METHODOLOGY OF INFORMATION SYSTEMS IN A COMPANY’S PROCESSES AND ORGANIZATIONAL STRUCTURE

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Abstract
The article describes possible selection of optimal methodology for implementation of information system into a company structure with regards to existing company processes and current organizational structure. The article depicts facts in general, which must be considered in implementation of information system on the basis of common management requirements such as investment return in the shortest period. It is orientated to the tools within the scope of information systems, which provide such options and thus they offer the most effective integration to the current processes and organization structure. Their aim is the determination of optimal implementation of methodology of information system for full integration to company procedures. This methodology will be effective regardless of the fact if we realize first company reengineering on the basis of company processes and then its own information system implementation, or if the old system is replaced by the new one in quick way, or if we choose the way somewhere in the middle. The principle of this method ensures that handling of new information system are adjusted themselves in correct and quality company processes prepared for increasing of company performance. Finally, individual types and stages of the methodology, including possible influence over the change in the area of company processes and its organizational structure, are shown and described in detail.

Keywords: Methodology, method, reengineering, implementation, company process, organizational structure, information system

Introduction
Motto for the implementation of the information system into the company’s structure: “well functioning IS means one percent of implementation and ninety nine percent of preparation”. Mentioned ninety nine percents, as well as mentioned remaining one percent, too, shall be the integral theme of the presented paper, the objective of which is to describe individual steps and their links by the introduction of IS, and to monitor the links influencing the changes of organizational structure and the influence of the formation of new company’s strategy. While selecting new information technology, most companies base the decision on the fact how the system would satisfy current company’s processes and what base it shall provide for future development. However, nowadays many companies search for far more than their partner for information technology. Information technology is major investment in any company. Therefore, nobody is surprised that managers demand the return of vested investments as soon as possible. It requires the selection of effective flexible system with quick implementation and trouble-free switch-over from the old to new system. The sooner the new system is fully functional, the better is the noticeable profit from means invested into information technology. (Volfíšek, 2002)

Objective and Methodology
The objective of this article is to describe an optimal choice of the methodology of the information system implementation and monitoring of the influence of such implementation over company processes and company structure. The practical goal of mentioned monitoring process shall be the most appropriate methodology of the procedure, which shall facilitate the shortening of the period of the returnability of investments invested into information technology. To find practical optimal implementation method enabling the control of all procedures within the framework of selected time horizons and investments. Furthermore, such method shall guarantee close connection of information system with company’s procedures and harmonization with continuous development of the company, all by means of integrated software tools.

Principles of the methodology IS Target Enterprise, i.e. company objectives, were used for the finding of the information for this work. Methodology for the implementation of information systems by means of this method is the special structure, broadening the general method of project management by the company Coopers & Lybrand: Goal Directed Project Management. Moreover, the combination of methods of systematic monitoring of the influences of the introduction of information systems and SMART analysis were used as well as information and literature involved in company structure and strategy, free description of certain implementations and knowledge and experience from this activity. (Sodomka, 2006)
Information System and Methodology

Methodology comes out from the fact that the “multifunctional tool” is handed-over to the user of the information system, which the user must perfectly recognize during the implementation process and learn to work with it. Just the selection of the project management method approaches the selection, implementation, and optimization with respect to the realization of company’s objectives by means of successful implementation of software product.

Projects are better and more comprehensibly defined by means of the selection of correct method and planned changes can be implemented more effectively. In light of this research the method focusing on milestones (states, results) seems to be optimal, as the establishment of the plan more resistant to minor changes, most probably occurring during the project, can be prepared. Furthermore, project managers can adapt the project framework to specific requirements of their projects. It motivates the team members to pay attention – besides technical objectives such as the system installation – to desirable objectives related to the people and the organization. The assignment of tasks shall become more evident for all participants by the description of responsibilities and roles in all levels, thus resulting in better communication. This shall result in full integration within the framework of the customer’s organization and shall improve the expectations of successful change. Moreover, in this stage the organizational structure of the company is also directly influenced by means of the part of company model, in the context with the generating of the model on the basis of implemented parts of the information system. This tool, respectively its editor, graphically shows, among others, the structures of company processes, functions and organizational structures. Such approach to project management provides excellent means for communication, as participating parties have to cooperate in accomplishing identified project objectives. (Voříšek, 2002)

Optimal selected information system should be effective application with immense flexibility, where various ways of the switching from the old system to the new one can be frequently selected. After fast change such information system can be put into operation and finely tuned with running reengineering of the management procedures. Such compact way shall eliminate long period of the development.

Nevertheless, there also exist methods supporting more user-friendly implementation, running continuously with reengineering of company’s procedures. Within the framework of these methods the information system can be quickly configured to precisely satisfy the objectives put upon its functionality. Moreover, by this step approach nothing is left to the chance and the risks of the implementation of undesirable changes are minimized. These methods are called within the framework of the informational systems as “Orgware”; in principle it is a unique set of methods, services and tools for fast and effective implementation. If the information system is easy to configure, fast and easy insertion of continuous improvements of company procedures shall be possible. (Vymětal, 2009)

Company Processes and “Orgware”

Components of “Orgware” can be arranged into three application parts:

IS Target

IS Target can be defined as straight step by step implementation methodology with well defined stages and milestones for the implementation of optimal solution to the information system. It also serves as the support to existing as well as newly established company processes. This methodology is effective irrespective to the fact whether we would firstly make the reengineering and then implement new information system or the old one would be substituted in so-called fast way. This systematic method guarantees that the solution to information system is ready – after the adaptation to current company procedures - for the improvement of the company efficiency. Besides, IS Target is not a limiting procedure, because each stage enables to take into consideration individual company needs.

IS Target is structured into three differentiable stages, divided into phases, each finished by progress milestone.

Stage 1: The selection - Orientation – The acquisition of the overview on managerial processes in the company and determination whether the implementation of new IS is a good solution. Important part of this cognitive process is the presentation to the management, clarifying the potential of new system just in relation to company procedures and organizational structure.

The proposal of the solution – Based on specific information on the company, main company procedures shall be configured in new information system and subsequently presented.
The decision on the solution – The decision on the final configuration of new information system. All changes of company processes and organizational structure are already integrated in this configuration.

Stage 2: The implementation – This stage focuses on progressive defining and linking of new information system and company procedures. At the same time changes of company processes and organizational structure are practically implemented. The new information system is becoming fully usable.

Stage 3: The optimization – the information system is in operation, inspections are taken regularly to determine if the system optimally supports company procedures. From the analysis of these reports can result new circumstances on the necessity to harmonize the system in certain parameters within company procedures or to broaden the functions of the system. By selecting this methodology, the influence over the company processes is correctly oriented on the basis of monitored research of factually functioning processes and really existing organizational structure. As a consequence of the method’s principles the changes of individual stages are progressive, revealing imperfections and failures of the implemented changes. Identically in the organizational structure, when shifted to the flat structure, incorrect intervention in the structure can be identified more easily.

Business Modeller

Is dynamic modelling instrument, fully integrated with own application, which can be automatically configured upon its basis. Projection models representing the state of a particular real company can be established in the modeller. Projection models resemble reference models; however, they are specific for one factual organization only. Options for company functions, representing various methods of the implementation of company function, can be defined in the projection models. The optimized relations can be set for these options, identifying recommended ways. Models of business functions and models of business processes of projection models shall be formed by the copying of functions and processes from the repository, in which these components shall be defined in advance.

The company modeller supporting the self-modelling and subsequent automated generating of the configuration of the application and other attributes of the system includes:

– The editor of business model of functions,
– The editor of business models of processes,
– The editor of business model of organization
– The application configurator

The business model is organically formed by the model of company functions (function = "what"), the model of business processes (process = "how") and the model of business organization (organization = "who"). The process of modelling starts with the modelling of hierarchic structure of functions and their decomposition into the processes. The insertion of processes is solved by using of company regulations. Petri’s nets are used for modelling of the processes. This methodology offers modern and relatively simple method of the procedure, thanks to graphic illustration and automatic tools for the inspection of the model formation. The clash between reality and idea can occur in the formation of model. The organizational structure is influenced by overall change of the whole module, and usually its divisional spreading happens, also in the line staff structure. Links within the scope of the structure are treated within the framework of the modelling tool. Specific advantage is the “switching-over” of the model into the practical configuration of the information system.

Reference Models

Are pre-defined representatives - templates - of models, offering the solution to companies in various fields of the industry. In a certain sense they follow previous methodology of business modeller.

Reference models of industrial sectors - so called reference models can be used to make the process of modelling more effective and to acquire the know-how of the management of companies of certain industrial sector. Companies in IT branch in co-operation with world advisory partners develop reference models for individual industry sectors, for example automobile, electrical engineering, armament and aircraft, chemical and food processing industries. These representatives – templates – offering the solution to companies, can form the initial stage for the modelling itself, or - on the contrary – the target model, which the company wants to achieve within the framework of the implementation.

Reference Models Workflow- documentation management - Workflow management represents the logic control of company administrative processes. Within the framework of the business modelling they
create the assurance of rational and effective designing of the processes as such. By means of the control and workflow realization it is possible to plan, monitor, control and evaluate the effectiveness of individual working instructions, for example complete processing of the invoice, passing of the purchase order through the company etc. This methodology brings to organizational structure rather clearly defined structure, delimitates individual division, but does not solve vertical links in detail. From the point of processes the advantage is illustrative definition of processes in the model, appropriate for example for the company that does not have supported or correctly described existing processes. Specific advantage applicable in this case, i.e. setting of parameters, should not be omitted. It means that the part of parameters is automatically set after the reading of the model by the configurator. Guides, linked with main process, then help with the setting of other parameters of processes.

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**Conclusions**

At present time, the information system forms the backbone of sources, information, outputs, analyses and other data important for the decision-making within the framework of the company. Decision-making in the operative field, from the level of individual manufacturing lines, departments, divisions up to the strategic level, related to company vision and strategy. Mutual influences of information system upon company organizational structure and further upon strategic objectives - it is the field omitted from the point of mutual links. In vast majority of cases, while introducing the information systems, the scenario is unwound from two approaches. First method is the leaving of existing company organizational structure and strategic objectives, followed by large quantity of modifications within the framework of the methodology of the introduction of information system and the system as such. Such philosophy is unfavourable for the movement of the company towards the changes of innovation character, most commonly it is not considered whether the existing situation is correct, responding to the company size, competitive environment or modern technologies. On the contrary, second method is based on maximal adaptation of company processes including organizational structure and strategic objectives to standards of the introduced system. The principle is just the declaration of introduced system as the standard, and then frequently precipitous and ill-considered copying of such direction. By this process even correct and by the time verified principles, procedures or processes are removed, including for example effective and quality company organizational structure. Reorganization, new position establishment, roles etc. shall happen, within the framework of processes are the changes frequently in the level of reengineering; as times go on, the company implements many changes which are in the level of original setting after the demanding start, and discovery of already “discovered” happens. Focusing on the monitoring of the influences of the introduction of information systems to company organizational structure and company processes, by the supporting of appropriate methodology the possibility of optimal and balanced procedure of the introduction of information system is enabled, with the preserving of healthy principles in the company and contribution with new perspective elements based on new information technology.
References