

It is possible to come to certain conclusions on the basis of the information of the comparative table.

First of all, we will note that chapter 2 of the Treatise of L. Pacholi describes inventory more from the technical point of view and a technique of its drawing up. For profound understanding of the sense of this technique, Ja. Ympyn is giving the main postulates of the book of the predecessor, defines the essence of the used conceptual framework "Thus now to procede to the firste parte of this worke called the Inuentory, whiche is properly as muche to saie as a discription of sondery goodes, substancially written & valued, making mencio of all the goodes debtors and countre debtors, to any person dewe of right" [6, p. 152]. Separately in the third and fourth parts L. Pacholi gives example of drawing up of the stock and forms instructions on its drawing up (similar examples are absent in the work of Ja. Ympyn). But in the related section Ja. Ympyn discloses the content of the second part of the Treatise called the disposition. Here instructions are provided about what books are to be kept and their names. This section according to the contents is similar the 5<sup>th</sup> part of the Treatise, however, from the methodical point of view it can be characterized as substantially more reasonable.

In the 5<sup>th</sup> part of the Treatise, L. Pacholi doesn't disclose and interpret in details the fragment from its title "...what is understood as disposition...", but explains the meaning of three books: Memorial, Journal and Main. In the content-similar presentation (section 3) Ja. Ympyn gives the term "disposition" as a mechanism, orders and execution of the current and future affairs of a merchant. Providing analytical information about books, Ja. Ympyn in details describes their formats, number of pages, indicates the need of attachments of the register-alphabet to them. In the 4<sup>th</sup> chapter of the work Ja. Ympyn describes Memorial, adhering to the position of L. Pacholi, stated in the 6<sup>th</sup> chapter of his Treatise.

The attention is deserved by the 7<sup>th</sup> chapter of Ja. Ympyn, which corresponds the 9<sup>th</sup> chapter of L. Pacholi's work. In it nine ways of purchasing goods are described: in cash, on credit, exchange for goods, partially in cash, the rest in exchange, partially in cash, the rest on credit, partially in exchange, partial credit, transmission, partial transmission, partially-credit, partially transmission, the rest in exchange. At this, the last ways of purchasing goods are presented by Ja. Ympyn in more details. In the eighth and tenth sections the approaches of both authors are similar as to the fact that the entries should be made in Journal:

primarily the entries are inventory articles, the records in which can be abbreviated using the terms "Rer" and "A" (debtor and creditor).

Section nine of the Ja. Ympyn's work being akin to the 11<sup>th</sup> chapter of L. Pacholi's work is devoted to the interpretation of the terms of the debtor ("Per") and lender ("A"). J. Impin explains them as follows: "So shall you by these two first wordes used by the Italians, that is to say, Par and A. Understande that this worde Par, be tokeneth the debtor. And this terme A. the creditor" [6, p. 155]. L. Pacholi interprets these expressions as: "'Per' indicates a debtor, one or more as the case may be, and 'A' indicates a creditor, one or more as the case may be" [7, p. 43].

Next Ja. Ympyn explains the concept of "Cassa" and "Capital", details of which L. Pacholi describes very briefly in the 12<sup>th</sup> chapter. Detailing the term "Cassa" Ja. Ympyn writes: "An then understanding that we meane by this worde Casse, the chest that kepeth the redy money, and by the worde Cassier he that kepeth the money, we maie procede in our woorke and saie. It is also requisite and very mete that all parcelles entred into the Jornall at the charge of the Cassier, that is to saie of hym that kepeth the money, that thei be entred with his owne hande, or at the least that he subscribe and affirme that thei came to hys handes and kepynge, for no man maie charge his Cassier but by his hand, as shal be shewed in the exemplary of the Jornall" [6, p. 156].

Concerning Capital, he writes: "The other worde, the Italians call the Capital, that ist to saie, the Stocke or principall that the Marchant began withall, whiche came ether by bequest of his frendes or parentes, or by gift, or by mariage or els by Executorship as well of wares as money" [6, p. 156].

The information provided in the 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> chapters of Ja. Ympyn's work in its content coincides with the L. Pacholi's ideas outlined in the 13<sup>th</sup>, 14<sup>th</sup> and 15<sup>th</sup> chapters of his work and deals with the methods of keeping the Main, the Register to it, procedures of transferring articles from a Journal into the Main, records and the techniques of transferring them.

The 13<sup>th</sup> chapter of the Ja. Ympyn's work defines procedures for correcting faulty records in the books. In its content the statements are similar to those in the 31<sup>th</sup> chapter of L. Pacholi's work. In the fourteenth chapter Ja. Ympyn highlights the procedure of making changes in the general ledger in case it is not terminated every year. L. Pacholi writes about this in the 29<sup>th</sup> and 30<sup>th</sup> chapters.

In his research and development work (chapter 16) Ja. Ympyn writes about the account

“Profits and losses”. He doesn't justify the definition of this term, and only in the practical part of the Flemish and French editions he explains in detail the formations of this account using examples. In the 17<sup>th</sup> chapter Ja. Ympyn describes exchange operations, providing like L. Pacholi (in the 20<sup>th</sup> chapter), three ways of exchange: goods for goods; part goods, part money; the rest credit.

But for the above mentioned aspects of research and development work it is worth to note that the 19<sup>th</sup> chapter concerns sale of goods to other cities and rising expenses in this regard, and also deals with the household expenses. L. Pacholi writes about this in chapters 22–23 of his book. The difference in presenting information by these authors lies in the fact that Ja. Ympyn considers concrete expenses on goods by means of similar account, and indirect expenses he refers to the account “The maintenance of household”.

**Conclusions.** Research and development work of Ja. Ympyn, which was mainly based on the L. Pacholi's Treatise, still can be attributed to those which have deepened methodological developments of theoretical and applied content, brought an additional impulse in the development of the accounting thought, and as a result, in the practice of organizing and maintaining the bookkeeping. The main distinctions of the considered works concerned accounts, registers and interpretation of terminology.

The essential difference of these two works concerns closing the accounts. So, Ja. Ympyn suggested closing accounts by means of the account “Balance”, unlike L. Pacholi, who conducted closing accounts through the account “Capital”. The author offered a new way of closing accounts “Goods”: after carrying out inventory the author recommended to credit concrete analytical accounts and to debit synthetic account of the rest of “Goods”, to close this account by debiting the account of “Balance”.

In the part connected with bookkeeping, novelty can be provided through different approaches to the order of maintaining the Memorial. From the point of view of Ja. Ympyn, such bookkeeping process should include, besides the habitual facts of economic activity, being the subject of accounting, future facts as well (how many and what goods should be purchased) and reference information (where and how many sheets have been sent). In the work of Ja. Ympyn there are recommendations about maintaining accumulative sheets. For realization of control, Ja. Ympyn recommended maintaining the separate journal, in which to write down the minor

and other expenses during the month and to enter only the monthly summary into the Journal. It became the foundation of the operational accounting of commodity turnover.

In general it can be noted that in his work Ja. Ympyn was primarily trying to avoid direct copying of insufficiently defined terms and concepts, giving them specific content, but while maintaining the essence and spirit of the original work. Critical re-evaluation of L. Pacholi's ideas enabled Ja. Ympyn “to shed light” on some procedural issues that weren't clearly outlined in the Treatise. So, development and research work of Ja. Ympyn can be considered as having laid the fundamental basis for further works on the development of double-entry bookkeeping, allowed significantly enrich comments to the Treatise. In addition, in the Ja. Ympyn's work, as the barely noticeable thread, there appears the thought of moral aspects of economic activity and its accounting provision (“rules of trade affairs and the proper journalizing”), they being the factors, which are now called “social responsibility” and “correct formation of the formalized accounting information”.

## References

1. Kheil K. P. *Über einige ältere Bearbeitungen zur Geschichte des Buchhaltungs von Luca Pacioli* / K. P. Kheil // *Ein Beiträge zur Geschichte der Buchhaltung*. – Prague : Bursik & Kohout, 1896. – 64 p.
2. Butynets F. F. *History of Accounting*: in 2 parts. P. 1 / F. F. Butynets // *Educating Manual*. – Zhytomir : PE “Ruta”, 2001. – 512 p.
3. Galagan A. M. *Accounting in its historical development* / A. M. Galagan. – M.–L : State Publishing House, 1927. – 172 p.
4. Soklov Ya. V. *Accounting: from sources up to nowadays: manual for higher education institutions* / Ya. V. Soklov. – M. : YUNITI, 1996. – 638 p.
5. Pacioli L. *Treatise on Accounts and Records* / L. Pacioli; under the editorship of Ya. V. Sokolov. – M. : *Finances and statistics*, 2001. – 368 p.
6. Bauer O. *Memoirs to the History of Accounting and Monuments of Sacred Old Times* / O. Bauer. – M. : Society “Printing-Office of S. P. Yakovlev”, 1911. – 370 p.
7. Geijsbeek J. *Ancient dooble-entry bookkeeping. Lucas Pacioli's treatise (A. D. 1494 – the earliest known writer on bookkeeping) reproduced and translated with reproductions and abstract from Manzoni, Pietra, Mainardi, Ympyn, Stevin and Dafforne*. – Denver, Col., 1914. – 182 p.
8. Ruver R. *How occurred double entry accounting. Development of accounting before Luca Pacioli according to the account books of merchants of Middle Ages* / A. Mukhin translated from English. – M. : Gosfinizdat, 1958. – 218 p.

## **IMPROVEMENT OF ENTERPRISE ACTIVITIES BASED ON PROCESS MANAGEMENT**

**Abstract.** Process management has been increasingly popular for several years now, yet most frequently it is limited to fragmentary actions, at times even to declarative activity. Few organizations have brought their management systems in conformity with the idea of process management; more frequently some particular actions within the range of process approach may be observed.

Specialization allows efficient realizations of tasks; however, it separates individual organizational units and amounts to an incentive for internal competition, in the result of which employees are antagonizingly focused on their positions and not on the organization's business. Among numerous imperfections, or even pathologies caused by hierarchization within the organization, it is noteworthy to point at weak communication, isolation of structures, blurred responsibility for the final result. Development of coordinating, supervising and monitoring systems, which are essentially not related to generating added value is also typical in this regard. These systems, however, are crucial for neutralizing negative outcome of the organization's functioning within the system. (Rutka, 1996); (Borkowski, Siekański, 2004); (Deming, 2000). Therefore, Hammer and Champy proposed an alternative concept of managing organizations, Business Process Reengineering, which initiated the discussion about the effectiveness and efficiency of management. (M. Hammer, J. Champy 1993); (Womack, Jones, 2008); (Ohno, 2008).

Process management is used in the organization and aims at realizing given objectives. It may be meeting the key standard of ISO 9001 at the initial stage of implementing the QMS. However, the motivation is frequently more ambitious as it is related to achieving proper results.

The processes ought to be mapped, modeled and optimized with the use of a renowned international notation – most frequently BPMF. Finally, we should achieve a comprehensive map in accordance with proper process architecture. The architecture should be based on 4–5 levels with the use of flow charts in the form of VACD (Value Added Chain Diagram) and EPC (Event-driven Process Change). The analyzed research problem is related to conscious use of process management conception for realization of a wide range of improvement actions in management.

The leading management conception heavily relies on the functional orientation, in the range of which the predefined tasks are realized by executors on the

basis of superior's orders. Participants of an organization perceive the structures through the realized functions, e. g. supply, production, designing. For the organizational objectives defined in this manner specific structural solutions are created (sections, departments, cells, positions). (Grajewski, 2004); (Kunasz 2010).

Process management is still more popular in research than in practice. There are few examples of complex usage of mapping, modeling and process improvement methodologies; more frequent are partial examples of usage.

Despite the increasing popularity of the issues related to process management, or as may be named as a fashion in this regard, taylorian organization is based on division of labor and specialization in the frames of functional areas (Rummler, Brache, 2000), (Grajewski, 2004) (Gregorczyk, Ogonek, 2007); (Kunasz, 2011); (Gabryelczyk, 2000). Numerous titles devoted to process approach were not able to find appropriate manner of expression, which is hardly possible to link uniquely with tradition, conservatism or historic organizational solutions. It is noteworthy to emphasize the risk which is recognized by managers during the implementation of process management conception, at least in its comprehensive, model form.

Process management is a conception, which, despite the significant depreciation of its original form (BPR), in some of its aspects plays a highly important role within numerous management conceptions, however, frequently only to some limited extent. The aim of the present paper is to present the key results of research concerning process optimization of IT services realized for the Polish National Police.

**Key words:** process, process management, process mapping, efficiency, quality management

### **1. The essence of process management.**

It is difficult to explicitly answer the question of the essence of process management. It depends on the criteria which will be defined as fundamental in relation to this discussion. In the classical understanding a process is “a group of logically interconnected actions, which transform inputs into outputs, which process given resources and lead to meeting an objective”; other definitions treat the understanding of a process similarly, yet empha-

sizing some nuances. It is noteworthy to heed the key features of a process:

- it has a deliberate character and is linked to creating value added in the understanding of an organization;
- it is a system of sequences and not a set of actions which, despite the fact that they perhaps may be considered as crucial and necessary, they do not create a logical chain of events;
- it transforms inputs into outputs, i.e. in relation to each process we will be able to define the expected outcome of realizing the process as well as identify the basis for its realization.

Authors note numerous aspects of process management. In the frames of the present conception it is necessary to conduct mapping, modeling and optimization of processes. The key issue appears to be the process measurement which will allow organizational effectiveness and efficiency to be seen from the angle of realized processes (Grajewski 2007); (Bartkowiak, Koltwrman, Wójcik G., Wójcik K. 2001).

**2. Key contentious issues in realization of process management.** Literature analysis sees the conception of process management in a relatively coherent manner. Authors occasionally differ in:

- functional and process orientation in management;
- division of roles as opposed to positions and functions of employees;
- standardization;
- notations used in process description;
- methods and details of mapping;
- process architecture;
- implementation of process management;
- functionality and understanding of process management, it seemingly being the key issue.

These issues among many others are essential for understanding the essence of process management and its functionality when applied in an organization (Pacholski, Cempel, Pawlikowski 2009).

**3. Process quality management in light of the ISO 9000 series norms.** Process approach is one of the fundamental rules of quality management in accordance with ISO 9001 requirements. In chapter four of the abovementioned standard

requirements related to process management are presented. Thus, organizations are obliged to explore the theory and practices of process approach as well as to select solutions in accordance with the norms' requirements in this regard.

Practice proves that frequently taken actions in this area, however accepted by certification bodies, are merely a semblance of solutions defined in the theory of Business Process Management (Kunasz, 2011, p. 113–120).

Interest and popularity attached to process management becomes comprehensible in light of new requirements of the international norm. Unfortunately, practice frequently confirms that the interest often appears to be of limited range. The quality management conception focused on merely meeting the requirements of the standard defined in relevant parts of the norm should become outdated. At present the superior conception in reference to the system should be processes oriented towards creating value added for customers, i.e. towards the synergy of knowledge in various fields and of work done simultaneously in the whole enterprise and its surroundings (partners, clients, competition).

The fact that orientation towards processes is the basis for international quality management standards in practice means that it is not feasible to implement an effective quality management system in an organization without the analysis of the given organization as a system of all processes as well as without improvement in joining actions of different functional areas.

#### **4. Process management methodology.**

Independently of the moment of the decision about implementing the process management conception it is highly significant to accept a particular methodology both in relation to the process management conception itself and to its implementation (project management). Effectiveness in this regard will determine the effectiveness of the organization and the mechanism of continuous improvement. In the professional literature we may come across numerous descriptions of methodologies of the process management system implementation. Hence, it is possible to refer to the classical cycle of the organizational design, realized through stages (Grajewski, 2007):

- establishing and dividing the general objective of the organization;

- designing the division of labor and the organizational hierarchy (merging actions and tasks into organizational posts instead of cells and sections);
- designing the system of information interconnections between organizational objects;
- spatial designing of organizational elements in order to optimize the usage of space at work;
- formalizing the organization.

Project approach is inevitably dissimilar to the classical scheme, because of its different perception of an organization. In the professional literature we may come across numerous attempts to systematize the stages of the organizational design and process management implementation. For instance, differences in the process management approach refer to designing processes (prognostic or diagnostic), or the range of implementing the changes (evolutional and fundamental) (Kraśniak, 2004); (Kaferl, 2005); (Kunasz, 2010).

The popular methodology of process management implementation is related to four stages (identification, defining objectives, process design and process management) (Błoński, Kondracki, 2004); (Kafel, 2005):

- Identification of processes which take place in the organization is based on observing the style of work through defining: events which cause the process to begin, actions taken by individual members of the organization along with justification of a given action, decisive moments, resources, events which close the process.
- Defining the process objectives – the identified processes are analyzed in order to define their suitability in reference to their objectives; if it turns out that the process is not focused on the client, the objectives should be verified.
- Process design – at this stage it is checked if the course of processes allows attaining predefined objectives in the optimal way. If the need to introduce changes is identified, the necessary modifications take place.
- Process management embraces: management of objectives, effectiveness, and resources; management at the meeting of departments, knowledge management – these actions do not refer to the whole organization, but to each action in the process.

## **5. Process identification and classification.**

Process identification (process mapping), i.e. the selection of key processes in an enterprise, is the first stage of process quality management. In the results of this stage the so-called contextual model is created. As at further stages it is obligatory to depict the correlation between processes, they frequently belong to two or more groups. (Bartkowiak, Koltwrman, Wójcik G., Wójcik K. 2001); (Grajewski 2007). The most popular; however, is the model which assumes two groups of processes, the processes being selected by the role they play in an organization and by their mutual correlation. Hence:

- Basic processes are the processes which result in a product or service directly related to the enterprise's activity. Generally, these processes create value added in the so-called value added chain. The following processes may be included in this group: market research, product design, product delivery, sales, marketing, customer service.
- Support processes are the processes designed to ensure an effective functioning of an enterprise and to enable the realization of basic processes. Support processes do not create value added for the customer in a direct manner. Among these processes the following may be included: strategic planning, human resources management, finances-accountancy, computer and logistic services.

Frequently the divisions differ as they are connected to the functionality of process mapping. For instance, emergency processes, cost and business centers. Process map in each case should combine both the knowledge in process mapping and the specificity of the organization itself.

Key processes identification constitutes the basis for developing process architecture of the management system. Process architecture may be seen as an arranged image of the structure of processes on account of the scale of the enterprise's activity. In relation to computer tools process architecture may include:

- cross-sectoral processes (megaprocesses);
- sectoral processes (main processes);
- basic processes (individual actions).

Creating the process architecture, thus, consists in gradual division of given key business

processes into smaller and more basic elements. In reference to the responsibility for the processes the so-called process owners are in the leading roles. Process owners coordinate the operational flow of actions in the frames of processes as well as manage the processes, i.e. set the goals and measures, analyze and improve processes (take and verify support and preventive actions).

#### **6. Standardization in process management.**

The expected result of process identification is general and detailed process maps (diagrams) which create the so-called process architecture. Creating maps which depict the flow and mutual correlation between processes is another significant element of implementing process management. Hence, it is worth considering the use of a renowned notation to illustrate processes, for example BPMN (Business Process Mapping Notation). This notation allows comparison of graphic presentations of processes which gains significance in the case of benchmark comparisons, both internal and external. The processes graphically depicted in such a manner allow verifying how undertaken actions are oriented towards internal and external customers and how they contribute to creating value added for the organization.

The described processes embrace a given sequence of actions which are directly interconnected (realization of one action allows moving to another). Thus, the following elements should be considered significant in relation to process description:

- functions separately realized;
- responsibility for realizing individual functions (e.g. position);
- input and output documents.

The documentation prepared in the frames of the quality management system should be process-oriented, which is in favor of a better reception of tasks assigned to employees. For instance, it is easier for a employee to refer to the process “Winning and servicing a client” rather than an element of the norm named “A review of requirements related to the product”. The quality management system documentation joins the real actions of the organization and solutions undertaken as a response to the norm’s requirements. The basis for the documentation preparation is processes, as opposed to the standard’s requirements. This conception is supported by the liberization of requirements

related to systematic documentation. Hence, each organization decides individually about the need to prepare relevant operational procedures.

Modern quality management systems require adequate documentation in relation to understanding and using the process management theory. Thus, new documents are created, for example, process cards or process book which are simply in the leading role in the area of identification of methods and criteria of process realization.

The process card may be the leading document, for the fact that if created for every process it may contain both the data characteristic of a given process and the data related to its planning, monitoring and development. An exemplary structure of a process card, based on the assumption that every process will aim at three types of objectives, may include:

- *basic* defined according to the definition of a process, understood as an intentional action (e.g. for the process Cards Management: assuring competent personnel for realization of professional tasks in the organization);
- *monitoring* defined as indicators whose values should be read as possible early warning signals (e.g. for the process Cards Management: production workers absence higher than 2 %);
- *improving* defined as objectives, whose attaining will be seen as the proper direction of process modeling and development ( e.g. for the process Cards Management: decreasing the rotation of executive managers within the first year of recruitment to 0).

ISO 9001 norm has certain requirements for the quality management system documentation, in particular, in reference to the need to create documented procedures (ISO 9001). Furthermore, the intention of the requirements is the individualization of the systematic documentation in the aspects of personnel competence, process complexity and the organization’s specificity. Finally, the procedure is defined as the established way of proceeding with the action or process. In light of the abovementioned considerations, a procedure may have various forms.

**7. Process parameterization.** Effectiveness measurement is a significant feature of both process

approach and quality management systems in conformity with ISO 9001. Therefore, there is a need to parameterize processes (Grajewski, 2007, s. 79–87). In practice it is linked to the need to define:

- main quality features;
- result and leading measures;
- target values of measures.

Parameterization should be conducted for individual processes in the frames of the process map. Hence, objectives, measures, and target values are defined in the quality management practice, at least for the so-called megaprocesses. At the next stage objectives, measures, and target values for the basic processes are defined (sectors of lower level). Finally, these parameters are established for the lowest sectors – the operational level. As the result of these actions every employee is aware of objectives and tasks defined in the frames of a given process (Huang, Dismukes, Mousalam, Razzak, 2003); (Muchiri, Pintelon, 2008).

**Conclusion.** Although in both the literature on the subject and the practice numerous descriptions of process management may be found, there is no explicit opinion indicating that meeting the minimal requirements will allow application of process management in an organization. The thesis that a certified quality management system is an unequivocal piece of evidence for process management in the given organization appears not to be valid in practice. It may be even stated that there is no direct link between certified management systems and process management.

Professional process management is still a rare practice, yet it is difficult to find the reason for it. Most probably this situation is caused by the fact that process management is seen as a risky conception in comparison with the traditional hierarchical organization which creates a sense of stability and security.

Process improvement is realized through analysis of data related to the process, creating objectives and undertaking corrective actions. The result of process improvement may be not only quality improvement but also reduction of costs related to the process. We may assume that the product is as good as the process is.

In order to conduct a complex evaluation of process measurement The Balanced Scorecard may be used. It allows to observe relations between individual areas of an organization's functioning:

finance, clients, processes and resources, and, in particular, to define the influence of the processes on the first two of the already mentioned areas. Hoshin Kanri method may be equally useful and is related to building the management strategy.

Similarly, assuring the effective data acquisition and analysis is possible only in case of assuring computer support of process management. According to some authors, it is the essential condition of professional process management.

Business process models previously developed in the course of the project along with the measurement system are the basis for taking optimizing actions. In the frames of process improvement generally two methods may be used:

- process facilitation;
- process reengineering.

Process facilitation leads to the modification of the present state, as the result of which the effectiveness and efficiency of the process are increased. Facilitation is applied in order to rationalize the process in the range of a small area of activity or to introduce changes in the selected elements of the process.

Process reengineering leads to the radical change in the process realization which results in change of effectiveness. Hence, reengineering has a broader character and is frequently related to designing the course of the process from the beginning on the basis of the research assumptions and client's requirements. In conformity with the leading definition (M. Hammer, J. Champy 1993) reengineering is the fundamental rethinking and redesigning of processes in the enterprise, which leads to the crucial improvement – according to critical modern measures – of results, e.g. cost, service, speed.

Quality process management defines a new approach towards the quality management system. This approach is equivalent to the full conception of Total Quality Management. Constant process improvement, including the executive personnel and all employees at all levels of the enterprise's process orientation, leads to continuous improvement of quality of provided services and products. Eventually, it enables the correlation between the attention to quality along with customer satisfaction and the pragmatic approach to running an enterprise.

## References

1. Bitkowska A. *Zarządzanie procesami w przedsiębiorstwie* / A. Bitkowska, K. Kolterman, G. Wójcik, K. Wójcik // Difin. – Warszawa, 2011.

2. Borkowski S. Zarządzanie funkcjonalne a procesowe w przedsiębiorstwach / S. Borkowski, K. Siekański // *Organizacja i kierowanie*. – 2004. – № 2.
3. Chrissis M. B. CMMI: Guidelines for Process Integration and Product Improvement / M. B. Chrissis, M. Konrad, S. Shrum // Addison-Wesley Professional. – 2003.
4. Davenport T. H. The New Industrial Engineering: Information Technology and Business Process Redesign / T. H. Davenport, J. E. Short // *Sloan Management Review*. – 1990.
5. Davis R. ARIS Design Platform. Getting Started with BPM / R. Davis, E. Brabander // Springer Verlag. – London, 2007.
6. Davis R. Business Process Modelling with ARIS. A Practical Guide / R. Davis // Springer Verlag, London. – 2003.
7. Debevoise T. Business process management with a business rules approach / T. Debevoise // *Business Knowledge Architects*. – 2005.
8. Deming W. E. The new economics for industry, government, education / W. E. Deming. – Second Edition, MIT Boston. – 2000.
9. Gabryelczyk R. Reengineering. Restrukturyzacja procesowa przedsiębiorstwa / R. Gabryelczyk // *Katedra Informatyki Gospodarczej i Analiz Ekonomicznych*. – Warszawa, 2000.
10. Gabryelczyk R. Modelowanie procesów gospodarczych za pomocą ARIS Toolset / R. Gabryelczyk, M. Lasek // *Katedra Cybernetyki i Badań Operacyjnych*, Wydział u Nauk Ekonomicznych UW. – Warszawa, 1998.
11. Gabryelczyk R. ARIS w modelowaniu procesów biznesu / R. Gabryelczyk. – Warszawa : Wydawnictwo DIFIN, 2006.
12. Grajewski P. Organizacja procesowa / P. Grajewski. – Warszawa : Polskie Wydawnictwo Ekonomiczne, 2007.
13. Hammer M. Reengineering in Corporation. A manifesto for Business Revolution / M. Hammer, J. Champy // Harper Business, a division of HarperCollins Publishers, Inc. – New York, 1993.
14. Hammer M. Reengineering w przedsiębiorstwie / M. Hammer, J. Champy. – Warszawa : Neumann Management Institute, 1996.
15. Huang S. H. Manufacturing productivity improvement using effectiveness metrics and simulation analysis / Huang S. H., Dismukes J. P., Mousalam A., Razzak R. B., Robinson D. E. // *International Journal of Production Research*. – 2003. – Vol. 41, № 3.
16. Łuczak J. RAPORT. Zaprojektowanie optymalnych rozwiązań w zakresie zarządzania zasobami IT Policji, struktury organizacyjnej pionu IT oraz rozliczenia działań w oparciu o podejście procesowe / Łuczak J., Sawicki P. // UEP – F5 Konsulting. – Poznań, 2012.
17. Muchiri P. Performance measurement using OEE / P. Muchiri, L. Pintelon // *International Journal of Production Research*. – 2008. – Vol. 46, № 13.
18. Ohno T. Toyota Production System; Beyond Large Scale Production, Productivity Press. – Wrocław, 2008.
19. Pacholski L. Reengineering. Reformowanie procesów biznesowych i produkcyjnych w przedsiębiorstwie / Pacholski L., Cempel W., Pawlewski P. – Poznań : Wydawnictwo Politechniki Poznańskiej. – 2009.
20. Rutka R. Organizacja przedsiębiorstw – przedmiot projektowania / R. Rutka. – Gdańsk : Wydawnictwo UG. – 1996.
21. Scheer A. W. Business Process Excellence. ARIS in Practice. Springer Verlag. – Berlin Heidelberg, 2002.
22. Scheer, A. W. ARIS – Business Process Frameworks, Springer Verlag. – Berlin, 1998.
23. Scheer A. W. Corporate performance management / Scheer A. W., Jost W., Hess H., Kronz A. ARIS in practice, Springer-Verlag. – Berlin Hiedelberg. – 2006.
24. Womack J. P. Lean thinking. Banish waste and create wealth in your corporation / Womack J. P., Jones D. T. // Productivity Press. – Wrocław, 2008.