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Petr WOLF*

INFORMATION AND COMMUNICATION TECHNOLOGY SUPPORT SUCCESSFUL APPLICATION OF PROCESS MANAGEMENT IN THE COMPANY

VYUŽITÍ INFORMAČNÍCH A KOMUNIKAČNÍCH TECHNOLOGIÍ PRO PODPORU PROCESNÍHO ŘÍZENÍ VE FIREMNÍM PROSTŘEDÍ

Abstract

The author describes the efficient connection of process management together with information and communication technology (below ICT) in the company in this paper. Only companies able to react to the real-world impulses of the volatile environment of the global market and whose management will be able to manage the company at the same time can become successful. Process management supported by well design ICT is the tool that is able to help in such conditions where it is impossible to reach the necessary improvement within the existing process conditions. The modern ICT is the part of the every reengineering effort. The author has the practical experiences with implementation of process management system.

Abstrakt

Autor v příspěvku popisuje účinné spojení procesního řízení s informačními a komunikačními technologiemi ve firemním prostředí. Úspěšné mohou být pouze ty firmy, které dokáží pružně reagovat na skutečné impulzy z dynamicky měnícího se globálního trhu a management firmy zároveň zvládá firmu efektivně řídit. Procesní řízení může jako nástroj využít informační a komunikační technologie v případech, kdy se zdá nemožné dosáhnout potřebného zlepšení při zachování stávajících podmínek. Informační a komunikační technologie jsou nedílnou součástí při procesu zavádění organizačních změn. Autor příspěvku má praktické zkušenosti s implementací systému procesního řízení.

1 INTRODUCTION

Computers maximization, the-state-of-art software and hardware, computer networks, including well-trained operation staff, it all does have a commensurate effect on the support in management decision-making, industrial units control or machinery management. At the same time it does not have to result in meeting the organization's strategic plan but can be contra productive, especially when it increases costs disproportionately to returns.

New ICT enable flexible management of individual parts of multinational companies, because they are able to facilitate quick two-way information of individual parts of multinational companies, information exchange between the headquarters and the branches. Besides the internal information flexibility, information technologies also play an important part in organizing relationships between the companies and sub suppliers. Especially the development of so called "just-in-time" system, aiming at limiting store time and adjusting material supplies with the production phases, requires very precise coordination.

* doc., Ing., CSc., Dep. CSI-352 , VŠB-Technical University of Ostrava, av. 17. listopadu 15, Ostrava - Poruba, 708 33, Czech Republic

The traditional mediators between the producers and the consumers lose their importance, if they only serve as storeroom for products for sale without providing any added value. We can practically say that the storerooms we moved to supply routes (trucks, trains, ships, planes – author's note).

2 NEW ORGANIZATION STRUCTURE

Shortening the supply chain enables to adjust the production to the market requirements so that it is based on real demand. The companies should not produce for stock. The result is the economically efficient production that minimizes lost and realizes maximum profit. Centralized management changed into flexibly cooperating smaller autonomous teams exploiting the advantages of team motivation that are often focused directly on the customer's needs. See Figure 2. The motivation is connected with the results of the process not on carrying out partial activities. By means of using ICT direct contact between the customer and the producer can be realized.

The value distance function, unambiguously focused on the process becomes the evaluation tool. Applying the process approach results in relatively flat organization structure. Organization structures embody the form of arranging the division of labor process for the rational ensuring the expected aggregate of control and execution activities.

They contribute to economical securing of managerial functions (sequential as well as running), namely including general allocation of authority and responsibility for exercising them. On one hand, organization structures ensure differentiation (division of labor) aiming at qualified and economical profit of the appointed range of activities on the other hand they ensure their integration as well. In general it holds true that the decisions are valid towards the subordinate levels, while the levels of the same order are autonomous. In parallel with formal structures the organization process also influences informal organization structures. To make the right decision, both the form and the quality of the information acquired from lower levels play an important part as well as establishing the way of communication within the framework of the levels of the concurrent system. During information transfer (both horizontal and vertical) some distortion happens due to information noise. Therefore it is advisable for the management within the framework of the organization structure to be as near the source of information as possible. The evaluation of the organization structure effect further shows its direct impact on:

- Management style
- Adaptability to change
- Management's way of thinking
- Responsibility and authority
- Qualification
- Motivation

Mathematic and chemical equation, chemical compound, gear and cog wheal etc., consequently mathematics, physics, chemistry, biology etc. – natural sciences and natural laws will stay the same both in market as well as centrally controlled economy. However sciences such as economics, management, marketing, finance are quite different. In market economy is mainly necessary to focus on:

- Marketing management
- Process management
- Knowledge management
- Controlling
- ICT

3 PROCESS MANAGEMENT AND BENEFITS

In the world of competition it is necessary to use methods that can help the company to be ahead of the competitors or to reach them sooner than they escape once or all. At the global market we have to make use of such mechanisms and methods that can simplify seemingly complicated things. The global market, market saturation, hyper competition, very fast development of technologies, at this caused that the importance of the production have decreased considerably, while the importance of the activities supporting the production – ICT, marketing and trade, as well as the activities that are directly connected with the customer - have increased. We no longer solve the question of the production, but that of the sale. The process management represents a different view of the organization than so called system arrangement dividing the company into plants, departments, sections, divisions. One of the most efficient organization structures is a „flat" structure with logically minimum number of hierarchic degrees. The changeover or the origin of the flat organization structure is usually based on the process management implementation. See Figure 1. The basic benefits of the successful implementation process management are [5, 6, 7]:

- Jump increase of the economic efficiency of the company
- Increasing the competitiveness at the global market
- Focus on the customer (prompt reaction to the customer's specific demand)
- The ability to meet various specific requirements of the customers without introducing chaos in management and the subsequent transfer to operational management
- The integration of the suppliers
- Increasing the efficiency and the quality of the management (considerably prompter decision-making and realization of the management decisions)
- Lowering the need of the operational management
- Lowering office work in the company
- Making material flows within the company more transparent and defining them
- Making information flows within the company more transparent and defining them
- Continual possibility of analyzing the processes and improving them
- Assigning explicit authority and responsibility
- Utilizing the employees' specific knowledge, sometimes heuristics as well
- Solving tasks efficiently in compliance with the project management rules
- Acquiring the general picture of the company in real time
- Lowering of the store supplies
- Shortening the continual production time
- Lowering the number of lost orders
- Lowering debts
- Making the cost per a product more transparent
- Adjusting the sale requirements with the production capacity
- Lowering staff demand of the operation
- Reducing indirect costs
- Meeting basic part of the quality control standards ISO 9000:2000 requirements

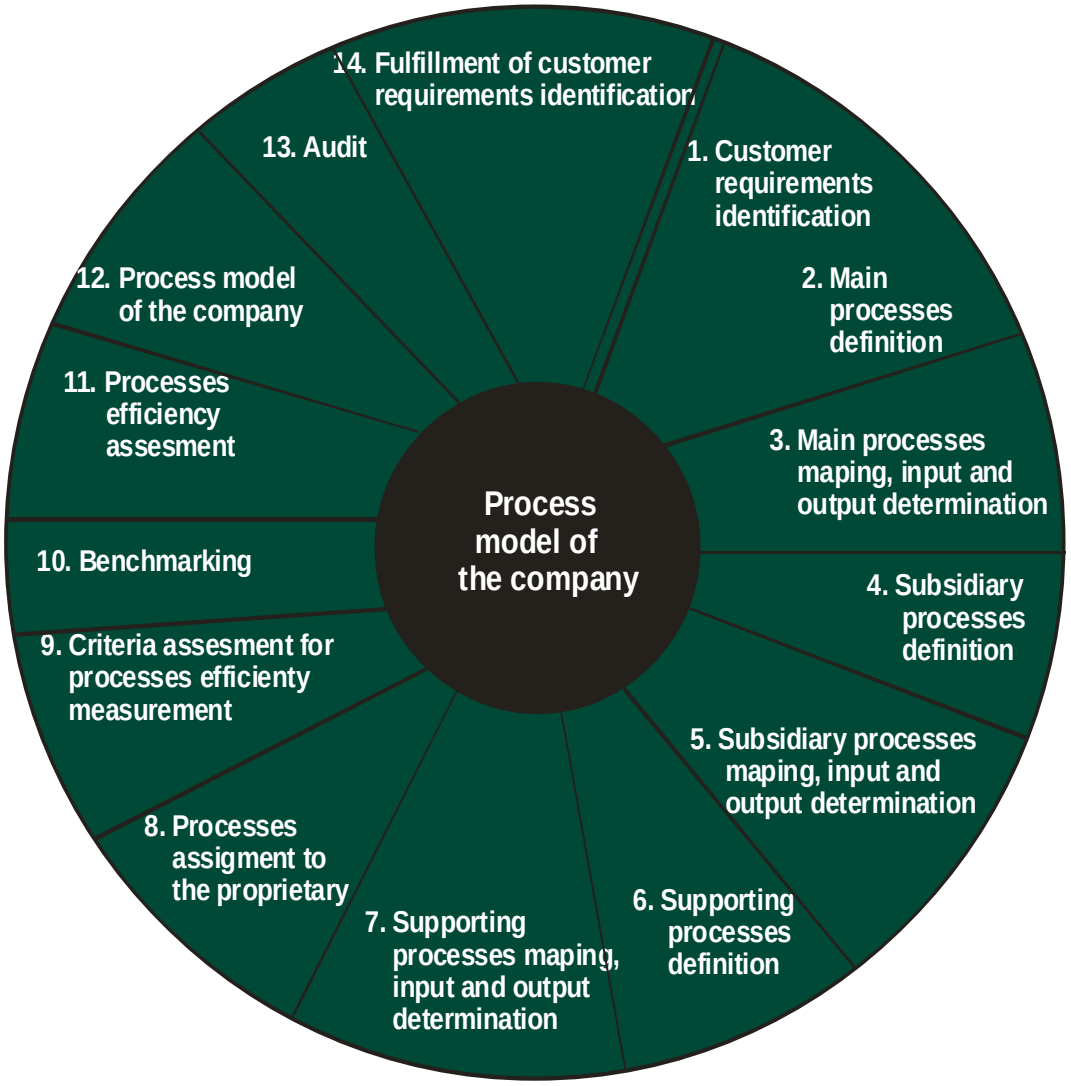

Fig. 1 The advance to the company process model
Source: Author's picture

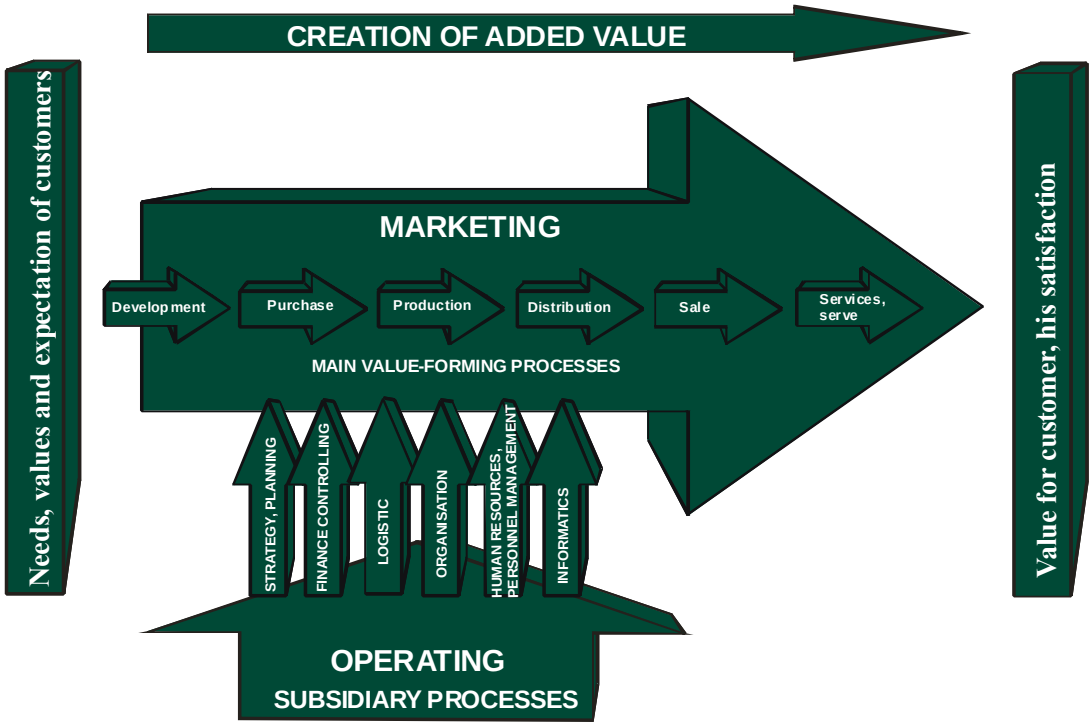

Fig. 2 An example of the division of the processes
Source: Derived from [7]

4 IMPLEMENTING OF PROCESS MANAGEMENT

Creating the process model is based on the following elementary propositions. See Figure 3:

- Defining the main processes
- Defining the subsidiary (supporting, instrumental) processes
- Eliminating the processes that are not justified, do not create the added value, are duplicate, are unprofitable
- The concept of processes and sub-processes
- Assigning the owners of the processes
- Continual improvement of the processes

Fig. 3 Procedure of implementation process management

5 PROCESS MANAGEMENT TOGETHER WITH ICT

Process management connected with ICT enables the companies to make much better use of the thought and knowledge potential of their workers that would not be revealed in case of functional control. Modern information technology is a part of every reengineering effort and its important co-creator because it enables to carry out reengineering of the company processes. However it is not enough to engage computers to solve the present company problems so that reengineering is carried out on an automatic basis. Using ICT in a wrong way can entirely block process management project [4, 5, 6].

Reengineering does not mean only all sorts of the company reductions, lowering the number of workers and lowering the costs at any cost. The present conception of reengineering means mainly the efficient company growth and its fundamental principle is the access from outside indoors, namely from the customer to the processes within the firm and eliminating those processes that do not bring any value to the customer. It is the customer who decides about the value of the products and services, therefore it is necessary to listen to him and pass the information to the whole organization.

Here the role of ICT is irreplaceable; it creates the necessary information infrastructure for this process, concisely called the nerve system of the company by Bill Gates [1]. This system, besides other things, makes it possible to achieve so called enterprising accuracy, which is the ability of the company to offer the customer just what he wants based on the unambiguous price-setting [2]. ICT will bring a positive effect if it is designed and constructed as a part of the whole control system, not

as an isolated tool. If we want to manage a company successfully, we have to improve the whole management system, not only one of its parts.

At present there are a lot of software products, enabling the process visualization and modeling. At present, one of the most accessible ones is the Microsoft product MS Visio V. This software only enables process visualizing. See Figure 4. Perhaps the best known and most frequently used product for the process visualization and modeling is the IDS Scheer product Aris enabling both visualization and modeling as well as analyzing and optimizing the processes. Each activity is evaluated by a time period and financial costs so that the course of the processes could be modeled. This software we use in some our projects.

We can give some basic information about QPR Software. This company produce software what supports so/called Collaborative Management. QPR combines the tools for Corporate Performance Management (QPR ScoreCard) together with Process Management (QPR ProcessGuide) into the effective toll so/called Collaborative Management Suite. QPR Collaboration portal is the tool for sharing of know-how (knowledge) between employees. QPR ScoreCard is the complementary solving for management of processes. Balanced ScoreCard is attested method for strategic management.

Requirements for Development Client are: Windows 98 or ME, Windows NT 4.0, Windows 2000 or Windows XP. Large Process Guide models are more usable with workstations that have as much memory and processing power as possible. Also a good graphics performance is important when working with large flowcharts. Development client connects to the Application Server with a TCP/IP connection. Server: Windows NT 4.0, Windows 2000 or Windows XP. Memory requirements depend on the amount of processes that are in active use. The Application Server requires ODBC for connecting to the ProcessGuide database: Oracle 8.0, 8i or 9i, Microsoft SQL Server 7.0 or 2000, IBM DB2 6.2 or 7.1. When using QPR ProcessGuide for web publishing, the QPR Web Application Server computer has the following software requirements: Windows NT 4.0, Windows 2000 or Windows XP.

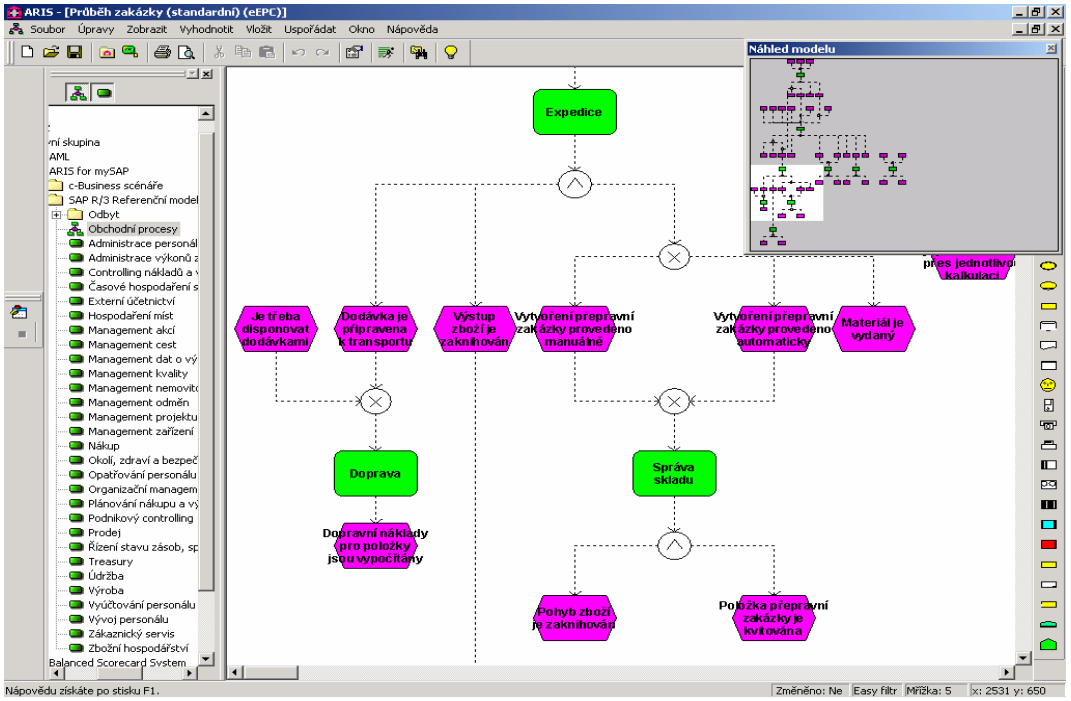

Fig. 4 Preview of screen of ARIS
Source: Derived from [7]

6 CONCLUSIONS

A successful manager will be able to use ICT applications as a support for decision-making process at all levels of management and like tool for applications of changes in the company. It is true that yesterday's knowledge, skills and experience are often worthless when we have to solve the problems of today and tomorrow. Modern database technology makes it possible to handle a wide range of information that was reserved only for the management in the past. When the accessible data is combined with easily used tools of analysis and modeling, the workers of the first line suddenly have very qualified decision-making tools. Then it is possible to make much prompter decisions and the problems can be solved as soon as they appear.

REFERENCES

[1] GATES, B., MYHRVOLD, N. & RINEARSON, P. *The Road Ahead*. New York: Viking – Penguin Books, 1995. (český překlad – Informační dálnice. Praha: Management Press, 1996.).

[2] HAMMER, M. & CHAMPY, J. *Reengineering-radikální proměna firmy*. 1. vyd. Praha: Management Press, 2000. ISBN 80-7261-028-7.

[3] MOLNÁR, Z. *Efektivnost informačních systémů*. Praha: Grada, 2001. ISBN 80-247-0087-5.

[4] WOLF, P. Procedural Management in the Wool- Works Company. In *2th International Symposium Transition Countries Joining European Union*. Silesian University Opava, Czech Republic. Karviná: Slezská univerzita Opava, OPF v Karviné, June 17-19, 2002. s. 630-635. ISBN 80-7248-172-X, ISSN 975-8100-22-X.

[5] WOLF, P. The experiences of the procedural management. ICCC´2002. In *Proceedings of 3th International Carpathian Control Conference*. Ostrava-Beskydy, Czech Republic, May 27-30, 2002, ISBN 80-248-0089-6.

[6] WOLF, P. & WOLF, J. Procesní a znalostní management v organizaci. In *Acta academica karviniensia*. Opava: Slezská univerzita v Opavě, Obchodně podnikatelská fakulta v Karviné, 2/2005, s. 187-193. ISSN 1212-415X.

[7] WOLF, P. *Úspěšný podnik na globálním trhu*. CS Profi – Public, Bratislava 2006. ISBN 80-969546-5-2

Reviewer: prof. Ing. Radim Farana, CSc., VŠB - Technical University of Ostrava