

PROCESS AUDIT CRITERIA AIMED AT HUMAN RESOURCES

ZUZANA ZÁVADSKÁ – JÁN ZÁVADSKÝ – MÁRIA SIROTIAKOVÁ

Abstract

The article describes criteria of process audit aimed at human resources. There are not criteria of personnel audit which are directly focused on human resources and human resources management in a company. The article tries to explain selected criteria of process audit related to human resources and their role in process based management systems. The baseline for analyzing these criteria represents the holistic approach to the process audit. It contains three sets of criteria. The first set is criteria defined in Process and Enterprise Maturity Model determined by Michael Hammer. The second one is criteria involved in the R_{bpm} index for evaluating the rate of Business Process Management Application as our research output. The third set is methodical frame to process content auditing oriented towards the way of process transformation.

Business process audit seeks critical places in a management system and individual business processes. By means of criteria set (questions) it judges how the business manages its processes and if it possible to speak about an implemented process approach at all. Hammer's PEMM model contains 104 evaluative criteria. R_{bpm} index defines 105 questions. From both approaches only some were selected, the ones which are aimed at human resources assessment (managers and executive employees) from the process approach point of view.

Key words: process audit, index R_{bpm} , process-based management system.

Classification JEL: M12 Personnel Management

1. Introduction

A business is in its essence an imperfect system if we consider the man as one of its possible elements. The business is the socio-economic system. The imperfection of a man is – due to his subjective perception of the objective reality and unstable internal environment – an important precondition for the improvement of any business system. Analysis of human factor impact on company performance achievement is a part of organizational or personnel audit, where the audit's objectives primarily concentrate on improvement of managerial subject's activity (managers), utilization of executive element (human resources) and their mutual managerial and communication connections.

Process audit also considers the human resources analysis but it looks at the business system as at a complex of elements and their mutual connections. Process audit is a holistic conception of a business audit. Process audit determines assumptions for innovative development of a company, under which we understand any improvement of activities (dynamic aspect of a company system) or company structure (static aspect of a company system) in a form of organizational or product innovations. Audit is also defined by the norm ISO 19011:2002 as a systematic, independent and documented process of acquiring of audit's arguments and their objective evaluation with the aim to determine the extent to which they meet audit's criteria. There always must exist audit's criteria – the reference system of procedures and requirements, which is compared to the audit's arguments whereby the arguments of an audit are usually records, statements, facts or other information concerning the audit criteria, which are verified (argument of an audit may be qualitative or quantitative).

Each managerial audit always determines audit's criteria concerning the particular subsystem of management from the point of view of two aspects. The first is the audit of managerial aspect and the second is the audit of the content – elements, their connections, outputs and achievement of subsystem goals. Marketing audit may serve as an example. From the aspect of management the way of marketing activities assurance is analyzed, i.e. what

marketing processes are defined in a company and how they are assured from the organizational point of view.

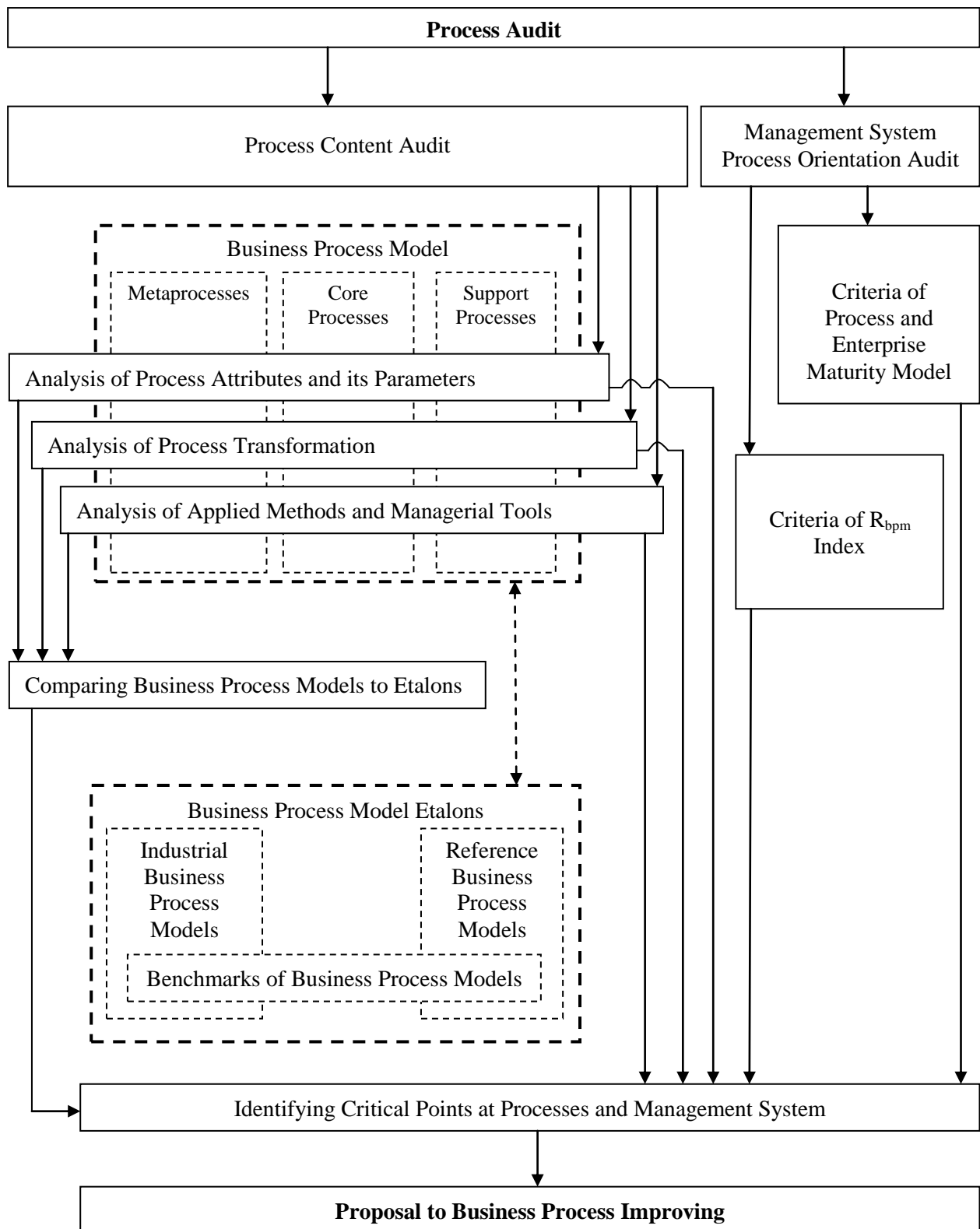


Figure 1: Process audit procedure and objects

Source: Závadská, 2010, p. 13

From the aspect of the own marketing processes content (business marketing system) analysis the content of marketing processes and its outputs are analyzed. In the process, we focus on the correctness of executed activities – the way of individual marketing processes outputs achievement (the output of marketing analysis, for example, may be the result of market research).

It is similar for the personnel audit. Kuchárová Mačkayová (2007, p. 175) states that in general the personnel audit has two basic forms. It concentrates on assessment of an organization human resources level and on reviewing and analysis of personnel strategy and human resources management effectiveness.

Classification of personnel audit due to the object of research:

- a) audit of human resources which is aimed at a man (employee), reviewing his professional ability, qualification structure, human resources allocation, etc.,
- b) audit of personnel work which presents an independent analysis of individual processes, procedures and indicators in the area of human resources management.

If we follow the definition of personnel audit of the above mentioned author, it also understands audit from two aspects – audit of managerial aspect (audit of personnel work) and audit of the own content of human resources management (allocation of employees and their competence in connection to required business outputs).

2. Business process audit

Business process audit is a holistic conception of managerial audit and its goal is to analyse the level of business management system process orientation and proper content of business processes. Basic procedure and determination of subjects in process audit is provided in Figure 1. **Criteria of business processes** content audit:

1. *Reference process models* – are process models which do not depend on the industry and contain definition of processes, activities, their attributes and parameters applicable in any business. They are usually supportive processes (servicing or managerial) and they have a general character or selected main processes.
2. *Industrial process models* – are process models which belong to the group of references models, but contain the definition of processes, activities, their attributes and parameters in a context of main processes typical and specific to the particular industry.
3. *Benchmarks of process models* – are process models which may belong to the group of reference or industrial process models. Their characteristic is that within the particular group they present the best process models, it means that all the values of examined attributes and their parameters get the best values.

In all three types of process models which serve as audit criteria attributes and their parameters, real aspect of transformation and applied methods and tools of particular process management are compared to business reality.

Criteria of Process and Enterprise Maturity Model (Hammer, 2007, p. 3):

1. *Process factors* – processes design, processes executors, particular process owner, infrastructure, performance assessment indicators.
2. *Business factors* – leadership, company culture, qualification, cross-sectional control.

R_{bpm} index criteria:

- R_{bpm}^1 Hierarchy of processes.
- R_{bpm}^2 Allocation of resources due to processes activities.
- R_{bpm}^3 Processes performance measurement.
- R_{bpm}^4 Processes performance evaluation.

- R_{bpm}^5 Business processes improvement.

As it is given in the Figure 1, the basic output of process audit is a proposal for optimization of business processes and management system resulting from identification of six groups of critical places.

The first set of critical places identified based on comparison of business processes with etalons. Reference process models, industrial process models and benchmarks of processes belong to processes etalons. As an example of reference process model may be a legislative regulation or other normative document, according to which business process should be executed. Industrial process model is such process order which is characteristic for this particular industry and may be considered as an audit criterion. In both reference and industrial there are benchmarks of processes. They are process models which are carried out in businesses with the best performance and that is the reason why they may be considered as the target ones. Also B. G. Dale and J. J. Plunkett (1990, p. 177) support the idea of comparison, and according to them only the proposal concerning performance management which enables not only internal evaluation of performance growth but also comparison of performance parameters with other businesses is good.

The second set of critical places is represented by the places identified through analysis of process attributes and their parameters. Process attribute is a character of business process in which parameters may be defined through performance indicator as it is schematically shown in Figure 2. In Figure 2, also characters of the indicator are presented. Their definition is determined by Závadský (2005, p. 63). Process attributes are divided in process attributes, activities attributes and integral process attributes. As an example of activity attribute is a place of work where a parameter is defined as service place in square metres, etc.

The third set of critical places includes the places identified based on analysis of particular business process objective aspect. The objective aspect of process transformation examines the way of particular process goal achievement, in production process, for example, it means design of the product and technological procedure of its production. One of the attributes regarded in the first step of processes content audit is also process structure, by means of analysis of this attribute is to review flow of activities (series or parallel) in the place and not their own content – objective aspect.

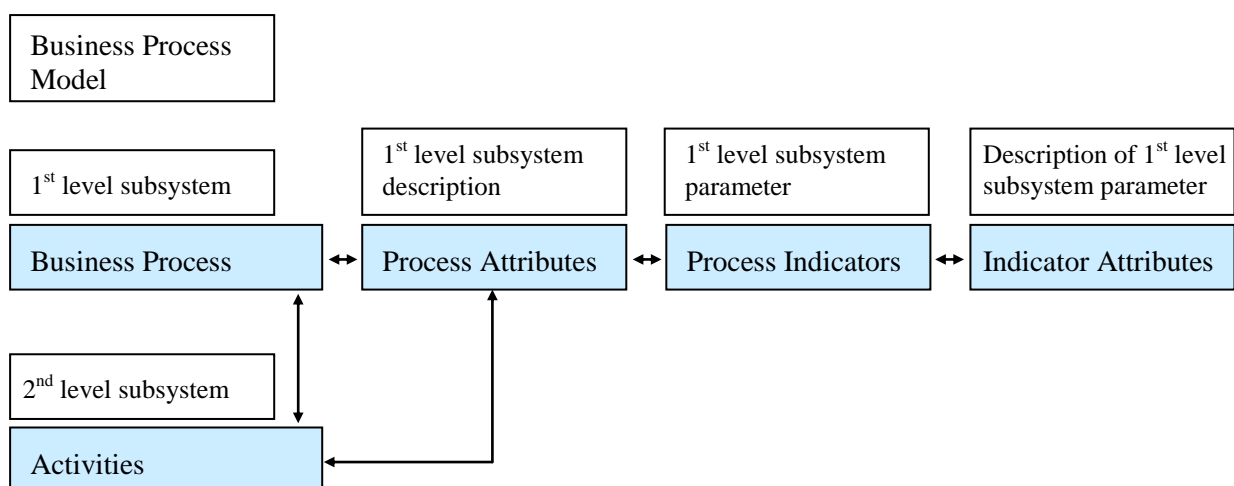


Figure 2: Business process system

Source: Own study

The fourth set is represented by the critical places identified through analysis of applied methods and managerial tools in a given business process. This phase of the processes own content audit in some cases brings a methodological problem. Sometimes the application of selected management method is an individually defined process (for example dispatching production control), but in the case of process objective aspect evaluation it is perceived as the way (rules) and restrictions of the process.

The last two sets, the fifth and sixth of critical places definitely result from failure to meet the selected question of audit criterion aimed at process audit application in the business. As the most frequently used is Hammer's PEMM model or R_{bpm} index calculation. The result is a list of critical places due to exactly defined areas.

Proposal to optimize business processes and system of management based on a set of critical places always lead/should lead to an increase of the total performance of the business. Business performance is an ability of the business to achieve required effects or outputs, preferably in quantifiable units. Thus the issue of performance is transformed into two questions: What are the required outputs? How to assess (and measure) their fulfilling (in which units of measure)? (Lesáková, 2004, p. 7).

Business performance increase results from different initiatives. These initiatives may be of all-business character and present a specific company philosophy of processes improvement (for example Kaizen) or the growth of performance always results from a specific approach or measures (for example the method 5S). Processes improvement may concern only selected process attributes or the particular business process. The starting point of performance growth is the previous performance evaluation. There is, however, no performance growth, if required parameters are not achieved because in some approaches activity of employees is allowed and they may find such place supporting performance growth which would not be identified in standard evaluation. Such improvement approaches are also a part of complex quality management system (Mateides et al., 2006, p. 432).

Theoretical precondition of performance improvement is, as J. Nenadál states (2004, p. 206), that any changes of process output are dependent on changes and quantity of ΔV s inputs and changes of process ΔP performance caused especially by changes of values concerning the process attributes. If VY represents the process output, VS represents the process input and P stands for the process, then:

$$\Delta VY = (\Delta VS \times P) + (\Delta P \times VS). \quad (1)$$

If the value of input is not changed or respectively is equal to zero and the change in the process is equal to zero too, also the change in output remains the same. This theoretical basis defines basic conditions of performance growth which is then dependent on changes (improvements) in the process. And it is possible – from the point of view of the system – to put into relation the changes in the process with the process attributes. The core of business processes improvement is their positive change – innovation.

Neumaierová and Neumaier (2002, p. 353) indicate that each business performance management system should have the following basic characteristics: proper determination of top criterion of business performance and its measures, existence of possibility to determine partial indicators (determination of connections between them and circumstance under which these connections are valid) from the top measure, existence of possibility of interconnection of long-term and short-term performance measures, existence of possibility to introduce the measurement of so called performance soft values and the possibility to quantify the impact of partial measures values changes on the change of top measure change as well as of short-term measures to long-term ones.

Process audit is not a conception of business performance management. Its aim is a single shot (jump phenomenon) business performance growth through identification of particular critical places. Such targeted business system optimization is one of three pillars of business performance improvement. Another pillar is continual monitoring and processes regulation. The third pillar of performance increase is innovative activity of business employees in the form of various initiatives (such as the above-mentioned Kaizen). We may also agree with R. Burlton (2001, p. 96), according to whom the increase of business processes performance is connected with the increase of employees performance. The author says that the increase of working performance results from the change of human thinking and it is not only something what we do but everything we have to do constantly.

3. Process audit criteria aimed at human resources

Process audit in its criteria defines the tasks concerning human resources. They are not the questions of personnel audit but the ones which seek the answer to the way how the management of business processes is ensured from the point of view of process approach. Criteria concerning human resources belong to the group of criteria aimed at determination of a management system process orientation level. These criteria are grouped in two approaches. The first one is Process and Enterprise Maturity Model defined by Michael Hammer in 2007 and the second one is index R_{bpm} , by means of which we quantify the level of management system process orientation. Criteria of enterprise management system maturity which are aimed at human resources in Hammer's model are given in the Table 1 and criteria of this model aimed at business processes in a context of human resources are given in the Table 2.

Table 1: Process audit criteria aimed at human resources from business perspective

Criteria Sub-criteria	Criteria E-1 achievement level	Criteria E-2 achievement level	Criteria E-3 achievement level	Criteria E-4 achievement level
Leadership Awareness	Senior managers understand the need to improve operational performance, but have limited perception of a business as a system of business processes.	At least one senior manager perceives the process orientation of management system and how the business may use it to improve its performance.	Senior managers perceive business as a complex of business processes and created a vision of the business and its processes.	Senior managers perceive their own work as a part of business process and the way of business management.
Leadership Involvement	Process approach is focused on middle managers.	Senior manager is responsible for the process approach in the business.	Senior managers are involved in a process approach. There is a team of managers in the business who help to promote the process approach.	All employees are involved in a process approach and try to achieve process results.
Leadership Organizational behaviour	Senior manager approves and ensures improvement of operational performance.	Senior managers define performance goals, utilize resources, carry out big changes and eliminate obstacles preventing goals achievement.	Senior managers work as a team, manage the business based on processes and actively participate in maintaining of process approach.	Senior managers team members perform their work as processes and create new trade opportunities based on highly productive processes.
	Team of senior	Team of senior	Team of senior	Team of senior

Leadership Style of management	managers started to move from directive, hierarchical style to the open and cooperative one.	managers responsible for process approach is keen on the need of change of business processes as the key element of change.	managers delegates responsibility and authority to the owners of processes and their executors.	managers leads employees supported by the vision instead of orders and detailed inspection.
Company culture Responsibility	Managers are responsible for the results.	Executive employees start to take responsibility for the results.	Employees feel responsible for business results.	Employees perceive customer's needs and want to achieve constantly improving performance.
Company culture Attitude towards changes	Agreement with the need of a modest change in the business increases.	Employees are ready for essential changes in the way how the work is done.	Employees are ready for big multi-dimensional changes.	Employees recognize change as inevitability and understand it as common phenomena.

Source: Own processing according to Hammer, 2007, p. 3

Criteria listed in Tables 1 and 2 represent only a part of tasks related to assessment of business processes maturity. The author of this model created also an evaluation scale for individual criteria. The evaluation scale is represented by three intervals where it is possible to include the actual situation in a company. For each criterion we may state a certain level of compliance or non-compliance with the company reality. In the case that we state a high level of compliance (by the author at 80%) the particular criterion is marked in green colour. In the case when the level of compliance is low, the particular criterion is marked in yellow colour (by the author the stated level of correctness of the finding is in the range from 20 to 80%). If the criterion is in a conflict with the business reality (level of compliance is less than 20%), it is marked in red colour.

The aim of process audit is always identification of critical places as an assumption to improve the system of management and business processes. The more criteria are marked in green colour in the direction from level E1 to E4, the better we may evaluate business processes and introduction of process approach as successful. Similarly, the level of criteria in evaluation of business processes maturity from P1 to P4 gets higher rate of process approach introduction if there are as many criteria as possible in compliance with the business reality. This model is not the manual for the audit of business processes' content but it deals with the level of introduction of process approach to an existing businesses management system.

Table 2: Process audit criteria aimed at human resources from the processes perspective

Criteria Sub-criteria	Criteria P-1 achievement level	Criteria P – 2 achievement level	Criteria P – 3 achievement level	Criteria P – 4 achievement level
Executive employees Knowledge	Employees as executors of processes are able to name processes they execute and identify key indicators of their performance	Executors are able to describe total course of the process; how their work influences customers and other employees in the process and process performance; and required actual	Executors know basic business trade conception and business performance holders and are able to describe how their work influence other processes and total	Executors know the industry in which their company does business and its trends and are able to describe how their work influence inter-enterprise performance.

		performance levels.	business performance.	
Executive employees Skills	Executors are qualified in problems solutions and in techniques improving processes performance.	Executors are qualified in team cooperation and self-management.	Executors are qualified to make business decisions.	Executors are qualified to manage and introduce changes.
Executive employees Organizational behaviour	Executors are a part of the process but their determination is functional.	Executors try to proceed according to process proposal, execute it correctly and work in the way which provides other people who carry out the process do their work effectively.	Executors try to ensure that the process brings the results required for business goals achievement.	Executors seek the signs that prove that it is necessary to change the process and suggest process improvements.
Infrastructure System of human resources	Functional managers reward achieved quality and solution of functional problems in the process context.	Process description contains tasks and work description. Work training for work is based on process documentation.	Selection, leadership and assessment of employees is based on needs and results of process in a context of all-business goals.	Selection, leadership and assessment of employees is based on internal and cross-business cooperation, personal training and organizational changes.

Source: Own processing according to Hammer, 2007, p. 3

A different approach to evaluation of a level of process approach introduction is calculation of index R_{bpm} (Rate of Business Process Management). Total index R_{bpm} is calculated due to the ratio:

$$\sum_{i=1}^n \frac{R_{bpm}^i}{n} \quad (2)$$

where R_{bpm}^i is a partial index evaluating selected area of business processes. Each partial index contains a set of particular questions. Answers to the questions get the following values:

- 0: The object of the question is not applied in practice at all and is described neither in a process model nor in an organizational norm.
- 1: The object of the question is not applied in practice at all but it is described in a process model or organizational norm.
- 2: The object of the question is partially applied in practice and is insufficiently described in a process model or organizational norm.
- 3: The object of the question is followed in practice but is insufficiently or is not described in a process model or organizational norm.
- 4: The object of the question is fully introduced in practice and sufficiently described in a process model or organizational norm.

The result of evaluation is percentage expression in which phase of transformation the business is. There are four intervals there: 90-100%, when we speak about process oriented business management system, 70-89%, when a business implements process management, 50-69%, when a business is ready to start implementation of process management and 0-49%, when

a business management system is considered as functionally oriented. In Figure 1 to 5 selected questions concerning individual areas of process audit by calculation of index R_{bpm} are provided.

The set of questions, which is used for calculation of index R_{bpm} , consists of the total number of 105 questions. In Table 3 only some of them are given, the ones which concentrate on the system of resources allocation (human and technical) to activities of business processes. An advantage of calculation of management system process orientation is the index openness. The set of questions may be updated and changed, since its calculation is based on proportional principle and percentage number. It means that classification to a corresponding interval has an impact only from the qualitative point of view when through the increase of number of questions we make the quality of management system from the perspective of its process orientation more precise.

Table 3: Selected questions aimed at resources allocation system

Ord.:	Question	Value	Result specification
B1	Is there a central evidence of technical devices and means?		
B2	Is there a central evidence of human resources?		
B3	Is there a technological process (working process) for realization processes?		
B4	Are limits of material consumption for realization processes according to activities defined?		
B5	Are norms of labour consumption for realization processes according to activities defined?		
B6	Are norms of technical devices and means depreciation according to activity defined?		
B7	Is it possible to identify exactly which technical means or device is allocated to which activity or process?		
B8	Is it possible to identify exactly which employee carries out which activity of which process?		
B9	Is there an allocated device for each activity, the device by means of which the activity is executed?		
B10	Are one-hour costs for the technical device allocated to the activity defined?		
B11	Do we know the unit price of particular material at which it enters the given activity?		
B12	Are the hour costs of a human resource allocated to the given activity defined?		
B13	Are time durations for individual process activities defined?		

Source: Own study

4. Conclusion

Business process audit seeks critical places in a management system and individual business processes. The aim of this work was not to point out the improvement of particular processes since the knowledge of reference process models is differentiated due to the industries and has a lot of specifications. Process audit is also aimed at determination of management system process orientation level. By means of criteria set (questions) it judges how the business manages its processes and if it possible to speak about an implemented process approach at all. Two basic approaches to audit of business process orientation level were determined. The first is Hammer's PEMM model, which contains 104 evaluative criteria. The second is R_{bpm} index which defines 105 questions. From both approaches only some were selected, the ones which are

aimed at human resources assessment (managers and executive employees) from the process approach point of view.

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Addresses of authors:

Ing. Zuzana ZÁVADSKÁ
Faculty of Economics
Matej Bel University
Institute of Managerial Systems
Francisciho 910/8
058 01 Poprad
Slovak Republic
e-mail: zuzana.zavadska@umb.sk

Assoc. Prof. Ing. Ján ZÁVADSKÝ, PhD.
Faculty of Economics
Matej Bel University
Institute of Managerial Systems
Francisciho 910/8
058 01 Poprad
Slovak Republic
e-mail: jan.zavadsky@umb.sk

PhDr. Mária SIROTIAKOVÁ, PhD.
Faculty of Economics
Matej Bel University
Institute of Managerial Systems
Francisciho 910/8
058 01 Poprad
Slovak Republic
e-mail: maria.sirotiakova@umb.sk