commission for that.

The second way is the placement of shares by the principle of "best effort". This means that the intermediary assumes to sell the highest number of shares and is not responsible for the unsold shares.

On the session of the issuer and intermediary also the amount of brokerage for commissions of placing of shares is arranged. But commission is not the only cost of the issuer. In addition he needs to make appropriations for the low advice, payments for an independent auditors (they verify the veracity of the data listed in the bid), printing the shares, registration fees and other.

Then the process of selling shares follows, by issuing tenders containing basic information about the prepared issue. At the same time the application for permission and emission is given to the authority which is authorized for this activity.[1]

Emissions promotion may be provided by the intermediary or he will ask some marketing firm. During the training period potential candidates may be reported.

After the official registration of the issue the sales rate is finally determined and the final bid is sent. Own sales of shares to interested parties (investors) is made by intermediary alone or through his own sales network, or he invites qualified external dealers to the cooperation.

An investor who subscribed shares, must pay their value within a period which is intended to subscribers list, and in the articles of association. The amount and period of repayment may be limited by law.[2]

---

[1] In the Slovak republic is responsible for the Ministry of Finance.

[22] Under the Commercial Code, our underwriter is obliged to repay at least 10% of the nominal value of shares immediately at the subscription, at least 30% must be repaid in case the first general meeting of shareholders. All the nominal value must be repaid within one year since the inception of the company (after registration).

Before the issue, it is necessary to choose the stock exchange on which the shares will be traded. It is necessary to choose a stock exchange in which there is sufficient supply and demand. Sufficient demand ensures high liquidity and thus the assumption that the shares will be sold and the issue will be successful. In view of these factors is the Slovak capital market unsatisfying. This is demonstrated by the fact that during the years 2007 and 2008, Bratislava Stock Exchange, did not take to their markets any new issue of shares and no issuer did use even a possibility of increasing the share capital by increasing the volume of emissions of thealready registered shares (by increasing the number of securities or by increasing the nominal value of existing shares). Therefore, the Slovak firms choose foreign exchange for the issue shares. The first company like this was SkyEurope, which has chosen as a target auction the auction in Vienna. In such cases, the issue is more difficult especially for marketing. Manager of the emissions (mostly management of the agent) must have in dealing with the investors a prospectus, which describes a specific security. Manager will present a prospectus to potential investors and found the interest. At this time, it is still possible to adjust the volume and rate of emissions. Later the subscription will be passed. Other operations are performed on the stock exchange and are determining the supply and demand.

In terms of many emissions on individual stock exchanges in Europe the exchange in London is leading. Stock Exchange in Warsaw was in the fourth quarter of 2008 the leader in Europe by the number debuting companies. It attracted 23 new companies. In view of the entire year, it was 94, which it received second place after the London Stock Exchange with 99 initial offers. Data about secondary emissions are not available.

To have own shares on the stock exchange is not only a form of raising funds, but is also a way to increase the prestige and reputation of the company. The auction is accompanied by interest in media and the company draws attention to itself.

4. Advantages and disadvantages of issuing shares as a way of financing

Advantages of issue:

- the firm has not to pay dividends in the bad years,
- amount of dividends accommodates to economic development of society, does not need periodic interest payments, the regular load of liquidity
- shares are not callable, the cash capital obtained by the issue of shares is available without a time limit, the investor can sell them only on the secondary market,
- it is associated with the possibility of increasing the own asset (by capital funds creating), for which no interest is paid,
- the increase in own asset improves the balance sheet and thereby improves the creditworthiness of society.

Disadvantages of issue:

- issuance of shares is quite difficult and expensive mater,
- in good years a dividend should be paid (still not in our conditions, it is a rule for the developed market economies),
- it is necessary to pay the dividend from taxation of profits,
- investors receive the right to codetermination, there is the possibility of a shift in majority voting proportions,
- they may be issued only by joint stock companies.

5. Advantages and disadvantages of issuing bonds as a way of financing

Bonds are securities issued by the issuer in order to obtain long-term or medium-term loan. Bond represents a debtor obligation of the issuer to a bond owner, which is in the

position of the creditor. It is the issuer's obligation to pay interest income to holders of bonds and in to repay the debt in a fixed deadline.

The issuer receives the resources to fund the enterprise by placing the issued bonds on the capital market, therefore he sells them their economic entities, which invest their free funds to purchase securities. Procedure for issuance and placement of bonds is very similar to the issue of shares.

Advantages of issue:

- possibility of obtaining a large loan, which would not be willing or able to beprovided even by large banks,
- possibility of avoiding undue control of the strong banks,
- possibility of their sale on the secondary market, thus the liquidity of the instrument, which allows lower cost for obtaining funds,
- bonds are not limited to the specific legal form of enterprise,[3]
- bonds can not be terminated from the creditor, he may only sell them on the secondary market,
- possibility to buy own bonds on the secondary market for a lower market price than the face value,
- steady calculated interest charges,
- the right to participate in the company's management for their holders is not associated with them.

Disadvantages of issue:

- issuance of bonds predicts a certain enterprise creditworthiness, which is based on adequate capital and satisfying incoming situation,
- using the bond issue makes sense only if the interest of bonds is less than income, which are reached by them,
- they are charging the companies in the lost years,
- bonds must be repaid within the agreed period,

6. Conclusion

Lack of financial resources is the basic problem of many enterprizes at the time of global economic crisis. Banks are very strict when they are lending money and in consequence of low global demand, nobody can guarantee that companies will be able to repay loans. Issuing bonds is a metod of venture financing also. Enterprise is again in the risky situation, as it must repay the interests and principal finaly. It is therefore more appropriate to issue bonds at times of economic prosperity. Maybe the issue of additional shares will be the right way to survive at the times of economic crisis. Enterprise can recieve resources, which is not necessary to refund.

References

[1] VLACHYNSKÝ, K.: Podnikové financie. Bratislava: Iura Edition 2006. ISBN 80-8078-029-30

[2] BREALEY, R..A.-MYERS, S.C.: Teorie a praxe firemních financí. Praha: Victoria Publishing 1992.

[3] Investor, ECOPRESS, február 2009, ročník X.

[4] www.hnonline.sk

[3] In Slovakia, with the exception of asset management companies, mutual funds, pension management companies and pension funds.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Capability Maturity Model as the Tool of Building the Learning Organization

*Jaroslava Štaffenová
*University of Žilina, Faculty of Management Science and Informatics, Department of Management Theories, Univerzitná 1, 010 26 Žilina, Slovakia,
{Jaroslava.Staffenova}@fri.uniza.sk

Abstract. Many organizations try to transform them to the learning organizations. This article is focused on the capability maturity model as one of possible tools, when organization wants to be the learning organization. Learning organizations have five disciplines, that distinguish them from every organization: systems thinking, personal mastery, mental models, shared vision and team learning. The capability maturity model includes five levels of ways in which the organization manages its processes.

Keywords: business process, process redesign, learning organization, value, systems thinking.

1. Introduction

Learning organizations are organizations, where people continually expand their capacity to create the results they truly desire, when new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together. [1]

When you ask people about what it is like being part of a great team, what is most striking is the meaningfulness of the experience. People talk about being part of something larger, of being connected, of being generative. It become quite clear for many people, that their experiences as part of truly great teams stand out as singular periods of life lived to the fullest. Some spend the rest of their lives looking for ways to recapture that spirit. [1]

We learn best from experience but we never directly experience the consequences of many of our most important decisions. [1]

2. Learning Organization

The five disciplines, that distinguish every organization from innovate learning organizations are:

1. personal mastery,
2. mental models,
3. shared vision,
4. team learning,
5. systems thinking.

2.1. Personal Mastery

Organizations learn only through individuals who learn. Individual learning does not guarantee organizational learning. But without it no organizational learning occurs.

Personal mastery is the discipline of continually clarifying and deepening our personal vision. People with a high level of personal mastery live in a continual learning mode. They never arrive. Personal mastery is not something you possess. It is a process. It is a lifelong discipline. People with a high level of personal mastery are acutely aware of their ignorance, their incompetence, and their growth areas.

2.2. Mental models

These are deeply ingrained assumptions, generalizations, or even pictures and images that influence how we understand the world and how we take action.

If organizations are to develop a capacity to work with mental models the nit will be necessary for people to learn new skills and develop new orientations. Entrenched mental models thwart changes that could come from systems thinking. In other words it means fostering openness. It also involves seeking to distribute business responsibly far more widely while retaining coordination and control.

2.3. Shared vision

When there is a genuine vision, people excel and learn, not because they are told to, but because they want to. But many leaders have personal visions that never get translated into shared visions that galvanize an organization. Visions spread because of a reinforcing process. Increased clarity, enthusiasm and commitment rub off on others in the organization. Where organizations can transcend linear and grasp system thinking, there is the possibility of bringing vision to fruition.

2.4. Team learning

The discipline of team learning starts with dialogue, the capacity of members of a team to suspend assumptions and enter into a genuine thinking together. When dialogue is joined with systems thinking, there is the possibility of creating a language more suited for dealing with complexity, and of focusing on deep-seated structural issues and forces rather than being diverted by questions of personality and leadership style.

2.5. Systems thinking

One of the key problems is that rather simplistic frameworks are applied to what are complex systems. We tend to focus on the parts rather than seeing the whole, and to fail to see organization as a dynamic process.

And what is the base perplexity that the organization is faced? We learn best from our experience, but we never directly experience the consequences of many of our most important decisions.

We tend to think that cause and effect will be relatively near to one another. Thus when faced with a problem, it is the solutions that are close by that we focus upon. We look to actions that produce improvements in a relatively short time span.

3. The Capability Maturity Model

The capability maturity model is using to determine which of the following describes your organization best:

1. **Initial.** The development process is characterized as ad hoc, occasionally chaotic. Few processes are defined, and success depends on individual efforts.
2. **Repeatable.** Basic project management processes are established to track cost, schedule, and functionality. The necessary process discipline is in place to repeat earlier success on projects with similar applications.
3. **Defined.** Process for both management and engineering activities is documented, standardized, and integrated into a standard process for the organization. All projects use an approved, tailored version of the organization´s standard process for developing and maintaining processes.
4. **Managed.** Detailed measures of the process and product quality are collected. Both the process and products are quantitatively understood and controlled.
5. **Optimizing.** Continuous process improvement is enabled by quantitative feedback from the process and from piloting innovative ideas and technologies. [3]

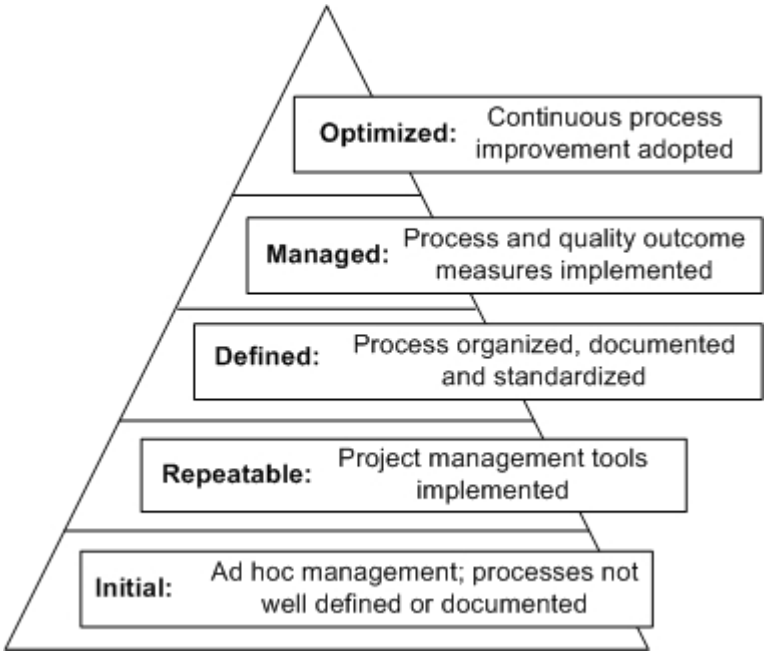


Fig. 1. Five levels of capability maturity model [3]

Each key level area is described in terms of the key processes and practices that contribute to satisfying its goals. The key practices describe the infrastructure and activities that contribute most to the effective implementation and institutionalization of the key level areas.

4. Conclusion

The capability maturity model is a very accessible model that can be used not only for analysis and evaluation of the organization, but also as a basis for organizational improvements.

The model does require a high level of understanding of various organizational elements and how they are related, such as strategy and process management. Effective organizational improvements require additional models and insights that shed some light on the human aspect.

Strength of this model is in using the knowledge management and learning competency associated with each of its five levels. The productive use of knowledge in the capability maturity model for building the learning organization does not mean only the way in which knowledge flows out, but also the way in which knowledge flows in. Knowledge can also be used inappropriately, can be of inferior quality, or simply be wrong. Finally, knowledge can also flow out of the organization, as people leave and systems are replaced.

Therefore, in the process of building the learning organization by using the capability maturity model is important not only the exploitation of knowledge as such, but also the human resource and their knowledge and how they can and know use them.

Acknowledgement

This work has been supported by the grant VEGA 1/0878/08.

References

[1] SENGE, P. *The Fifth Discipline – The Art and Practice of the Learning Organization.*. New York: Bantam Doubleday Dell Publishing Group, 1990.

[2] SENGE, P. *Pátá disciplína – Teorie a praxe učící se organizace.* Praha: Management Press, 2007.

[3] HAVE, Steven and Wounter, STEVENS Frans, ELST, Marcel. *Key Management Models – The Management Tools and Practices that will Improve Your Business.* Great Britain: Prentice Hall, 2003.

[4] STERMAN, John D. *Business Dynamics – Systems Thinking and Modeling for a Complex World.* New York: The McGraw-Hill Companies, 2003.

[5] TURBAN, Efraim, ARONSON, Jay E. *Decision Support Systems and Intelligent Systems.* New Jersey: Prentice-Hall, 2001.

[6] CHRISTOPHER, William F. *Holistic Management – Managing What Matters for Company Success.* New Jersey: John Wiley & Sons, 2007.

[7] COLE, G. A. *Management – Theory and Practice.* Great Britain: DP Publications, 1996.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Main Advantages and Disadvantages of Activity Based Costing

[*]Ľuboš Trunkvalter
[*]Univerzity of Economics in Bratislava, Faculty of business management, Department of business finance; Dolnozemská 1/b; 852 35 Bratislava 5; Slovakia; {lubos.trunkvalter}@gmail.com

Abstract. Activity based management represents the latest generation progress of the process management. The object of this work is not only to present this new system of management operation, but also to mention its systematism with introducing of its main information basis called Activity Based Costing. The inspiration to work up this task was especially its topicality, because specialists identify in the suggestion that ABM represents the basic resource of future competitiveness in the section of management operation. On the other hand the objective of this work is not just look at the positives of this system but also look at negatives which it also takes.

Keywords: Activity Based Management, Activity Based Costing, Activity Based Budgeting.

1. Introduction

Economics transformation on market mechanism brought with it also lot of changes, which influence most of the business areas, including requirements on managements systems and management accounting. Changes like for example technical development, IT development, growth of work productivity and lot more initiate not only permanent strengthening of competitive environment, but also change the general structure of costs of business subjects in time (see Pic. n.1). Quest for sustainment of the profit growth is going to be more and more exacting in all sectors of economics. The long-term business development need is highlighted. In this new environment, traditional cost accounting tools are loosing the trust of the managers and according to this they are going to be restricted for using in business management. As an reaction on this fact, the management accounting tools started to expand. They are building on costs of each activity, operation and process. Management of activities and operations became a base for a several management conceptions, including *Activity Based Management*, (thereinafter ABM).

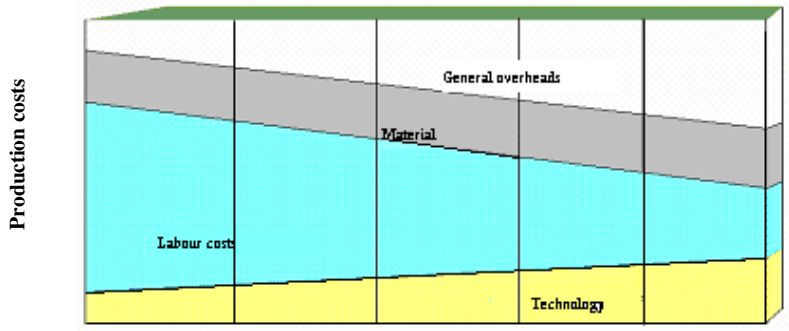


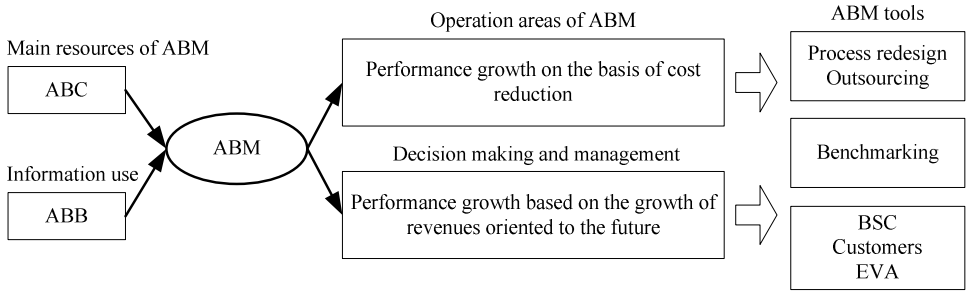
Fig. 1. Cost structure development in time [1]

2. Activity Based Management

The best definition of ABM, we can find in the dictionary of American institute Consortium for Advanced Manufacturing – International **(CAM-I)**:

*„ABM is a discipline, which is focusing on management of activities of business processes like the way of the continual improvement as the value given to the customer, as the profit reached by providing of this value. ABM use activity based costing (*thereinafter ABC) information about the costs and the results of performance measurement to influence the behaviour of management. "

Fig.2 shows the substance of the ABM together with its main resources, areas of



operating and also with the tools which ABM uses in management.

Fig. 2. Operating areas of ABM, main resources and tools

As it can be shown fro the fig.2, it is necessary first of all to implement two carrying basis for the implementation of the ABM: 1. **ABC – Activity Based Costing** – process oriented calculation system; 2. **ABB** – **Activity Based Budgeting** – process oriented planning system

2.1. Activity Based Costing

„ABC is methodology, which measure the costs and performance of the cost objects, activities and resources. Cost objects expand activities and activities expand resources. Costs of resources are allocated to activities on the base of expand of these resources and costs of activities are again allocated to cost objects (outputs) on the base of proportional expand of these activities by cost objects. ABC uses causal relationships between cost objects and activities and between activities and resources." [2]

„Basic principle of ABC is allocation of expanded resources to the operations, to aggregate these operations to activities and then the allocation of these activities to the cost objects.

Main idea of ABC is in the fact that it says that the reason for arising of costs are activities and not individual outputs." [3]

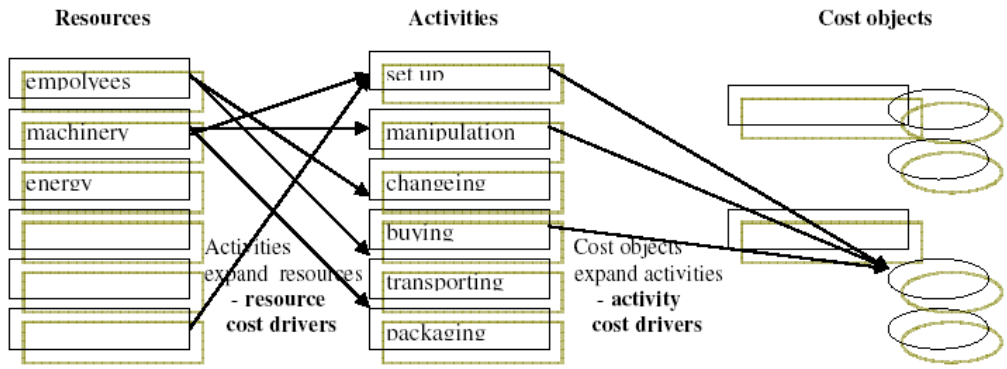


Fig. 3. Net ABC model of cost flow.

3. Advantages and Disadvantages of the ABC

ABC method as a relatively new method is subject of discussion and comparison of knowledge with its application. Opinions about this method are really different – from no critical acceptance of new method like universal instrument, till its rejection [8]. Because of this now I am going to summarize the pros and cons of this method.

3.1. Advantages from Using the ABC Method

1. More realistic spreading of general overheads on calculation unit in businesses which are using progressive production technologies according to high share of overheads on the total costs [9]
2. Higher share of overheads is directly allocate to the output
3. Riveting on real substance of costs and its behaviour, helping by cost reduction and identification of costs which do not create the value of the production
4. Expression of complexity and variety of modern production by using of large spectrum of cost drivers
5. High flexibility due to allocation of costs not only to outputs but also on processes/activities
6. Possibility to obtain more precise information about the business as a entity
7. Observation of causal dependence of cost arising
8. Offering of more precise information for decision making, planning and evaluation

Even studies which were realized with objective of comparison of quality of information and satisfaction of users of these information (see tab. n. 1), shows on big merits of ABC method before traditional methods/models.

Information characteristics	Traditional system average	Deviation	System ABC average	Deviation	Average comparison
Availability	3,50	1,02	3,57	1,03	-0,07
Correctness	3,53	0,88	2,27	0,50	+1,26
Causality	3,53	0,80	2,49	0,77	+1,04
Actuality	3,51	0,78	2,58	0,81	+0,93
Understandability	3,29	0,85	2,47	0,78	+0,82

Tab. 1. Comparison of quality of information providing by the systems (scale from 1 – really high, till 5 – really low) [4]

	Average	Modus	Standard deviation
Cost calculation	4,10	5	1,05
Profitability of the output groups	4,07	5	1,06
Price policy	3,64	5	1,32
Assigning or elimination of concrete product	3,24	4	1,19
Performance measurement	3,15	3	1,16
Reporting	2,48	1	1,25

Tab. 2. Importance of ABC method for decision making (scale from 1 – less important, till 5 – really important) [6]

9. Detail split up of general overheads
10. Creation of potential for optimalization of activities (optimalization of activities structure; optimalization of activities costs; optimalization of activities efficiency)
11. Possibility of wider understanding of activities by connection of individual operations
12. Allowing of activities rundown analyses due to coordination

Another really important area of positive influence of ABC are financial merits due to ABC information using, on this fact shows tab. n.3

Using area	Average	Standard deviation
Product and services rentability	2,54	1,25
Production	2,50	1,02
General overheads	2,44	1,14
Sale, Marketing	2,17	1,19
Product and services conception	2,09	1,07
Customers satisfaction	2,03	1,06
Distribution	1,93	1,13

Tab. 3. Financial merits of ABC (scale 1 – no merit, 2 – low merit, 3 – average merit, 4 – important merit, 5 – really important merit) [5]

So, it can be said, that implementation of Activity Based Costing system brings lot of positives, but also lot of changes on which should be the business prepared.

3.2. Main Problems and Disadvantages of ABC

1. Loss of responsibility principle
2. Selection and complexity of cost drivers, cost quantification, no solution of determination of common costs.
3. The base is a change in management mind system
4. High requests and complexity of implementation
5. Foundation of numerous costs founds causes high number of input and output information need
6. Not each business can use this method

This problematic clearly illustrated American study oriented on chartering of success of ABC (see tab. n.4)

1	2	3	4	5	6	7	**Priemer**
7%	7%	16%	15%	31%	15%	9%	**4,35%**

Tab. 4. ABC success (scale from 1 – really low till 7 – really high) [7]

From tab. n. 4 is clearly to see, that the success of implementation of this new calculation method is around 50%, what is on one hand a positive result, but on the other it warn from failure of this investition.

7. Arising of numerous practical problems according to common costs, selection of cost drivers, or non-linearity of rates of cost drivers
8. High claims on qualification and experience of employees by implementation
9. High software requirements
10. Significant changes in the way of managing of intra-plant accounting

4. Conclusion

Experts on the problematic of ABC say about huge potential of this model and management based on activity-based information. This kind of management should become a significant source of competitive advantage in the nearest future, because objective decisions on the basis of these information should lead to permanent performance growth of the business. But each company should anxiously consider, whether is this system adaptable even in it environment conditions, whether it do not bring more problems then benefits. In my opinion, I think that this system is not convenient for small companies (till 50 employees) – because they deeply know everything about how the business run and with high flexibility they can influence their efektivity, but big companies loose the objective look on the efektivity of production process. By this problem system ABM can be really helpful, but on the other hand each company should determine the limit till which it this effective to know the objective reality. Even by this system holds, that how detail information I want, so expensive system equipment I must buy and administer.

References

[1] SRBOVÁ,M.: *Kalkulace procesních nákladu*, Controlling 1/2000,

[2] STAŇEK,V: Zvyšování výkonnosti procesním řízením nákladu. Grada Publishing , Praha 2003,

[3] KUPKOVIČ,M. a kol.: *Kalkulácie a rozpočty*. Sprint, Bratislava 2002,

[4] MC GOWAN,A.: *Perceived Benefits of ABCM Implementation*, Accounting Horizons, 1/1998,

[5] MC GOWAN,A.,KLAMMER,T.P.: *Satisfaction with ABCM implementation*, Journal of Managment Accounting Research, 9/1997,

[6] SHIM,E.,STANGLIANO,A.J.: *A survey of U.S. manufacturers on implementation of ABC*, Journal of Cost Management, Marec-Apríl/1997

[7] SHIELDS, M.D.:*An Empirical Analysis of Firms Implementation Experiences with ABC*, Journal of Management Accounting Research, 1/1995

[8] TÓTH,M.: Kalkulácia nákladov podľa čiastkových činností (Metóda Activity Based Costing), Ekonóm, Bratislava 2004,

[9] LUCEY,T.: *Management Accounting*, DP Publications Ltd, London 1992

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

The Enhancement of Labour Flexibility in the Context of Economic Recession

[*]Lucia Tulejová
[*]University of Žilina, Faculty of Management Science and Informatics, Department of Macro and Microeconomics, Univerzitná 8215/1, 01026 Žilina, Slovakia, Lucia.Tulejova@fri.uniza.sk

Abstract: There is no doubt that present economic recession has many negative impacts on companies that aren't able to adapt to varying customers' needs. Many of them lose orders and it causes that they aren't able to finance all their working positions. Falling employment rate demonstrate, that many employers are dealing with this problem by reducing work force. However this way company will lose valuable potential, which could be consider one day as extensive failure. This report present, that another strategy how to companies can survive in unfavorable conditions is enhancement of labour flexibility, which can be achieved by changes of work arrangement.

Keywords: Flexible work arrangement, labour flexibility, working time, employer, employee, labour flexibility strategies.

1. Introduction

Unstable environment forces companies to seek different ways how to struggle with changeable surroundings. One way how they can achieve adaptability and competiveness is the enhancement of labour flexibility through use of flexible working-time arrangements (hereafter FWA).

There are many reasons, which lead companies to application of FWA. It may be part of business process re-engineering, or it may be specific to a problem such as space requirements, profitability, productivity or cost reduction. FWA can be considered as a way to overcome difficulties in finding and retaining skilled staff, or it may be due to concerns on environmental issues connected with travel and its impacts. FWA may also be instigated by employees who want to solve travel or relocation problem, or who simply want to adopt more flexible and creative working style.

In the context of economic recession FWA represent tool, which helps employer to keep key employees in spite of lower need of the labour force. For employees motivation is very important the guaranty of certain future. The fair from job losing has negative impact on work performance and mental condition of employees. Therefore is the ability to keep employment very important for companies.

2. Labour flexibility

Labour flexibility is understood like the competence to vary and adjust the quantity and quality of the labour input in response to changes in demand.

2.1. Labour Flexibility Strategies

Authors Anneke Goudswaard and Matthieu de Nanteuil combined different flexibility approaches together and composed the matrix of flexibility (Fig. 1). They make a distinction between the flexible use of internal personnel (**internal flexibility**) and the outsourcing of task to temporary agencies or subcontractors (**external flexibility**). They further distinguish between the variation in the quantity of labour trough working patterns (**quantitative flexibility**) and the ability to provide different types of activities and tasks (**qualitative flexibility**). According to these approaches they designed matrix of flexibility, which is in four quadrants. They defined four strategies of enhancing labour flexibility – orientation on flexibility of employment status, orientation on flexibility in the production system, orientation on working time flexibility and orientation on flexibility in the organization of work.

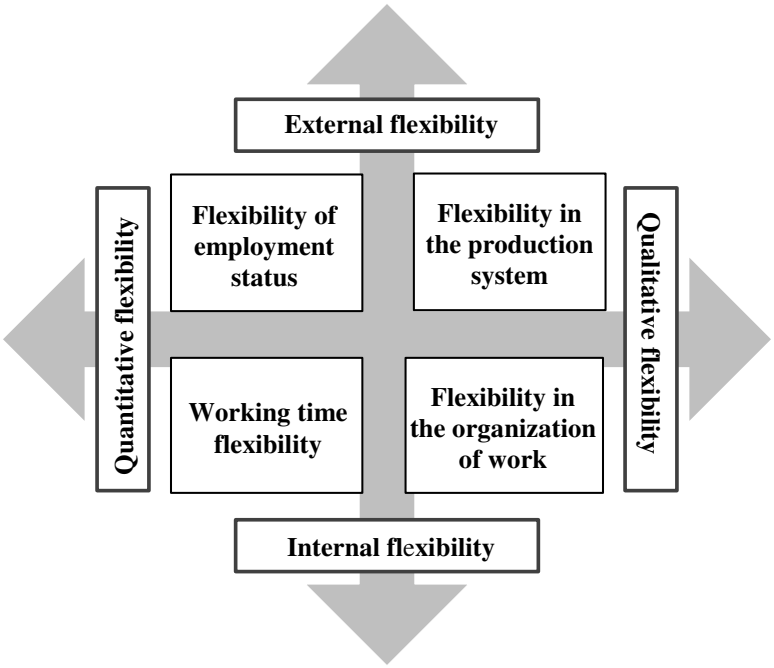


Fig. 1. Matrix with different forms of flexibility [1]

Flexibility of employment status, also described as numerical flexibility, combines external and quantitative variables. It reflects company's ability to respond on short-term (seasonal) fluctuations in the market. It can be achieved by part-time and seasonal work.

Flexibility in the production system, also known as productive flexibility, mixed both external and qualitative variables. It reflects company's ability to provide tasks, which have very specialized or non-strategic character. It can be achieved by subcontracting and outsourcing.

Flexibility of working time, also known as temporal flexibility, mixes both internal and quantitative variables. It reflects company's ability to respond on long-term (macroeconomics) fluctuations in the market. It can be achieved by varying working hours.

Flexibility in the organization of work, also known as functional flexibility, mixes both internal and qualitative variables. It reflects company's ability to redeploy employees between different activities and tasks. It can be achieved by job rotation, multitasking or teamwork. [1]

2.2. Internal and Functional Flexibility of EU Member States

European Commission made a research of employment trends in Europe 2007. In this research was also researched a rate of internal and external flexibility of companies in EU Member states (Fig. 2). Results of this research confirmed that Slovak republic has very low rate of both internal and functional flexibility in comparison with other member states. [2]

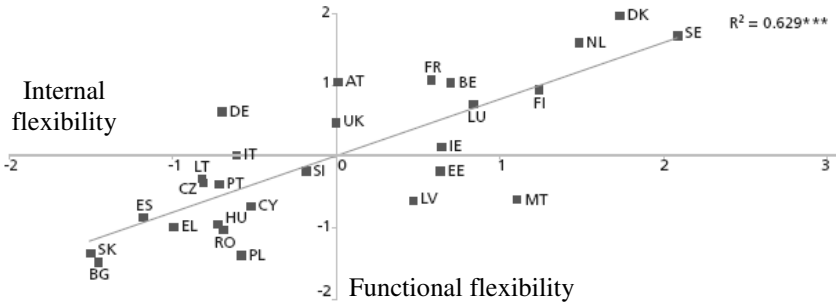


Fig. 2. The first factors of the internal and functional flexibility CatPCA [2]

3. Flexible Working-Time Arrangement - FWA

FWA are alternate arrangements or schedules from the traditional working day and week. Employees may choose a different work schedule to meet personal or family needs. Alternatively, employers may initiate various schedules to meet their customer needs. According to labour flexibility classification they contribute to enhancement of quantitative flexibility.

3.1. FWA Enhancing Working-Time Flexibility

Establishment Survey on Working Time (ESWT) distinguishes four types of flexible working-time arrangements according to the time horizon given for balancing of time accounts:

- FWA that only allow the starting and finishing times of each day to vary, without the possibility of accumulating credit or debit hours
- FWA that allow accumulation of credit and debit hours over longer periods of time (such as week or a month), but do not allow compensation credit hours by full days off
- FWA that permit employees to take full days off to compensate for accumulated credit hours
- FWA that allow employees to take longer periods of time off to compensate for accumulated credit hours [2]

Slovak companies are at mostly using **flexi time**. It is type of FWA, which allows employee to vary the start and end of the work, but establishes core hours when all employees have to be at work. However agreement with employer enable employee to take a day off as a compensation for overtimes.

Amended labour code enable employer to use **telework** as FWA with the highest rank of flexibility. It allows employee to make own work schedule and also work from home or from another agreed place using information and communication technologies (ICT) for communication with employer.

Working-time flexibility can be enhanced also by **overtimes**. Overtime is the amount of time, that employee works beyond normal working hours. Employers use the over-time work because it increases production efficiency and for employees is overtime-work a source of extra money.

To prolong the operation time companies can use **shift work**, which is a form of FWA based on taking turns of workers in the operations where working time exceeds individual working hours of an employee.

3.2. FWA Enhancing Flexibility of Employment Status

Flexibility of employment status can be enhanced by temporary employment and part-time work.

Temporary employment is defined as a labour relationship between an employer and an employee for a fixed term and it can be in a form of seasonal work, occasional work and casual work, probationary work, work training, community welfare service or work performed within a temporary employment agency.

Part-time work is FWA, which is established on shorter working-time as normal. It allows employer to provide activities of smaller character. These arrangements may be on a temporary or permanent basis depending on individual circumstances. It means that this form of FWA can improve also working-time flexibility.

In present economic recession are the most important FWA enhancing working-time flexibility, because they help employer to keep a core of the company in spite of demand decrease.

4. Conclusion

This paper presents different ways how company can improve labour flexibility. Companies use different variables simultaneously and have different requirements. That's why every company should adapt flexible work arrangements, which best suits to their short-term and strategic objectives.

Acknowledgement

This work has been supported by the grant VEGA 1/0495/08

References

[1] GOUDSWAARD, A., DE NANTEUIL, M. *Flexibility and Working Conditions. A Qualititative and Comparative Study in Seven EU Member States.* Luxembourg, Office for Official Publications of the European Communities, 2000

[2] *Employment in Europe 2007*. European Communities, 2007

[3] *VÁCLAVKOVÁ, L. Flexibilní formy práce v malých a stredných podnicích. Flexibilní formy práce a jejich právní úprava, 2007*

[4] TÉSITS, R.., HANZELOVÁ, E. *Atypical form of employment: tendencies and perspectives*. Bratislava: Inštitút pre výskum práce a rodiny, 2007.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

City-logistics as a Factor Regional Development (in a Aspect Quality Management of the Air)

*Blanka Tundys
*Chair of Logistic, Faculty of Management and Economics Services, University of Szczecin, Cukrowa Street 8, 71-004 Szczecin Poland (blanka.tundys@wzieu.pl)

Abstract. Very important for city dweller is quality of living. Air pollution can change the city areas. Implementations and integrations of modern monitoring systems and the solution of city-logistics can be a necessary element for the development of cities. City-logistics can be a panacea on problems connected with stream flows as well as creating and functioning logistics chains in cities. Logistic management in the city should become one means of preventing implementation of appearing problems. With the help of technical-technological, as well as administrative, organizational and economic adequate solutions constructing appropriate models it is possible to have an influence on the ambient air quality and consequently on the quality of inhabitants life

Keywords: city-logistics, air pollution, city-logistics solution, quality management system of the air

1. Introduction

Civilisation development, and the increasing traffic in particular, has led to a situation where modern cities face numerous problems, with congestion-related problems among the most burdensome. These problems lead to dysfunctionality of specific areas and to inability to perform specific urban functions in an effective and efficient manner. Negative effects of transport processes in cities are became more and more perceptible and burdensome for space users.

City-logistics can be a panacea on problems connected with stream flows as well as creating and functioning logistics chains in cities. Logistic management in the city should become one means of preventing implementation of appearing problems. With the help of technical-technological, as well as administrative, organizational and economic adequate solutions constructing appropriate models it is possible to have an influence on the ambient air quality and consequently on the quality of inhabitants life. Support of this type should be monitoring and managing of the ambient air quality in the cities. The consequences of such a condition may be far-reaching, from dissatisfaction of citizens, degraded quality of life, economic stagnation, to hindered development of the entire region.

1.1. City-logistics as factor regional management

Logistic support of cities can take place thanks to the development of city-logistics in its broad sense. Its concepts, depending on their coverage area, may influence city centres, particular districts, entire cities, but also the entire metropolitan area, neighbouring municipalities and the region. Solutions, especially those related to road infrastructure, affect not only the city itself, but also the surrounding region. As a consequence, they make it possible to attract new capital and to locate new businesses. One of the important subsystems in need of support is the transport system.

Urban logistics is one of the principal elements of urban management, alongside municipal public utility management, housing management, management of urban area resources and management of public utility facilities. Logistic concepts treat the city as a socially urbanised area, being a place for trade exchange, whose economic infrastructure is to be used in an intelligent manner [1]. Th. Wagner[2] presents a position that it deals with solving logistic problems in a geographically specified and limited area of urban space. It is a tool for solving these problems, while looking for effects of synergy, reduction of costs and being stream oriented. Its development was possible thanks to a new trend in logistics, namely social trend, thanks to which logistics is becoming a tool for providing firms with best possible operating conditions and for improving the citizens' quality of life[3]. Issues related to urban logistics refer to all activities forming everyday life cycle of the city as an economic, social and cultural space[4], therefore management and organisation of the city as a system must have an economic, environmental and social dimension. It deals with management in the city's logistic system, being its social and economic subsystem. Through its subsystems (supply, manufacturing, distribution, transport, warehousing and utilisation) it affects particular functions, as well as higher needs (sustainable growth, ecology, revitalisation), forming the logistic system of the city. A characteristic feature here is taking into consideration the requirements and specific features of the city as a collective entity, but also as an independently functioning system. Apart from transport- and logistics-related functions (balancing volumes, covering time and space, efficient on- and off-loading), it includes and takes into account the environmental pollution issues, with participation of various institutions (self-governmental authorities as well as transport, forwarding and trade firms) and coexistence of transportation of goods, public transport and individual transport within cities[5]. Organisational and technical dimensions of logistic streams and the attempt to link the spatial and logistic requirements of the majority of interest group are of utmost importance. Logistics in an urban agglomeration area covers the entire urban system, its subsystems, subcentres and auxillary centres in locations where streams of goods often intersect and economic relations exist[6], and the city centre. In general these are the links of the transport system within a specified urban area, covering streams of both goods and persons; a system which is aimed at effective, optimal and ecological co-ordination of transportation of goods within the city, including all kinds of components: infrastructure-related, organisational, social and ecological. Concepts supporting the functioning of the city's logistic system, reducing the burden on the environment, urban traffic and its intra-urban space, will be regarded as projects covering and supporting urban logistics.

1.2. Quality management systems of the air as an assisting elements of the conception of city-logistics

Monitoring pollutants on urban areas isn't a simple matter and modeling of this type phenomena must be held with the help of conception integration: managing the movement, emission, field of the speed of air and transport of pollutants. In areas of cities systems of different type, consisting of many coexisting components, are being used for managing and monitoring of the air quality. To the most important from them it is possible to rank[7]:

- Airpollutions monitoring
- databases with sources of emission, in case of emission from mobile sources also providing the information with model about dynamics and putting the source,
- models of proliferation of air pollutants in connecting with models providing modeling with the input concentrations of pollutants,
- standards, norms of the quality of air (permissible concentrations of pollutants),

- systems of the spatial information to managing, making available, data visualizations stored and processed in the system,
- systems of communicating with the local community,
- expert modules (systems of making decision) of solutions alternative to formulating and interpreting the strategy and designing.

There is no doubt that issues of creating, holding and using integrated systems of the quality management of air in the cities are (and was) one of priority elements of European programs and subprograms, also as part of projects connected with the sustainable development of settlement individuals and networking of the cities. Definitely at creating systems of the improvement in the ambient air quality in the cities, an integration of solutions with decision support systems is one of the important components, because logistic solutions must assist the system of this type. Manners of monitoring, the quality management of air, as well as affecting its improvement can be implemented with the help of logistic solutions. Permanent height of the number of vehicles, in consequence traffic leading for increasing the concentration of vehicles in the cities influences on intensity of the quality of the local environment, release of pollutants and noise. In practice of stewarding the cities with element supporting the logistics, to the purpose among others protections of the natural environment and reducing the influence of pollutants on the quality of inhabitants life serve the quality management systems of air, taking emission into consideration from sources of the wheeled transport. In practice many referring projects of systems of monitoring and making decision came into existence for the evaluation of the environmental influence both in the noise, as well as compounds emission of harmful exhaust fumes. It is possible to tell about systems constantly monitoring the road traffic, providing input data emission models in the time moved close for real, in the destination of the evaluation on average or long-term conceptions of managing transport, from a point of view of exactly environmental pollution. To other elements assisting ordering the quality of air it is possible to rank using models of usage the transport network or more accurate models of the move, using and relying on the spatial information. The delivered and used information in the models are based for details about the traffic intensity, types of roads, speeds on individual stretches. To the most important systems, created for the purposes of the monitoring of the air quality in the cities including the estimation of the transport system and its influence on the environment, it is possible to rank: Saturn (program of creating, holding and using integrated systems of the quality management of air for urban areas), carried out as part of European program EUROTRAC- 2, HEAVEN program (movement dealing with the permanent monitoring wheeled and its influence on the quality of air), SIMTRAP system, mezomutton model of DYNEMO traffic (model of dynamics of road traffic in the road network, delivering to the information about the speed and traffic intensity), TREAMS (integrated with the system of the spatial information MapInfo), AisGIS (model for managing and monitoring of the quality of air in Danish cities, integrated with the system of geographical databases), TEMMS (enabling to shape the quality of air with taking into consideration both emission from internal-combustion engines, as well as alternative sources, in it stationary). Integration of these systems with traffic management systems can contribute for lightening the infrastructure and reducing adverse effects burden of transport.

2. Conclusion

Cities should be attractive and friendly. Functional and structural changes will be a natural stage of transformation without the destruction of cities. The regions will attract

foreign capital, and the economy will be based on modern industry and services. Only systemic solutions in the field of city-logistics may become a determinant factor of regional development. Very important for city dweller is quality of living. Air pollution can change the city areas. Implementations and integrations of modern monitoring systems and the solution of city-logistics can be a necessary element for the development of cities. We must remember that all what we do now must be (or should be) for next generation too. When we find the integrated solutions systems they making aware of the need for change and approval of projects by all beneficiaries of the urban space will contribute to the rapid and ecological development of urban centres

References

[1] See ADEN D. *Zeit für Kooperation: City-Logistik und Warenzentren*, in: R. Hossner (red.) Jahrbuch der Logistik 1995, Düsseldorf 1995, p. 61.

[2] See WAGNER Th., *City-Logistik als Teil der Supply – Chain*, Wissenschaft & Praxis, Sternenfels 2002, p. 29.

[3] SZYMCZAK M., *O istocie i funkcjach logistyki miejskiej,* in: *Współczesne kierunki rozwoju logistyki* red. nauk. E. Gołembska, PWE, Warszawa 2006, p. 73.

[4] Ibidem P. 75

[5] WITTENBRIK P., (Zauberwort) City-Logistik: Neues schönes Zauberwort, „DVZ – Deutsche Verkehrs-Zeitung" nr 17/1992, p. 7.

[6] WAGNER Th., *City-Logistik als Teil der Supply-Chain Entwicklung einer Konzeption vor dem Hintergrund infrastruktureller Veränderungen*, Diss. Verlag Wissenschaft & Praxis, Sternenfels 2002, p. 64.

[7] BRZOZOWSKA L. BRZOZOWSKI K. DRĄG Ł. *Transport drogowy a jakość powietrza atmosferycznego. Modelowanie komputerowe w mezoskali,* Wydawnictwo Komunikacji i Łączności, Warszawa 2009, s. 13-14.

Analysis of Competitions Strategies in the Services Sphere

[*]Michal Varmus
[*]University of Žilina, Faculty of Management Science and Informatics, Department of Management Theories, Univerzitná 8215/1, 010 26 Žilina, Slovakia, michal.varmus@fri.uniza.sk

Abstract. The rivalry is one of the main factors of success or unsuccessful of enterprise services. Many enterprises don‘t aware importance of analysis their rivalry. They often underestimate rivalry, what is very dangerous for their next existence on the market of services, mainly because that the market of services is very specific. The very important element of every marketing plan of enterprise services is strategy. The organization can analyze the actual competitions strategies and future competitions strategies, too. These analyses may show many things, what can help to make a decision in tough situations. This paper says about these analyses and competition strategies in the services sphere.

Keywords: Analysis, strategy, service, competition, actual, future, market.

1. Introduction

Competitive strategy analysis lies at the heart of security analysis [6]. The surest way for investors to anticipate expectations revisions is to foresee shifts in a company's competitive dynamics. Competitive strategy analysis is an essential tool to play the expectations game successfully.

2. Competition strategies

The strategy in general is concerned with how, with courses of action intended to achieve particular objectives. Corporate strategy is concerned with choices and commitments regarding markets, business and the very nature of the company itself. Competitive strategy is concerned with competitors and the basis of competition. These basic points are illustrated in Figure 1.

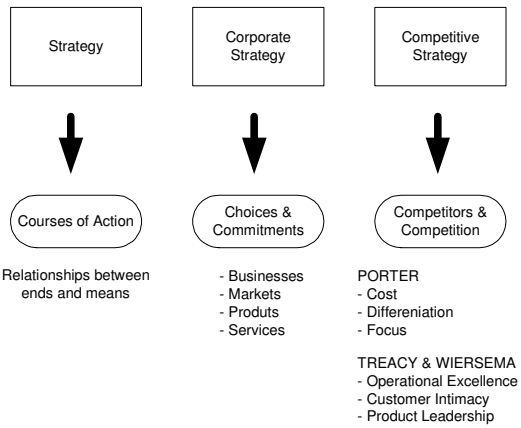


Fig. 1. Focal Points of Strategy [5]

Competitive strategy hinges on a company's capabilities, strengths, and weaknesses in relation to market characteristics and the corresponding capabilities, strengths, and weaknesses of its competitors. According to Michael Porter, a Harvard Business School professor and the reigning guru of competitive strategy, competition within an industry is driven by five basic factors:

- threat of new entrants,
- threat of substitute services,
- bargaining power of suppliers,
- bargaining power of buyers,
- rivalry among existing firms [5].

Competition strategies are standing to strategic advantage and strategic target. Relation of these both various is showed by matrix in table 1.

Strategic target	**Strategic advantage**	
	Understood unique by customer	Position implicit from low costs
Whole branch	Differentiation	Total costs primacy
Definite segment	Concentration	

Tab. 1. Competition strategies [2]

3. Analysis of actual competition strategies

The first step during analysis of competition strategies is analysis of target market. Analysis of market by competition segments can discover where the competitor is strong and where is the place for other organization. Level of competitor intensity of activity to segments can influence different factors:

- share of profits, which is generated by segment,
- the opinions of managers to possibility of market growth,
- actual level of profit and expecting level of profit in the future,
- culture management.

The definition of the core of their strategy is the second step of analysis. The main aim of this step is discovering the key factor of win. It is the base for positioning. The next step is analyzing of marketing mix of competitor.

Analyzing of technologies strategies are very important. There are the most important phenomena:

- technologies specializations,
- level of master of technologies,
- time factor,
- sources and abilities manage new technology,
- standard of investment to science and research,
- organizing of science and research in enterprise in relation to other institutions,
- time factor in relation to individual technologies sections.

Analysis of actual competition strategies is important for preparation of basic materials to assessment of their future strategies.

4. Analysis of future competition strategies

The main aim of analysis of future competition strategies is development of competitor profile of character and probable strategies changes which can happen. Organization finds out an answer to question: What competitor wants to do in the future? The competitors don't show publicly their plan of strategy, so some data is possible estimated from analyses of actual and historical strategies.

This analysis of future competition strategies is very precious starting point for prognoses of organization steps in the future. It summaries information about probably steps of competitors and their ability to respond to changes on the market.

One of the ways how to recognize competitor plans is provocation. If is less competitors on the market, the method of game-theory and decision tree can be used to recognize their future strategies plans. The aim point is making profile of character and probabilistic successful strategies changes, what every competitor can do.

Mr. Kotler defined four basic types of competitor in dependence on their reaction:

Slow competitor: they don't react sufficiently quickly and they are not adaptable for market changes. In their opinion, customers are loyal, slowly responsive to change of situations. They expect that the customers have less of sources to react to market change. Organization must analyze reasons of late reaction of competition.

Selective competitor: they react on some impulses of market to signal useless steps of another competitor. The competitor does not react to other impulses (for example: growing of promotion activity). When is analyzed this competitor, the organization focuses on identification of impulses at what the competitor reacts and what is the reaction.

Offensive competitor: they react very energize to every attack of their market from other competitor. They do the best for impossible enter to their market for competitor. They sometimes warn competitor and they are prepared to fight to the end.

Stochastic competitor: they don't react systematically, often ad hoc. Their reaction is incalculable.

5. Conclusion

The services market is special and often changeable. If the organization wants to be successful on the services market, it is very necessary to know the competitors and segments, which are affected by competitors. The most important advantage of every organization is if they know plans and strategies of competitors. It is necessary to make analysis competitive strategies if the organization wants to know answers to questions: Against whom we should start fight? What does the strategy step mean for concurrent? Is it serious step? What should I do to competitor doesn't react emotional or desperately?

References

[1] ĎAĎO, J., PETROVIČOVÁ J., KOSTKOVÁ M. *Marketing služieb*. 1st. ed. Bratislava: EPOS, 2005.

[2] MATEIDES, A., ĎAĎO, J. *Služby*. Bratislava: EPOS, 2002.

[3] DUDINSKÁ, E., BUDAJOVÁ, G., BUDAJ, P. *Analýzy v marketingovom plánovaní*. Poprad: Vydavateľstvo Michal Vaška, 2006.

[4] KOTLER, P., WONG, V., SAUNDERS, J. ARMSTRONG, G. *Moderní marketing*. Praha: Grada Publishing, a.s., 2007.

[5] KUBINA, M., LENDEL,V. *Hľadanie synergie medzi manažmentom a marketingom v podniku*,: (trendy rozvoje vzdělávaní, vědy a praxe), Univerzita Tomáše Bati ve Zlíně, Fakulta managementu a ekonomiky, November 2007, 8 str. na CD zborniku, ISBN 978-80-7318-646-3

[6] *Three Forms of Strategy* dostupné na internete: http://home.att.net/~nickols/strategy_forms.htm

[7] *Analyzing Competitive Strategy* dostupné na internete: http://www.expectationsinvesting.com/chapter4.shtml

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Agroterrorism and Its Effects on Economics

[*]Hana Vlachová
[*]University of Defence, Faculty of Economics and Management, Department of Logistics, Kounicova 65, 612 00 Brno, Czech Republic, Hana.Vlachova@unob.cz

Abstract. The paper deals with the agroterroristic attack with using the foot-and-mouth disease virus and its effects on the state economics. There are several economic effects of this kind of attacks. Farmers lose profit, they have to let kill their herds. But there are also impacts on tourism, export and textile industry.

Keywords: Agroterrorism, foot-and-mouth disease, economic effects

1. Introduction

People usually consider terrorism as violence against human beings because of political goals. When they hear the word terrorism they imagine attack with weapons, explosions, hijacking or for example suicide black widow. But livestock and crops also can become targets of terrorist attacks. Attack against crops, livestock or water supplies is called agricultural terrorism or agroterrorism and can be recognize as a special kind of biological terrorism. It is quite cheap and effective method how to destabilize national economy and political system and also effective way for spreading panic [1].

Agroterrorism is closely connected to other type of terrorism called food terrorism. World Health Organization defines food terrorism as "an act or threat of deliberate contamination of food for human consumption with biological, chemical and physical agents or radioactive materials for the purpose of causing injury or death to civilian populations and/or disrupting social, economic or political stability" [2]. And also agroterrorism is related to ecoterrorism. Ecoterrorism can have two main meanings. The first ecoterrorism can be violence or threat of violence against civilians or state institutions in order to coerce the government or state institution to do what terrorists require for the sake of the environment. The second ecoterrorism can be violence or threat of violence against the environment in order to achieving political goals [3]. The connection between agroterrorism and ecoterrorism is damage of part of the environment.

2. History of Biological Warfare

Probably the first documented use of biological warfare dates back to the 14th century BC to Hittite's war against Arzawans. This supposition is based on the correspondence from Egyptian royal Archives. There was a deadly epidemic known as the Hittite plague in the Middle East in the end of the 14th century BC. The symptoms point at bacteria Francisella tularensis, the etiological agent of tularemia. It is possible that Hittites intentionally used tularemia as a weapon when sent rams and women attending the animals on the road to spread the disease [4].

Anti-animal and anti-plant biological warfare has been an important component of many state warfare programs. The first contemporary use of agricultural biological warfare occurred

during the World War I. when Germans contaminated draft animals, military cavalry and food animals with anthrax and glanders to break Allied transportation and supply lines. During the World War II Germans used potato beetles and experimented on foot-and-mouth disease, turnip weevils, turnip bugs, antler moths, potato stalk rot and potato tuber decay. Japanese explored the effects of fungi, bacteria and nematodes on crops. They reportedly spread anthrax and glanders. The United States developed several anti-animal and anti-plant biological warfare agents including wheat stem rust, rice blast fungus and rinderpest. The former Soviet Union probably had the most innovative and large-scale anti-crop and anti-animal biological warfare programs. Soviets experimented on foot-and-mouth disease, rinderpest, African swine fever, vesicular stomatitis virus, contagious bovine pleuropneunomia, mutants of avian influenza and contagious ecthyma of sheep. On the anti-plant side they experimented on wheat and barley mosaic streak viruses, potato virus, tobacco mosaic virus, brown grass mosaic virus, wheat fungal and brown leaf rust [5].

3. Foot-and-mouth Disease As a Weapon

Foot-and-mouth disease (FMD) is a viral disease which attacks domesticated and wild cloven-hoofed animals. It causes vesicles in and around the mouth and on the feet. FMD virus is extremely contagious. That comes out by the high virus concentrations that are excreted, the low dose required for infection, and the multiplicity of transmission routes. Infected animals excrete FMD virus in their saliva, blood, semen, breath, feces, urine, milk and other bodily fluids and tissues. FMD virus can spread by direct contact between infected and susceptible animals, by animal products such as milk and meat, by the airborne route and mechanical transfer on people, wild animals and by vehicles [6].

FMD virus is possible weapon for agroterrorists. That kind of attack is unobtrusive when it is carrying out but it can cause extensive damage. FMD does not harm humans and does not kill adult animals, but it diminishes their economic value. Cattle lose even half of their milk production following the infection and put on insufficient weight. It is more economical for farmers to kill the animals than to keep them. Vaccination is not a solution to contain the spread of FMD because the standard test accepted by the relevant authorities looks for antibodies against FMD as a sign of infection, but these are the same antibodies that vaccination produces. Immunized animals can not be exported [7]. That causes another damage of economics.

4. SWOT Analysis of Agroterrorism

Agroterrorists can choose from many kinds of biological agents and from many ways of carrying out the attack. SWOT analysis explains why attack with use of FMD could be advantageous for them.

Strengths	**Weaknesses**
▪ require minimal initial effort ▪ attack is relatively simple to carry out ▪ source materials are relatively easy to get ▪ very little agent is needed because of infectiousness ▪ directions for finding and culturing can be found on the Internet and in readily available scientific books ▪ special laboratory facilities is readily available in specialized shops ▪ agents can be prepare during very short time	▪ terrorist can infect himself by mistake ▪ at least basic knowledge of biology would be helpful

(hours or days)	
Opportunities ▪ can cause wide damage the state economy ▪ has big psychological effect ▪ agriculture infrastructure is unprotected and vulnerable to unanticipated terrorist attack ▪ poorly detectable aggressor	**Threats** ▪ authorities pay bigger attention to threat of agroterrorism now ▪ security forces can monitor suspected persons and their activities

Tab. 1. SWOT analysis of agroterrorist attack with use of foot-and-mouth disease virus.

From the Tab. 1 it is obvious that agroterrorist attack with use FMD is easy to carry out. It does not require demanding equipment, knowledge or skills but its consequences can be very devastating.

5. Possible Impacts of Agroterrorism on Economics

For finding potential effects of agroterrorist attack with use of FMD can be considered consequences of foot-and-mouth disease epidemic in the Great Britain in 2001. In virtue of the epidemic American experts estimate that this kind of attack against the American livestock industry could cost up to $60 milliard [8].

During the epidemic not just agriculture was affected by FMD. Textile industry was hit by government regulations for suppressing the epidemic. Now some products, especially commodities based on wool, need special certificate which prove that the product was treated with chemicals to be exported outside the European Union. The chemicals are used to kill virus possibly hidden in fibers. There were some firms which lost their business because of long process of certification [9].

Chemical industry producing citric acid which found itself in price erosion for several years got short-term profit from the epidemic of FMD. Biocides have corrosive effects and may cause respiratory irritation. Citric acid showed itself as a safe and inexpensive disinfectant against the disease which is very sensitive against low pH values [10].

The tourism also noted impact of the disease. The movement of people was restricted in effected areas. Hotels, restaurants, souvenir shops, tour operators and guides lost over £1 billion [11].

Very similar consequences of FMD disease outbreak could be expected in case of terrorist attack with use of this virus. If the Czech Republic is hit by this kind of terrorist attack, economic damage would includes losses from prohibition of export of livestock and prohibition of export of other livestock production commodities, losses from slaughtering animals, losses of tourism and also losses in other industrial branches connected to livestock production (food processing industry, shoe manufacturing industry etc.). Slaughtering of animals would also negatively affect producers of fodder and medical products for animals.

Export 2008 (CZK million)	**2007**	**2008**
Live animals	4 228	5 018
Meat and meat preparations	5 113	6 291
Dairy products and eggs	15 448	14 504
Miscellaneous edible products and preparations	8 544	9 099
Hides, skins and furskins, raw	1 034	910
Crude animal and vegetable materials	1 952	2 344
Animal oils and fats	92	136
Leather, leather manufactures and dressed furskins	1 633	1 881

Total	38 044	40 183

Tab. 1. Export of agricultural commodities in 2008. [12]

Livestock in the Czech Republic at 1.4.2008 (heads)	**2007**	**2008**
Cattle	1 391 393	1 401 607
Pigs	2 830 415	2 432 984
Sheep	168 910	183 618
Goats	16 222	16 627

Tab. 2. Livestock in the Czech Republic [13]

Income from export of livestock production exceeded 40 milliard CZK in 2008. There were 4 034 836 heads of livestock (cattle, pigs, sheep and goats) which could be infected with FMD. It is obvious that economical damage would be in tens of milliard CZK. Private farmers are insured for the case of FMD epidemic and elaborate obligatory epidemic crisis plans. But mostly they do not pay sufficient attention to the possibility of agroterrorism because they think that its probability is practically zero.

6. Conclusion

Agroterrorist attack is considerably easy to carry out and it does not require demanding equipment. Although it is very simple its consequences and caused damage could be far reaching. Not just agriculture would be damage but also other parts of national economy. The attack would forbid export of livestock and livestock production commodities and it would negatively affect many industrial branches. Czech farmers perform obligatory orders but do not concern themselves in agroterrorism. This fact could increase the probability that terrorists would choose just this kind of attack. It would be very effective also due to panic and wide psychological effect.

References

[1] POLYAK, M. G. *The threat of agroterrorism: Economics of bioterrorism.* Georgetown Journal of International Affairs Vol. 2004, Is. 5.2

[2] World Health Organization. *Terrorist Threats to Food Guidance for Establishing and Strengthening Prevention and Response Systems*. Food Safety Issue. Geneva, 2004.

[3] MAREŠ, M. *Ekoterorismus v České republice*. Rexter. 2004, Vol. 2004, Is. 1.

[4] Trevisanato, S.I. *The 'Hittite plague', an epidemic of tularemia and the first record of biological warfare.* Medical Hypotheses, Vol. 2007, Is.69.

[5] BAN, J. *Agricultural biological warfare: An overview*. The Chemical and Biological Arms Control Institute, 2000.

[6] Schijven, J., Rijs G. B. J., Roda Husman A.M. de. *Quantitative risk assessment of FMD virus transmission via water.* Risk Analysis, Vol. 25, No. 1, 2005.

[7] OECD. *The foot-and-mouth crisis.* OECD: Economic Surveys: United Kingdom, 2002.

[8] U.S. Department of Justice. *Agroterrorism - Why We're Not Ready: A Look at the Role of Law Enforcement*.

[9] OWEN, P. *U.K. textiles hit by disease rules.* Textile World. 2001

[10] Jarvis L. *Weakened citric acid market benefits from foot-and-mouth.* Chemical Market Reporter. May 7, 2001.

[11] *Foot and mouth crisis slaughters rural tourism industry across UK.* Financial Management, April 2001

[12] Czech Statistical Office. *External Trade by SITC, Rev. 4, 2-digit codes, January - December 2008.* Prague: 2009.

[13] Czech Statistical Office. *Livestock: as at 1.4.2007 and 1.4.2008.* Prague: 2009.

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Smaller municipalities of Czech Republic and their assessment – intermediate research study output

[*]Martin Vojvodík, [**]Barbara Vojvodíková
*ATACO s.r.o Lešetínská 676, Ostrava - Kunčice, 707 00, Czech republi,{martin.vojvodik}@ataco.cz
**ATACO s.r.o Lešetínská 676, Ostrava - Kunčice, 707 00, Czech republic,
{barbara.vojvodikova}@ataco.cz

Abstract. Municipalities in Czech Republic have to deal with various problems. These problems regard demographic structure, unemployment or lack of funding. The development is not homogenous. Even inside regions or localities we can find major differences which we call disparities. This paper presents progress of research study " The assessment model for adjudication of regional disparities and the methodical procedure of its use" WD-41-07-1 which is being solved as a part of "Research on regional disparities" program of the Ministry for regional development of Czech Republic. The grant receiver is software developer company ATACO s.r.o. based in Ostrava The paper briefly describes used methods and selected steps of step-by-step analysis used to divide municipalities to progressive and stagnating what is fundamental indicator for later analysis of individual disparities. These are basis of the final model.

Keywords: regional disparity, rural development, investment, assessment model.

1. Introduction

Regional or inter-regional disparity is understood as a inequality, variance or difference in either development and state in the specific time. Differences detected by statistical procedures have their conditions and their causes. It might be assumed that municipalities which have roughly the same conditions – location, population, demographic structure – would develop in time comparably. Yet they could not. Analysis of factors which cause differences in municipalities' development is the subject of our research study.

The aim of the project is searching and classification of disparities which influenced development of individual municipalities and caused that municipality was in the course of the last 20 years determined as progressive or stagnating. Facts found will be put into a software tool which should help with preparation of long-term plans. The project is focused on municipalities with population of 500-3000. There are more than 2.000 such municipalities in Czech Republic's territory which represents 1/3 of all municipalities.

2. Solution - methods

The project was started on April 1st 2007 and shall be finished by March 31st 2010. These days we are in the stage of step-by-step analysis of data gathered about sample municipalities. Project's database contains wide spectrum of information which describe development of sample municipalities since year 1991 till year 2006 (some data even 2007). It

was intended to choose sample municipalities which would represent as wide range of development conditions as possible.

As our major aim – designing model for disparities assessment – was targeted at small municipalities we have chosen range of 500 to 3000 inhabitants. This range includes 2181 municipalities with total population of 2,378,863 (Czech Statistical Office (CSO) data for 1.1.2007) which represents about 23% of 10,196,838 inhabitants of Czech Republic. As mentioned before these municipalities occupy 45 % of Czech Republic's area.

2.1. Inquiry preparation

The second sub-objective was to create inquiry structure and methods. In the first step the base groups of required information were identified. Then individual questions were formulated. The inquiry underwent thorough testing on selected municipalities. Questions were modified and refined. However now, after inquiry was conceived, it has to be said that some questions had not fulfilled our expectations because of unavailability of such data or on the other hand omitting information which turned out to be useful.

2.2. Data acquisition

We had contacted regional branches of CSO with plea to give us available data for our inquiry from their databases. There were no problems with getting data from MOS (Municipal statistics). We gained electronic versions of data (Excel sheets). Gathering results of census in 1991 was a bit more complicated. According to survey we had made among mayors of municipalities selected for testing inquiry, mayors didn't like to co-operate if they are asked to fill out a questionnaire by themselves. On the other hand they express their wish to co-operate if they are visited in their office and asked in an interview. We had estimated that using personal interviews we can get information from 50-60% of municipalities which with 213 selected municipalities will result sample of slightly more than 100 what was our intended amount. In the end we visited and inquired 165 municipalities.

2.3. Database population

Data acquisition, inquiries and municipality visits had connection with building electronic database. Logical design of database was based on inquiry structure were we tried to define as accurate data types as possible in order to allow effective querying of the data in the latter phases of the project. Physically the database resides on a company's database server running on Oracle 10g database. Simple web (interned) application was considered to be the most safe and efficient method of remote and concurrent access to data input and viewing by individual team members. Application was created and run on J2EE platform using jBoss application server.

3. Step by step data analysis – preparing appraisal model foundation

The work on the 4th sub-objective, whose output shall be the appraisal model, started at the beginning of November 2008. The first step in projecting appraisal model is the analysis of gathered data. The analysis began by dividing municipalities to "progressive" and "stagnating" which was primary step for analysis of individual disparities. The distribution of municipalities into progressive and stagnating was made on the basis of two groups of indicators – indicators related to population and indicators related to the economic state.

3.1. Population indicators

Population increase: Indicator "population increase percentage" was the first indicator taken into account. It was tested in a few regions and we came to conclusion that using only this indicator leads to fairly inaccurate results. In the next step population increase trends were compared to trends in the whole district. Correlation coefficient was used to test dependence in population increase between municipality and district. Unfortunately, in the whole timescale since 1993 till 2006 no relation was found (years 1991 and 1992 were considerably biased by merging and dividing of municipalities and so they were not used for calculation). Some correlations appear in shorter intervals – about 5 years – these intervals will be subjects of further analysis. In order to keep link to district the indicator of average difference in population increase between municipality and district in years 1993-2006 was created and used.

Migration: Indicator "migration" was chosen to get better description of population increase or decrease. From the perspective of potential to be changed the migration indicator was preferred to natural population growth. After some tests were done the indicator of average difference in migration between municipality and district in years 1993-2006 was chosen.

Unemployment rate: Unemployment and its development represent a good indicator of shape of industry or services in the municipality and its neighborhood. Even clearer picture we can get combining it with commuting into work. For determination of progressive municipalities we have chosen indicator difference in average unemployment rate in years 2001-2006 between a municipality and its district (year-by-year progress in a municipality and a district had not showed any provable correlation using correlation coefficient). Shorter time interval was used because of relevant data concerning years before 2001 were not available for the most of the municipalities.

Commuting to work outside the municipality: It was not easy to gather data about commuting to work and unfortunately we didn't succeed to get data from 1991 for all municipalities. We based our work on data from Population and Housing Census 1991 and 2001, which Czech Statistical Office issued as a standalone publications regarding commuting to work from individual municipalities. We were provided with electronic (PDF) versions or printouts. For purpose of initial division of municipalities we decided to use indicator percentage of population commuting to work out of total economically active population (unemployed not counted) in years 1991 and 2001.

Demographic structure: Indicator "percentage of individual groups for available years related to republic's average" was chosen do take into consideration proportion of children and young people to senior people. Once again we used correlation coefficients to test values of individual municipalities against values of Czech Republic and it was discovered that while the first two groups have similar development, the seniors group development is quite different. This fact requires further analysis and thus was for the moment discarded from consideration.

3.2. Economic state indicators

Municipality's assets: Municipality's assets is one of the most important indicators of the municipality management, its potential and strategies. In the first place we analyzed active capital and then foreign sources. These indicators' progress was considered in years 2000-2006 as publicly available ARISWeb contains full set of data for this range. Older data gathered from some municipalities will also be used in future processing. Active capital proved to be very suitable and so for preliminary division we decided to use "average annual increase per capita" indicator. Foreign sources on the other hand seemed misleading for the purpose of preliminary distribution as any aggregation lead to non-consistent results.

Budget: Another important indicator of municipality prosperity is its budget. In the first proposal we considered 5 indicators:

Subsidy per capita. After we applied this indicator it turned out that more accurate analysis of income will be necessary as municipalities with huge income from other sources thus fell into stagnating group. That's why this indicator was discarded from the preliminary distribution and will be applied in the later - more precise - analysis. For first phase we decided to use total income per capita indicator for years 1997-2007. Indicator total income per hectare was postponed for later analysis.From spending side we choose capital spending per capita also for years 1997-2007. Ratio for hectare was again postponed for later analysis.

4. Assessments

From the inhabitants indicators perspective 51 municipalities were determined as progressive, 62 as stagnating and 34 municipalities had some indicators positive while other negative (municipalities with at least one positive indicator were taken into account). The rest of municipalities were marked as neutral. From economic indicators perspective 57 municipalities were determined as progressive, 60 as stagnating and 14 municipalities had some indicators positive while other negative. The rest of municipalities were marked as neutral. The total of 30 municipalities had equal classification in inhabitants and economic perspectives.

5. Conclusion

There is probably no all-embracing answer to the question „Which disparities influence development of smaller municipalities?" However in the consequent analysis we will key-out those disparities which influence on development is strongest. We already know that some disparities cannot be impacted by municipality administration. Some others have capacity to be shaped through certain mechanisms. Usually it requires combination of various factors and circumstances. It is also already noticeable that effects would differ among regions. Our aim is to put all this information into the appraisal model that shall be the output of this research study.

Acknowledgement

The assessment model will be prepared and applied thanks to the research subsidy by the Ministry for Regional Development of Czech Republic – subsidy number WD-41-07-1 "The assessment model for adjudication of regional disparities and the methodical procedure of its use."

References

[1] BÍNA, J. *Regionální vyhodnocení stavu a trendů ekonomické skladby obyvatel České republiky*, Spisy Zeměpisného sdružení, číslo 10

[2] ČESKÝ STATISTICKÝ ÚŘAD *Statistický lexikon obcí České republiky 2005.* Ottovo nakladatelství s.r.o., Praha, 2005

[3] ČESKÝ STATISTICKÝ ÚŘAD *Dojížďka do zaměstnání a škol,* Praha, 2005

[4] KUTA, V., et al *Metody průzkumu a hodnocení ploch. Sub-objective 2: Research on industrial areas regeneration methods*, pp.3-15, Ostrava, 1998

[5] PŘÍBOVÁ, J a kol. *Marketingový výzkum v praxi.* Grada publishing, 1996

[6] ŘÍHA, J. *Hodnocení vlivu investic na životní prostředí : multi - kriteriální analýza.* Academia, Praha 1995

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Decentralization Process in Polish Public Sector and the Effectiveness of Public Entities– Selected Aspects

[*]Magdalena Ziolo
[*]University of Szczecin, Faculty of Management and Economics of Services, Department of Public Finance, Cukrowa 8, 71-004 Szczecin, Poland {magdalena.ziolo}@wzieu.pl

Abstract: The Polish public sector has been changed since 1989. The most important reform of that sector began when Poland enacted new legal regulations for territorial divide. The crucial moment for the Public Administration Reform Program in Poland was the decision regarding restoration of self-government structures with local and regional administration.

Keywords: Public sector, decentralization, self-government entities, public finance, effectiveness.

1. Introduction

The decentralization process in Poland includes decentralization of public functions and tasks, decentralization of public revenues (distinction between central and local sources of taxes and fees) and expenditures as well as decentralization of administrative structure (local and central agencies and departments). The restoration of self-government in Poland in 1990 started long-term process of reforms of Polish public sector.

The article presents theoretical background of decentralization and makes the connection between decentralization and effectiveness.

2. Decentralization Process – Key Questions and Core Issues

According to the one of the most commonly quoted definition of decentralization, decentralization is a process of dispersing decision-making governance closer to the people or citizen. E. Ruskowski distinguishes between two basic types of decentralization, which are classed as static and dynamic decentralization forms [1]. The first one describes decentralization as providing the lower levels of government with tasks and sources needed to their execution. The second, dynamic approach viewed decentralization as transferring power and resources from central government to the lower self-government level. According to the definition derived from Furniss decentralization is considered as [2]:

- transferring administrative functions and authorities to lower levels in organizational hierarchy of the state;
- creating legislative units of smaller size;
- shifting responsibilities to sub-national legislative bodies;
- controlling productive enterprises economically by dwellers.

Decentralization has three major dimensions: administrative, political and economic. Administrative decentralization transferred power to the local government levels parallely with more managerial discretion but not always with financial authority [3]. Local government remains as subordinate part of the central government. On the contrary, political decentralization implies that power is shifted to democratically elected self-government

entities. In that case local government is placed on the same position as central government and its financial independence is increased.

Financial decentralization is the right of local authorities to accomplish taxation, expenditure and regulation functions [4]. The fiscal decentralization concerns devolution proceeding fiscal resources and revenue generating powers between central and local authorities [5]. The key components of fiscal decentralization are [6]:

- empowering the local self-governments to establish local taxes;
- authorizing the local self-governments to collect local charges;
- establishing a development fund managed by the local self-governments;
- strengthening the accountancy and audit systems managed by the local self-governments;
- establishing program based on budgeting for local governments.

The decentralization as an economic process could be measured, however it requires some effort and time. Most of the analysis adopted fiscal indicators of decentralization for that purpose [7]. Fiscal indicators concern distribution of fiscal activities between the state and local government. Previously there were five fiscal indicators of decentralization: financial responsibilities (dividing tasks), state involvement in local affairs, state delivery of functions, local dependency of state funds, local revenues and expenditures (Tab. 1).

Measure	Description
Financial Responsibilities	Proportion of state-local revenue from the state Proportion of total state and local general expenditures from own revenue sources financed by the state
State Involvement in Local Affairs	Proportion of the state budget transferred to the local government
State Delivery of Functions	Proportion of total state-local general expenditure by the state
Local Dependency of State Funds	Proportion of local general revenue provided by central government
Local Expenditures and Revenues	Percentage of school expenditures financed by state from own resources Percentage of total public welfare expenditures by each state and local governments
Oates Centralization Ratio	The state share of state-local general revenues The state share of state-local total expenditures

Tab. 1. The selected measures of decentralization.

Indicators, mentioned above reflect a degree of financial autonomy of local authorities. The conclusion is that, the greater expenditures of the state are invested at the local government level and the greater local reliance on central funds, the higher governmental centralization.

3. Linkages between Decentralization and Effectiveness of Public Agencies

Functional models of the contemporary states reflect different opinions and approaches to the question: what kind of roles and functions should be fulfilled by the states all over the world [5]. The scope of interaction, tasks and duties, which are typical domains of the nowadays states, have been improved and evaluated since the primary cities and towns were established. The first states were organized as a centralized structures (integrationist model) with central legislation and subordinated public agencies and legal bodies. The integrationist model puts down an importance for acceptance of the national minimum, provided by the local self-government services and maintaining equality in local tax burdens among local self-governments. In consequence this model strongly emphasizes the role of the central government in determining the national minimum standard, keeping a rein over local self-

governments, so that this standard is maintained and, when necessary, provides financial assistance for the local self-governments [8]. For instance, countries in Africa and Asia initially agreed for centrally managed state systems in order to speed up their development process. Likewise, in Latin America, particularly under the military regimes, nations were organized in such a way that the power resided at the centre [9]. The characteristic mark of the centralized states are financial burden, which are much greater than in common, decentralized states. The public sector in the centralized countries is usually ineffective because of plethora of functions and dispersed responsibility for the public tasks. The operating expenditures of the centralized states increase systematically without professional, public management and economic reforms. The fiscal burden and the fiscal price are also higher in this situation and citizens are obligated to pay more for the same quality of public goods and services.

The compound of factors such as: economic crises, growing political awareness among citizens, radical and rapid changes in economic environment, globalization and integration process of global economy, have influenced attitudes of politicians and institutions such as World Bank to open up the way for some forms of decentralization and democratization, which are recognized as the right way in reform process [9]. The Word Bank promoted economic reform focused on sustainable development of global economy (especially developing countries) since the late 1970s. The enhancement of effectiveness of public sector entities could be done with support of public marketing and public sector management. The market mechanism and competitiveness are two major factors which determined public sector quality and efficiency. Those items could be achieved in the condition of decentralized economy [8]. The decentralization process (separationist model of the state) is one of the cluster of factors which impact on intrasector competition in the long period of time. This model of the state places strong emphasis on competition among local governments based on the notion of voting with one's feet [8]. The competitiveness in the public sector influences on the shape of public administration, which could be diminish with use of lean management methods. Theoretically decentralization, should have positive impact on effectiveness of public services [10].

4. Decentralization Process in Poland

The Polish public sector was centralized till 1989. Devolution in Poland began in 1990 when the first local government entities (municipalities) were restored. The most effective allocation of public sources requires efficient public finance system. This system should guarantee delivery of public goods and services to the citizens (customers) timely, so that the local demand could be met at the right quantity and quality. Both theory and practice confirm that spending public money and allocation other public resources depends on division of power and responsibility between local and central government [1]. The closer to the local society the authority is, the more effective spending public funds. The decentralization of Polish public sector is a long term process consists of three major reforms in scope: public finance (revenues and expenditures) and monetary system, public administration, sharing of competence between local and state bodies.

The transferring of public task to the local government level required many changes of Polish law including the Constitution, which was adopted in 1997. After long time of preparation Polish legal framework has been coherent since 1997. Before this period of time power sharing in Poland was regulated by the constitutional law of 1992 based on many unsystematised acts and regulations. The new Constitution includes one chapter devoted to local government affairs [11].

The common hierarchy of tasks and responsibilities in Poland is based on three tiers of local government (municipalities, poviats and voivodships), which are subordinated to the state. The state authorities are active at the central tier and local governments usually are responsible for the regional and local affairs. The state provides public services in such fields as: state defense and national security, police and intrastate safety (partly), central administration, justice and judiciary, diplomacy, health care, education, system of social insurance, central banking, fiscal policy, others. On the contrary, the self-government's domain are: providing drinking water, keeping the area clean, maintaining local and regional roads, public transport, provision of education and health services at the local level, spatial planning and others. The public sector entities provide all of these services with support of own and central sources of revenues.

Carrying out projections aforesaid regulations on the territorial self-government in Poland necessary to ascertain, that decentralization process comprised only the law for keeping the financial economy of the territorial self-governmental units based on its own budget. Remaining categories of laws had not been fully decentralized. The local and regional finance structure do not satisfy art. 9 passage 3 of the European Card of Territorial Self-government.

5. Conclusion

The packages of reform in Polish public sector have brought many challenges and changes not only for central government but also for local government entities. Before the reform, Polish state disposed the centralized system of public administration and public finance. At present, public sector in Poland is limited and responsibilities for fulfilling public tasks are also a part of the activity of local and regional government. There are still many unsolved problems, which impact on public sector effectiveness and fiscal burdens.

References

[1] RUŚKOWSKI, E. *Finanse lokalne w dobie akcesji*. ABC, Warszawa 2004

[2] FURNISS, NORMAN. *The practical significance of decentralization*. The Journal of Politics 36, (4) November, 1974

[3] CHOJNA-DUCH, E. *Ustawa o dochodach jednostek samorządu terytorialnego – po roku obowiązywania*. „Samorząd Terytorialny" 2005, no. 9

[4] GAIDARDJIEVA, V., Kostom, G. *Financial aspects of the activities in municipalities during the period of decentralization and eurointegration.* Department of Management, Faculty of Agriculture, Trakia University, Case Report 2003, ISSN 1312-1723

[5] FUKUYAMA, F. *Budowanie państwa. Władza i ład międzynarodowy w XXI wieku*. REBIS, Poznań 2005

[6] *Fiscal and financial decentralization policy.* Republic of Rwanda Ministry of Local Government & Social Affairs and Ministry of Finance & Economic Planning 2002

[7] Arrowsmith, J., Sisson K. *Decentralization in the Public Sector. The Case of the U.K. Health Service.* RI/IR vol.. 57, no 2, 2002

[8] BARRETT, B.F.D. *Decentralization in Japan. Negotiating the Transfer of Authority*. University of Advanced Studies, Japan, vol. 20, no. 1, 2000

[9] http://www.kit.nl/frameset.asp?/specials/html/de_decentralization_in_brief.asp&frnr=1&

[10] JÜTTING, J., CORSI, E., STOCKMAYER, A. *Decentralisation and poverty reduction*. OECD Development Centre, Policy Insight, no. 5, 2000

[11] MACKIEWICZ M., MALINOWSKA E., MISIĄG W., NIEDZIELSKI A., TOMALAK M. *Public finance in Poland 1989-2001. Case study of transformation*. IBnGR, Chapter 5

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

The Phenomenon of Flypaper Effect and its Determinants with Particular Stress on the Political Aspect

[*]Magdalena Ziolo
[*]University of Szczecin, Faculty of Management and Economics of Services, Department of Public Finance, Cukrowa 8, 71-004 Szczecin, Poland {magdalena.ziolo}@wzieu.pl

Abstract: The article has probed the flypaper effect phenomenon. Political strength as one of the significant factors determining flypaper effect has also been considered. The correlation between the structure of financing of public tasks and increasing amount of public spending is the main field of theoretical considerations. The significant item is the connection between grants and public expenditures which might be stimulated by grants.

Keywords: Grants, public sector, state, fiscal illusion, financing of public tasks, political strength, structure of financing, expenditures.

1. Introduction

Directions, structure and size of allocation of public expenditures are issues that have always remained under considerable discussion as relates to the expenditure policy of modern states. Rational spending of public sources is connected with the necessity to diagnose the dysfunctions and variables influencing the financial spending.

One of the factors that exerts significant influence on the amount of public expenditures is the type and availability of financing sources. In a particular way this relates to grants which are received by the entities of the public sector.

The aim of the article is to present the mechanism of the flypaper effect and causes of its emergence.

2. Flypaper Effect - Theoretical Background

In the point of view of the subsidized subject, the grants are a selective form of financial support and an expression of national interventionism. In this view the grant is a form of provision (source) with financial means and functions as a non-returnable financial aid in order to support given activity [1]. As art. 167 act 2 of the basic law and art. 3 act 1 point 3 of the act issued on 13th November 2003 on the revenue of local government units a grant-in aid (apart from own revenues and the general subvention) is the revenue of a local government entities and is a source co-financing its expenditures [2]. The grants are a type of budget transfer performed as a result of redistribution of public sources and can be of conditional or unconditional (general) nature. A detailed classification of grants according to their four basic groups is included in the act issued on 30th June 2005 concerning public finances.

The previously realized theoretic analyzes and empirical research show that the grants (treated as a financing source) have greater influence on the increase in the amount of public expenditures realized by the subsidized units than in case of other sources of financing. Simple theoretical models (inter alia the theory of the median voter) do not confirm existence of such

dependence but it is documented in an empiric way. The differences in theoretic and empirical view result in, inter alia [3]:

- occurrence of the phenomenon of fiscal illusion;
- local decision-maker's aiming at maximization of the budget, unaccompanied by any reliable informing campaign designed for the citizens (the citizens are unaware of the existing budget limitations);
- greater inclination to spend the subsidy assets in conditions when the national and local budget tax charges are relatively high;
- occurrence of external factors influencing the decisions related to the amount of public expenses (activity of interest or pressure groups, particular interests of political parties);
- the fact that subsidies are dependant (requiring e.x co-financing from own assets) stimulates spending local budget assets in a greater extent than unconditional subsidies (those that do not require co-financing).

The practical experiences show that presence of subsidies in the structure of financing sources of the subsidized unit, result in greater increase of its budget expenditures than if its own revenues were to be used for financing of the public expenses [4]. This effect is named *flypaper effect* [5]. The reasons for occurrence of this phenomenon are interpreted in a variety of ways, depending on the theory [6].

The neoclassical models of authority assume that the electorate (local community) has complete information on the existing budget limitations at its disposal, whereas the local authorities represented by the centralized political option realizing policy adjusted to preferences put forward by the *decisive voter* [7]. In such a view the *flypaper effect* phenomenon is of neutral nature. Regardless of the financing structure and the inclusion of subsidies in the income structure, the influence on the scope of public expenses will not be noticed.

The alternative theory shows that the voters act in the conditions of inaccurate information and that they are not aware of the existence of budget limitations. The lack of voters' awareness on, inter alia, the value, structure and type of the granted and (or) subsidies used by the authorities results in under-calculation of the price of public services and the growing demand on spending the public means. The citizens approve eagerly of the increased asset spending in the form of subsidies as they falsely perceive it as an additional financing for which they will not have to pay or will not have to participate in the costs connected with obtaining it.

A different approach of the local community relates to financing the expenditures from own revenue [8]. The citizens spot the relationship between the growing level of budget expenditures and the increase of budget burdens (increase in taxes and local charges). After all they are obliged to directly participate in financing of the increase of budget expenditures, and therefore their inclination and approval of spending additional public sources is limited.

The *flypaper effect* phenomenon is often treated as a kind of *fiscal illusion*. Fiscal illusion is the consequence of systematic, different way of perception of fiscal parameters by the electors resulting from imprecise information they have at their disposal and from the basis on which they form their conclusions. The reasons for such state of things can be diverse and may, inter alia, result from [3]:

- lack of sufficient knowledge and level of complexity of fiscal systems, which makes it difficult for the electors to interpret the information correctly or which limits his/her access to it;
- unwillingness to reveal or the delay with which authorities reveal unpopular information, usually received in the wrong way by the voters.

Flypaper effect is an economical phenomenon mostly conditioned by influence of the following factors:

- administrative ones (country's administrative system, the structure of organization of lower-degree authorities, the level of decentralization of authority);
- political ones (the model of realized power, electoral system, lobby);
- geographical-topographic ones (size of the country);
- economical ones (the current system of financing of public tasks at governmental and regional and local tier).

What can be drawn is a thesis claiming that the *flypaper effect* phenomenon will occur with greatest force in federal and regional states, characterized by intense dispersion of public authority represented by various political options. The lack of uniform political leadership forces the parties in charge to look for compromise solutions, this is also a factor shaping the quality of communication with local community, increasing the probability of asymmetry of information [9]. In case of uniform states (as relates to their territory and culture), in which the power is usually concentrated in a leader party's hand – the *flypaper effect* will be of neutral or weak nature.

3. Flypaper Effect versus the Political Strength

The previous considerations of the factors influencing the occurrence and intensity of the flypaper effect phenomenon do determine decisively the role of the political factor in this process. Majority of the primary studies analyzing origin of flypaper effect showed that the political factor is of little importance. However, in the modern elaborations referring more and more often to the issue in question, the relations and interactions taking place between the political and economical variables are deemed significant. What is particularly identified is the influence and relationship between the political structure (political system, division of power and its representation) and the economical results of actions undertaken by local government units.

The dominant regime adopted by majority of countries all around the world is the democratic regime that usually takes the form of representative democracy. The political power structure can be diversified on the governmental and local governmental levels. Theoretically it is assumed that the different models of solutions exist, which would have opposite influence on creation of influence of the flypaper effect.

The first solution assumes a low degree of dispersion (fragmentation) of power reflected by the low level of diversification of representatives of particular parties sitting on local government organs. Therefore, the power is of concentrated nature and is represented by front men of one leading political party. The concentration of power influences the decision-making process, in which the dominant voice belongs to the majority party authorized to yield power by a dominant group of electors whose votes turned out to be decisive for the final results of the elections (decisive voters).

In an opposite model, the authority in lower-degree units is of deconcentrated nature and the local government organs are comprised of representatives of various political parties, chosen by diversified group of voters with various political views (the decisive voter mechanism does not apply here).

In centralized entities, the mechanism of operation and decision-making, as well as the achieved economical results will be approximate to those defined in simple theories, e.x. of the median voter. In case of these units, the decisions undertaken in them result from actions of one political party and should be consistent with its program assumptions. In cases when power is of deconcentrated character and the political leadership is weak, the results of

economical actions will be resultant of the negotiations and agreements between representatives of various political groups that, having different election campaigns, will be forced to look for compromise solutions [5].

The empirical research confirm the fact that the results of using grants are determined by both the index of political strength and the level of deconcentration of political power at self-government level [10]. The effects of financing expenditures from both the grants and own revenues can, however, be identical in case of a concentrated-power model with clearly outlined political leadership (weak flypaper effect), while in case of deconcentrated model, the flypaper effect phenomenon will be of definitely stronger nature [5].

The mechanism through which the power of political influence affects the obtained economical results is not fully recognized. One of the possible ways to explain this phenomenon is to find a relationship between the activity of political parties and pressures on the part of interest groups. It is assumed that the extent of flypaper effect phenomenon is negatively correlated to the strength of political influence [5]. The degree of deconcentration of power can influence the political transactional costs, resulting in stiffening of tax rates, co which causes changes in the amount of grants that replace the previous financing from tax sources [5].

4. Conclusion

Grants are a vital component of financial policy of each country, however, in Polish conditions, the reform of local government finances realized in 2003 limited their participation in the income structure of local government units for the benefit of subvention. Presence of subsidies in the structure of budget income leads to an increase of authorities and local communities' inclination to spend assets from local and regional budgets [11]. Those administering the public means should be aware of the occurrence and results of phenomena such as: flypaper effect and the phenomenon of fiscal illusion. These mechanisms should be considered both in the process of financial policy shaping of the country, as well as of the local government units. This is of particular importance due to the fact that these phenomena influence the size of public expenses, which, in case of lack of defrayal in the income will be financed with obligations (public debt).

References

[1] BROWN C. V., JACKSON P. M. *Public Sector Economics*. 4th Edition Blackwell Publishers Ltd, Oxford 1998

[2] KONSTYTUCJA RZECZYPOSPOLITEJ POLSKIEJ z dnia 2 kwietnia 1997 roku (DzU 78, poz. 483 z późn. zm.)

[3] GUZIEJEWSKA, B. *Zewnętrzne ź ródła finansowania samorządu terytorialnego. Teoria a praktyka*. Wydawnictwo Uniwersytetu Łódzkiego, Łódź 2008

[4] HINES, J. R., THALER, R. H. *The flypaper effect.* „Journal of Economic Perspectives" 1995, no 9

[5] TOVMO, P., FALCH, T. *The flypaper effect and political strength*. "Economics of Governance" 2002, no 3

[6] FISHER, R. C. *Income and grant effects on local expenditure: The flypaper effect and other difficulties*. "Journal of Urban Economics"1982, no 12

[7] STRUMPH, K. S. *A predictive index for the flypaper effect*. "Journal of Public Economics" 1998, Volume 69, no 3

[8] GORDON, N. *Do Federal Grants Boots School Spending ?* Evidence from Title I, "Journal of Public Economics" 2004, vol. 88

[9] EICHELBERGER, R., SERNA, A. *Random errors, dirty information, and politics*. Public Choice 1996, no 86

[10] WALSH, C., *Fiscal Federalism*. "European economy. Reports and studies" 1993, no. 5

[11] CULLIS J., JONES P. *Public Finance and Public Choice*. Oxford University Press, Second Edition,1998

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Planning of Working Position in the Context of Talent Management

[*]Monika Kormancová
[*]University of Žilina, Faculty of Management Science and Informatics, Department Management Theories, Univerzitná 1, 01026 Žilina, Slovakia, {monika.kormancova}@fri.uniza.sk

Abstract. This paper deals with significance planning of working position in the context of talent management. It puts emphasis on elaborate and deliberately exploitation information about talent employees in a firm and their harmonization with working positions.

Keywords: talent management, planning, work position, approaches

1. Introduction

We are in the time of financial crisis, which step by step browses state frontiers in the world. The financial crisis affects not only advanced states, but also influences underdeveloped countries. However economy of Slovakia was very good started, however we accepted euro as a new currency, financial crisis affects also firms, which make business in our country. It is a true that our country is on that a little better as another countries of V4. Is necessarily takes a thing about tools which we can use in war with financial crisis. I do not talk about tools which government exercises. Firms also have tools, which their can exercise for master problems of crisis.

If we are resulting from history, each crisis refreshed economic, because she urged people of looking for a new solutions, new approaches in manage a firm to keep conserve existence of firm in a bad days, which evolution of economy brings.

Kowtow questions: How can firms use new ideas in time of economic stagnancy? What can help firms to survival? We can find answer in talent management. It is a lot of voxs which say that talent management in this time have not consequence, but most of them are those which say that it have consequence as anytime before. Why at the moment? Talent management makes area to effective utilization high potential of talented employees. It is a key measure in these days of financial crisis.

2. Definition of Talent Management

Talent management by J. Koubek is definite as: "using interaction linked complex activities, which they have to ensure so firm to attract, to keep, to motivate and to develop talented people, which needs in the presence and will need in the future. The goal is ensure flow of talents and awake that talents are basic springhead for organization."

Talent management is not only about right managing of talents. It is also about right managed with planning of working position, on it application planning necessary development of talented employees and effective utilization high potential of talents in an organization.

3. Planning of working position

When we start to plan working position, we must analyse working position at first. Is necessary to know specification of each working position so an organization can right managed planning who will be on the position the best candidate.

3.1. View by J. Collins

J. Collins, in his book Good to Great, says about occupancy of bus by right people. So, right people on right positions, misfit out from the bus. Here is significance of analyse working positions, know its specification and looking for a right candidate.

From this view is planning of working position about looking for the best candidate on each work position. Sometime, as some literatures screen, employees are not successful and do not make their work good because they are on bad position for them. If organization moves employee on another working position, his (her) working achievement can grow. If organization do not looking for this position, is better give to employee a change to looking for new position in an another organization. It is – misfit out from the bus.

In this view, right people are not only these, who give good or very good working results, right people are also who, which have equivalent philosophy as organization. It is necessary for satisfaction of talented people.

3.2. View by A. Lance

Another view on planning of working position in the context of talent management is from Lance A. Berger, Dorothy R. Berger. This view is presented in the book: The talent management handbook. Planning of working position is building on know needs succession, make a talent pool and know structures all working positions in a firm.

This approach needs detailed knowledge structure about employees, their actual working position, planned carrier road and detailed structures of working positions (blocked, disengaged and excess). Organization works with this detailed analyze next.

3.3. View by P. Cappelli

This view is publicizing in the paper Talent management for the Twenty-first century in Modernní řiezní 6/2008. It tackles problems which are actually in this time with a work with talented people. The problems are droop loyalty, grow fluctuation and grow cost to looking for a new employees and their development. It is liquate that this problem affects also planning evaluation of talented employees in organization.

Organization is given in complicate situation when must planning needs talented people for organization. It is a very complicate in this time.

4. Planning needs talented people for organization

4.1. Optimistic planning

Planning number of talented people >> real needs

Those which will be not utilized can quickly looking for a new job for application their talents. Organization lost men with his (her) talent, his creative, lost money and time which were investment for his (her) development. High potential employee leaves to a rival and takes alongs his (her) know-how.

What will be organization understand as “lots more” is for every organization individual. For someone it is 5 employees, for someone it is 50 employees.

4.2. Pessimistic planning

Planning number of talented people << real needs

It is deficit of talented people in organization. This problem can organization solves by two alternatives:

- to get for talented people from external environment
- to accelerate development internal people

Both solutions have some risk. If we get for talented people from external environment, the biggest risk is that men have not equivalent philosophy as organization and very quickly left organization. If we accelerate development internal people, the biggest problem is creating effective planning, development of talented employees in organization. Necessary is not only accelerating development, necessary is also accelerating planning development – object, subject, methods, time, place… will be development performance.

5. Combination views

When we looked to every view individual, we can use idea link benefits from every view. By application of various ideas from talent management to planning of working position, firms can reduce risks from design making. Talent management gives solid approaches to talent in areas planning of working positions through knowledge planning needs, information about structure of working positions and knowledge of model ideal candidate for certain position. The combination views are about which working position is necessary to occupy, by who occupy this position (his/her characteristics) and how many people we will need to occupy working position.

6. Conclusion

Planning of working position in context of talent management is one of tools which firms can use and apply in every days work. If firms know who and where are looking for, they have easier work in the process of planning, selecting, development and disengagement because they know concept of structure in which must men lock together with organization culture, philosophy and workload.

This paper wants deal significance approaches of talent management in area planning of working position. It wants link three views in one compacted view which solves this problem global.

Reference

[1] Koubek, J.: Řízení pracovního výkonu, Praha, Management Press 2004, str. 339, ISBN 80-7261-116-X

[2] Collins J.: Z dobrého skvelé – Good to great, Eastone Books 2006, str. 300, ISBN 80-89217-09-5

[3] Lance A. Berger, Dorothy R. Berger; The talent management handbook: creating organizational excellence by identifying,developing and promoting your best people (hardcover); McGraw-Hill professional, 2003, s. 448, ISBN 0-07-141434-7

[4] Cappelli, P.: Talent management for the twent-first century; In: Moderní řízení, Economia, 2008, č. 6; str. 72-75; ISSN 0026-8720

[5] Vodák, J., Kucharčíková, A.: Efektivní vzdelávaní zaměstnancú. Praha, Grada 2007, str. 212, ISBN 978-80-247-1904-7

Transcom 2009, 22-24 June 2009
University of Žilina, Žilina, Slovak Republic

Public Administration and Information Management

[*]Agnieszka Budziewicz-Guźleckaeter
[*]University of Szczecin, Faculty of Management and Economic of Services, Cukrowa street 8, 71-004 Szczecin, Poland, e-mail agnieszka.budziewicz@wzieu.pl

Abstract. Economic progress and growth have always been the product of ingenuity and technological innovation. The important role of electronic service in business administration and the rapid pace of technological development combine to make informatization a key aspect for Poland's future.

Keywords: e-government, information management.

1. Introduction

A man, from the first moment of his life, is socially entangled and surrounded by a world of information. The information storage of science, culture, and art, are the main ingredients of civilization's potential. Contemporary society, including government, science, education, culture, and the economy, cannot function efficiently without robust information. Methods and technologies for sending information dictate the future development of contemporary civilization. However, the primary concern is not about the scope or speed of transmission and dissemination; rather, it is the ability to use the information with sense.

A new business environment has emerged in which information and knowledge are the primary factors determining the success or failure of new enterprises. Information systems have been used in businesses for a long time, but the Internet has opened the door to entirely new opportunities. All organizations, large and small, are now able to work on an international scale. The information available on Websites offers great advantages to all kinds of businesses. Knowledge can be quickly disseminated across great distances.

Economic development has also been based on the ability to access and interpret information. Information and knowledge create added value which increases efficiency in the economy.[1]

In the new Web economy, there is an unprecedented scale of possibilities and opportunities for development. The global market is creating a new economic culture based on the decentralization of property and capital, where one's knowledge base is of the utmost importance. Integration and globalization allow the new economy and information society to grow together between countries around the world.

Thanks to the digital revolution, along with growing competition in Europe and the rest of the world, electronic administration services are taking on a much larger role in government and society. The informatization of public administration is a necessary part of membership in the European Union. One reason for this obligation is to stay involved in the developing information society. In addition, citizens are becoming more educated and conscious of their rights; they are more aware of governmental inefficiency and want better public service, including changes in the traditional bureaucratic structure. The public's interest in these matters is amplified by the constant growth of public expenses which they are obligated to

[1] [1] Por. B. Gregor, M. Stawiszyński: *E-Commerce.* (BRANTA, Bydgoszcz-Łódź 2002), p. 24.

financially support. Understandably, people want their money to be used as efficiently and effectively as possible. Different international organizations, like the European Union and World Bank, have demonstrated a trend towards changing their administrative organizations.[2]

In 2000, the European Union first launched the eEurope program, which is devoted to making public administration services and information available on the Internet.[3] Online access to public administration offices is bringing significant benefits, including the following: easier access to public offices; lower costs of public administration; and reduced corruption. For these reasons, it is necessary to provide teleinformation, infrastructure, software, and legislative solutions which will meet the demands of "The Development Strategy Of The Information Society In Poland By 2013" and accomplish "The Plan For Informatizing The Country By 2007-2010." A well-developed public administration system should be able to integrate information systems of different administrations and connect with public administration offices of other countries in the Interchange of Data between Administrations (IDA) program.

Electronic services increase the speed and efficiency of information dissemination. In the long term, this provides an opportunity for vast improvements in the functionality of public administration. To achieve this, information and communication technologies are used to plan, organize, and monitor public administration duties (governmental and municipal).[4] The goal of eEurope is to provide European Union citizens with modern, online public services and create a dynamic environment for e-business. As a public service, The European Union lists e-government public administration online. E-administration must make the following actions available online: File tax returns, Calculate and pay insurance, Apply for a variety of documents (ID, passport, etc.), Vehicle registration, Obtain building permits, Report crimes, Access archives and public libraries, Apply for and obtain certificates, Apply to universities, Change address, Public health services, Social services, Business registration, Access GUS resources, Customs declarations, Apply for a concession and permission for business activities (e.g., selling alcohol).

E-government will provide access to administration services on-line. The definition of European Commission is seeing that e-government integrates functions to create cheaper and more efficient administration, improve management within countries, and reduce costs of administration.

By allowing public administration to utilize new technologies, E-government will provide citizens the service and information they require in easy and practical ways. In consequence, public service and administration should be provided 24 hours a day, seven days a week.[5]

Public administration thus far may be described in the following manner:[6]

- Written in difference documents, departments, and locations;
- Expressed in a complicated and unclear manner, especially for lay persons;
- Available online in physical offices and at specific times;
- Controlled in such a way so that written permission from a superior is required to make it public.

E-government solutions should be:[7]

- Easy to use

[2] B. Kożuch: *Zarządzania publiczne*. Warsaw, 2004. p. 16.
[3] The European Union recommended that citizens be able to fill out their tax returns, register businesses, apply for drivers licenses and IDs, make doctor appointments, and search for jobs online by 2005.
[4] *E-government.* Siemens Newsletter, 2004, nr 10.
[5] P. Haltof, S. Kulągowski, T. Kulisiewicz, W. Kuśnierek, A. Sobczak: *Raport Administracja Publiczna w sieci 2002 – czy rzeczywiście bliżej obywatela?*, Internet Obywatelski, Warsaw 2002.
[6] M. Walecki: *Technologie informacyjne i komunikacyjne w walce z korupcją.* Analizy i Opinie 2006, nr 61. Instytut Spraw Publicznych, Warsaw 2006.
[7] S. Kulągowski: *Polskie gminy w Internecie*. II Kongres e-gospodarki, Warsaw 2002.

- Accessible from any place, using a wide spectrum of tools;
- Safe and with guaranteed privacy;
- Programmed to achieve certain effects;
- Provide calculated financial benefits;
- Make cooperation possible between governmental and non-governmental institutions;
- Conducive to innovation and exploration with respect to the functionality of public institutions.

The primary benefit of having and using electronic (digital) data is the economy of having access to information quickly and without unnecessary restrictions. Another benefit is the ability to process the information consistently and accurately.

Automated systems eliminate monotonous labor, allowing clerks to focus on more essential work. Archiving possibilities allow tighter control of public administration functions.[8] E-merging of public administration will produce the following results:

- Lowered costs, saving taxpayers money;
- Increased clarity in administrative functions;
- Increased access to services for people and businesses;
- Increased spectrum of information available to taxpayers without requiring personal contact.

In the European Commission's research, benefits from e-Government were categorized as follows:[9]

- Improved quality of information;
- Reduced wait periods for information;
- Relieve administrative duties;
- Increased efficiency;
- Satisfy the public;

There is a growing tendency to use e-government in Poland, but it is developing slowly and the pace lags far behind that of other European countries. According to a binary research survey (where 0 means no service and 1 means electronic service), only 20 percent of all public service was online in Poland in 2006, and only ten percent in 2004. The average for 28 European countries10 was 48 percent in 2006 and 40 percent in 2004.

The following are the four stages to developing online public services:

1. Information Level – The accessibility of online information required to start any process: 25-50 percent attainment of online service;
2. One-Way Service – Access to online forms from official Websites allowing users to print documents and initiate official processes: 50-75 percent attainment;
3. Two-Way Service – Allowing users to fill out official, authentic forms online: 75-100 percent attainment;
4. All operations are online, including all decision-making processes and the rendering of all services. No paper is required at any stage of any service: 100 percent attainment of online public service.

There is also the "Zero Stage," in which case there are no Websites available, or the existing sites lack important information about services: 0-25 percent attainment of online service.

Poland's level of online public service was 53 percent in 2006, up from 36 percent in 2004. The average level of attainment in the 28 investigated European countries was 75

[8] M. Walecki: *Technologie* … op. cit.
[9] http://egovernment.spoleczenstwoinformacyjne.pl/artykuly/26,198,korzysci-plynace-z-e-government
[10] Researched were 25 European Union countries, Switzerland, Norway and Iceland.

percent in 2006 and 65 percent in 2004.[11] Poland's accessibility falls at the bottom of the European Union's rankings. This situation relates to the amount of money spent on IT and telecommunications, as shown in figure 1.

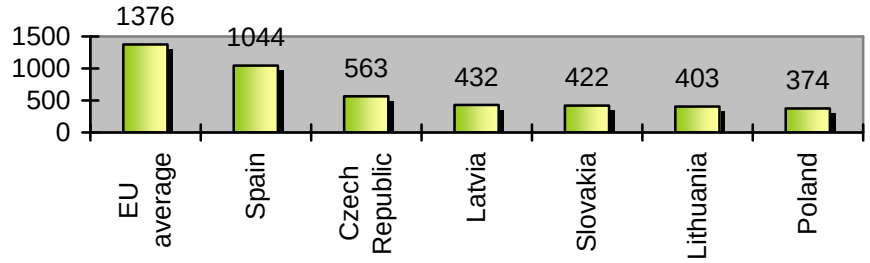


Fig. 1: Expenditures On IT In Poland And Other European Countries.(euro per citizen)
Source: Z. Zwierzchowski: *Mają być sposoby na nadrobienie opóźnień*. Rzeczpospolita, Feb. 28, 2007.

Compared to the other countries, Poland's IT expenditures are the smallest. Properly using European Union funds should rectify this situation. The most important projects were made by municipal institutions in 2006. They will not produce essential changes in central administration.[12]

As reports show, Poland is behind the rest of Europe. Table 1 presents the information by date. As Table 1 shows, online services for businesses have developed more dynamically than services for citizens.

Service	Level Of Service	
	2004	2006
Services For Citizens		
Birth, Marriage and Death Certificates	39	Less than 50
Public Libraries	34	Less than 50
Personal Documents	30	Less than 50
Income Taxes	49	50
Declarations to the Police	27	Less than 50
Job Searches	31	100
University Applications	52	Less than 50
Vehicle Registration	28	Less than 50
Social Services	25	Between 25 and 50
Health Services	11	Less than 25
Applications for Building Permits	25	Less than 50
Change Of Address	31	Less than 50
Services For Businesses		
Customs Declarations	43	100
Mandatory Social Insurance	75	100
Corporate Taxes	36	50
VAT	49	50
Submissions to Office of Statistics	70	100
Registering New Companies	24	50
Public Procurement	25	75
Environment-related Permits	25	Less than 25

Tab. 1: Online Public Administration Services In Poland. Source: based on: Capgemini: eGovernment development in Polsce. 3rd edition of eEurope research, Warsaw 2004; Capgemini: Online Availability of Public Services: Ho is Europe Progressing. Web Based Survey on Electronic Public Services. Report of the 6 th Measurement, June 2006, www.capgemini.com

[11] Capgemini: Developing eGovernment in Poland. 3rd edition of eEurope research, Warsaw 2004; Capgemini: Online Availability of Public Services: Ho is Europe Progressing. Web Based Survey on Electronic Public Services. Report of the 6th Measurement, June 2006, www.capgemini.com
[12] Z. Zwierzchowski: *Mają być sposoby na nadrobienie opóźnień*. Rzeczpospolita, Feb. 28, 2007.

The Ministry of Scientific Research and Information Technology, from September 2004, has shown that there are virtually no financial resources for informatization. In almost 75 percent of municipal offices, funds never rose above 1 percent of total expenditures. In 17.3 percent of the offices, no money was used towards informatization.[13]

Poland is behind other European Union countries in popularizing online public administration services. More than half (56 percent) of Poles were interested in online contact with administrative institutions, and 14 percent of citizens utilize such possibilities.

In 2007, 20 percent of Poles declared they were willing to file their tax returns online. The situations with online car registration and changing official documents were similar. The most popular service would be the ability to make doctor appointments, a service which would be used by almost half the population (48.8 percent).

2. Conclusion

The creation of an information society is stimulating the growth of competition in the economy, the integration of Poland and European Union structures, the implementation of cohesive local policies, and the management of unemployment and other areas of social life. Even today, it is impossible to solve many social problems without the use of information technology.[14] However, it must be remembered that the technological revolution is not enough for social and economic progress. Strict cooperation among nations, as well as legal regulations, are required for the easy exchange of cargo and services. Above all, what is most essential is the commitment of public administrators to make the necessary changes.

References

[1] Badanie postaw przedstawicieli samorządu terytorialnego wobec Internetu. Pentor, Warsaw, Dec. 2004.

[2] Capgemini: Rozwój eGovernment w Polsce. 3 edycja badań eEurope, Warsaw 2004

[3] Capgemini: Online Availability of Public Services: Ho is Europe Progressing. Web Based Survey on Electronic Public Services. Report of the 6 th Measurement, June 2006, www.capgemini.com

[4] E-government. Siemens Newsletter 2004, nr 10

[5] *GUS*, Społeczeństwo informacyjne. *Wykorzystanie technologii informacyjno-telekomunikacyjnych w 2006 roku*, May 2007.

[6] Haltof P., Kulągowski S., Kulisiewicz T., Kuśnierek W., Sobczak A.: Raport Administracja Publiczna w sieci 2002 – czy rzeczywiście bliżej obywatela?, Internet Obywatelski, Warsaw 2002

[7] http://egovernment.spoleczenstwoinformacyjne.pl/artykuly/26,198,korzysci-plynace-z-e-government

[8] Kożuch B.: Zarządzania publiczne. Warsaw 2004, p. 16.

[9] Kulągowski S.: Polskie gminy w Internecie. II Kongres e-gospodarki, Warsaw 2002.

[10] Stopień informatyzacji urzędów w Polsce. Raport generalny z badań ilościowych dla MNiI. ARC Rynek i Opinia, Warsaw, Sept. 2004.

[11] Walecki M.: Technologie informacyjne i komunikacyjne w walce z korupcją. Analizy i Opinie 2006, nr 61. Instytut Spraw Publicznych, Warsaw 2006.

[12] Wilk A. M.: II Konferencja Okrągłego Stołu Polska w drodze do społeczeństwa informacyjnego. Przegląd Telekomunikacyjny 2001, nr 8-9.

[13] Zwierzchowski Z.: Mają być sposoby na nadrobienie opóźnień. Rzeczpospolita, Feb 28, 2007

[13] Por. *Stopień informatyzacji urzędów w Polsce. Raport generalny z badań ilościowych dla MNiI.* ARC Rynek i Opinia, Warsaw, Sept. 2004.

[14] Por. A. M. Wilk: *II Konferencja Okrągłego Stołu Polska w drodze do społeczeństwa informacyjnego.* Przegląd Telekomunikacyjny 2001, nr 8-9.