

## **II. PROCESS DESIGN IN DIGITAL CONDITIONS**



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## PROCESS AWARENESS OF AN ORGANISATION – RESULTS OF PILOT STUDIES

### ABSTRACT

**Background:** The article presents the results of studying process awareness in organisations. The target group comprised operational staff working in commercial companies. Survey questionnaire, which included standardised questions asked directly to employees carrying out basic processes during anonymous interviews, was used as a research tool. Obtained answers were analysed in quantitative terms, taking into account the specific industry and the size of a specific organisation. Companies representing industrial processing industry and the TSL sector, declaring high process awareness, constituted over a half of the studied group. The analysis of answers proves the lack of process awareness among employees performing operational actions.

**Methods:** The purpose of the study was to gain knowledge on the awareness of functioning processes among people who carry out basic activities. The study uses a survey questionnaire which, to make sure that employees understand the questions better, purposefully includes references to specific professional experiences, not to the knowledge on process management.

**Results:** The result of the study was a quantitative analysis of answers, providing for the size of the organisation being the object of the study (micro-, small and medium). The results have borne out the hypothesis that, despite the fact organisations have defined processes, persons responsible for their effective execution (process owners) and persons who design process changes (business analysts), process awareness of operating staff boils down to the knowledge of notions and rules (it is semantic, not practical). The persons performing process activities lack a sense that they are the ones expected to initiate changes in processes.

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**Conclusions:** The awareness of processes taking place in an organisation is a starting point for studying process maturity. The authors believe that employees who perform activities on the operational level are the source of knowledge on the processes carried out in the organisation. They are the source of information for analysts who identify and optimise processes. Furthermore, these employees will be first to deal with the effects of implemented changes. The authors have therefore focused on studying process awareness on the operational level. It is wrong to identify subsequent levels of process awareness without being sure that the awareness of existing processes is common among operational employees.

**Keywords:** organisation, process management, process awareness and process maturity of an organization

## INTRODUCTION

Variable and competitive environment forces organisations to seek better ways to adapt to operating conditions and to introduce changes to management methods. Companies are more and more frequently starting to notice the need to get to know its own processes, describe them and, as a consequence of actions taken, manage the identified processes. The analysis and improvement of processes in an organisation allows focusing on the value generated to the customer's benefit. Finally, it makes it possible to improve both working efficiency and the degree of customer satisfaction.

The use of process-based approach in management of an organisation is a difficult task, requiring changes in many areas, such as organisational culture. The implementation of process management relies on the following rules [Brocke et al., 2014; Brocke, Zelt, Schmiedel, 2016; Skrzypek, Hofman, 2010]:

- trust – using and sharing necessary information concerning the market, the customer and the processes in an atmosphere of mutual trust and partnership,
- communication – promoting horizontal communication between company employees by referring to team work and applying available IT systems,

- motivation – developing a motivation scheme which would reward persons who carry out specific processes and process owners for process results and for meeting customers' requirements and expectations,
- authorisations – providing process owners with permanent authorisations related to making decisions on matters of key significance to the processes,
- leadership – orientating process owners and medium-level managers to performing supporting, coordinating and training functions,
- knowledge – implementing mechanisms that favour team work, experience and the use of knowledge.

Organisations which implement process management may come across a number of obstacles on their way to achieve process maturity. It may cause the company to remain on a certain level of changes, failing to achieve the assumed process maturity level. Willing to meet the process maturity level, one should refer to the assessment of formal matters such as identification of processes, development of maps, and factors such as strategy, organisational culture, actual role of process owners, applied process improvement techniques or IT systems [Giacosa, Mazzoleni, Usai, 2018; Kucińska-Landwójtowicz, Kołosowski, 2012; Raczyńska, 2017; Bitkowska et al., 2011].

## PROCESS MANAGEMENT

Publications on the subject include a number of definitions describing the essence of a process. Davenport refers to a process as a "set of structured and measurable actions designed to provide a specific result for a specific customer or a specific market; a process is a structured and measured (finite) sequence of actions designed to achieve a specific result for a specific customer or market" [Davenport 1993]. Hammer believes that "the difference between a process and a task is such as between a whole and a part; a task is a fragment of work normally done by one person, while a process is a linked group of tasks the result of which represents a value for a customer" [Hammer 1995]. Stabryła defines a process as a "sequence of actions representing defined functions, set in a specific order which expresses a causal link of phenomena having influence on a certain object" [Stabryła 1991]. According to Grajewski, a process is a "set of sequenced actions

interlinked by cause-and-effect dependencies so that the results of previous actions are the starting points for subsequent actions" [Grajewski, 2007]. All actions taken in an organisation may be assigned to specific processes. It is also possible to indicate, whether the processes are fundamental or auxiliary. It allows generating a dynamic picture of an organisation which finds it easier to adapt to a changing environment [Adamczak et al. 2013; Grajewski 2007].

The analysis of different process description standards makes it possible to ascertain that every process is a whole composed of the following elements [Brocke, Zelt, Schmiedel 2016; Ragin-Skorecka, Nowak 2016; Nowiński, Szymańska 2013]:

- input – the beginning of a process, where cooperation with suppliers who provide an organisation with input outlays usually starts,
- suppliers – usually external entities responsible for providing an organisation with input outlays necessary to complete the process in exchange for economic benefits,
- input outlays – resources and tangible/intangible assets provided by suppliers, necessary to complete the process. Depending on the process, input outlays may include raw materials, semi-finished products, products, services, or documents and information,
- activities and events occurring in a specific process – a set of ordered tasks mutually linked on the cause-and-effect basis carried out by a single person or organisational unit,
- process owner – usually a person supervising and responsible for process execution,
- process result – an effect of processing input outlays as a result of a process,
- process client – a person or an organisational unit obtaining the result of a process achieved as a consequence of its execution. There are internal or external process clients,
- output – the end of the process, i.e. the stage at which the object of cooperation between an organisation performing the process and a process client may be considered complete.

Modelling process in an organisation requires selecting a certain standard. Reference books most often suggest [Śliwczyński 2005; Gajewski 2007; Trzcieliński, Adamczyk, Pawłowski 2013]:

- SIPOC (Suppliers, Inputs, Process, Outputs, Customers) – modelling a client-oriented process according to the value chain concept,

- ARIS (Architektur Integrierter Informationssysteme – architecture of integrated IT systems) – oriented towards building an integrated system of designing and processing information on the course of processes,
- BPMN (Business Process Model and Notation) – describing business and production processes, most commonly used in Poland and in the world [Rosing et al. 2015].

Applied notation allows representing processes occurring in an organisation in a way that will be clear to the persons directly executing the processes, managing the processes and implementing process changes. Processes, illustrated with maps, are a starting point to further analyses. This is how process models, the simulation of which allows identifying areas qualified for change or indicating the quality of suggested changes, are developed [Kasprzak 2005].

Contemporary process management developed at the beginning of the 1990s. There are two different research directions: Davenport's direction, representing an evolutionary approach, and Hammer's direction, radically reorganising an organisation [Kucińska-Landwójtowicz, Kołosowski 2012]. Later experiences related to reengineering proved that the evolutionary approach, supported by the participation of employees, is correct [Grajewski 2007]. The purpose of process management is to allow the achievement of maximum added value generated by basic processes and the minimisation of the share of ineffective operations.

## **PROCESS MATURITY OF AN ORGANISATION**

The implementation of process management in organisations comes across a number of problems, even though the approach has many advantages. The implementation seems easy – it requires getting input parameters of processes to optimise process outputs, focusing on costs, time, quality and appropriate service. First problems start at the stage of process imaging and process optimisation, and they remain there at the stage of pre-design, measurement and improvement. Implementing process-based approach requires changing organisational culture, motivation scheme, organisational structure or introducing process owners.

Its course is evolutionary and has gradual structure. According to Grajewski [2007] and Souza, Guerreiro, Oliveira [2015], process maturity of an organisation is expressed by the scope in which processes are formally defined, managed, made flexible, measured and made effective. These features are naturally graded and placed on a continuum ranging from an organisation

which is immature to the one which is mature in terms of implementing solutions related to processes.

Reference books describe a number of process maturity models applied to organisations. They most frequently list features that prove an organisation's process maturity or immaturity. The characteristics of process maturity and immaturity of organisations have been presented in Table 1.

Table 1. Characteristics of process maturity and immaturity of an organisation

Characteristics of process maturity of an organisation	Characteristics of process immaturity of an organisation
The ability to build and improve a product or a service is a feature of an organisation, not individual employees.	High dependence on the abilities of individual employees.
The processes are fully identified, and knowledge concerning them is effectively transferred to employees.	Process efficiency may be predicted up to the stage of an individual project, and not within the whole organisation.
The works related to process designing are planned.	Processes improvised by employees and managers.
The processes are observed and improved also by means of controlled experiments and analyses of relation between cost and achieved effect.	Specified processes are not observed.
The distribution of roles and responsibilities is clearly defined within the organisation of individual projects.	Reactive management.
The quality of products or services, and the degree of customer satisfaction, are monitored.	The schedule and the budget are usually exceeded, as a result of not having been based on a stable course of processes.
There is an objective, quantitative base serving the assessment of products, services and actions.	Assuming invariable limitations on the schedule and the budget, attempting at meeting both of them is done at the expense of quality and functionality of a product or a service.
	There are no formal or objective criteria for product, quality and process assessment or early identification of problems.

Source: [Grajewski 2007; Looy, Bergh 2018; Neumann, Düring 2008].

Another way of presenting levels of process maturity of an organisation has been shown in Fig. 1. In this model, level 0 means lack of process awareness in a specific company. On level 1, activities are still performed in a chaotic manner, however, the organisation is aware of the need to implement process-based approach. Level 2 is characterised by the standardisation of processes taking place in a company. Processes are identified and duly documented. On level 3, it is essential to measure and record results, to be able to monitor the course of processes and take possible corrective actions on level 4. Level 5 is related to systematic and continuous improvement of processes. Level 6 results from actions taken on the previous level and it marks the maximum status of process management development.



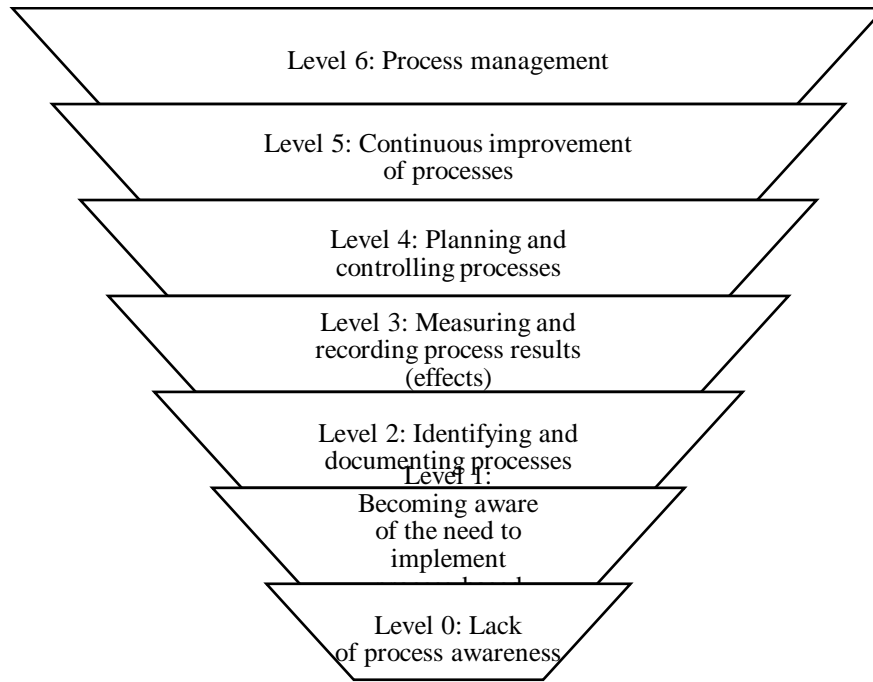


Fig. 1. Process maturity levels of an organisation.

Source: [Nowosielski 2008].

Grajewski defines levels of process maturity as follows [Grajewski, 2007]:

- Level 1 – initial chaos – unpredictability, processes carried out spontaneously,
- Level 2 – applied repeatability – practice and experimenting in search of the ability to repeat actions within processes,
- Level 3 – standardisation – project works as part of processes are standardised, stable and repeatable,
- Level 4 – process management – the application of measurements of process efficiency allows identifying threats and taking effective corrective actions which adapt the organisation in terms of structure,
- Level 5 – continued improvement – continued improvement and optimisation of processes achieved by streamlining current process configurations and introducing new methods and techniques of execution.

The awareness of processes taking place in an organisation is a starting point for studying process maturity. The authors believe that the persons who perform operational activities are the source of knowledge on the processes carried out in the organisation. They will be first to deal with the effects of improved efficiency. The authors have therefore focused on studying process

awareness on the operational level. It is wrong to identify subsequent levels of process awareness without being sure that the awareness of existing processes is common among operational employees.

### **SCHEME OF STUDY**

The study was conducted using a survey method using the online survey technique. The study focused on process awareness in an organisation. The problem results from the fact that it is not possible to talk about process maturity if operational staff actually carrying out the processes is not aware of them.

The first stage in performing the study of process awareness in an organisation consisted in developing a study questionnaire. It was formulated on the basis of reference books, existing methods of researching processes in an organisation and experience related to the analysis of processes in different organisations. Existing questionnaires serving the study of process awareness of an organisation were adapted to make sure that the questions are clear to operational employees. At the second stage, the questionnaire was subject to an assessment by experts, i.e. 6 academics and business practitioners. It allowed assessing the measurement tool. Following the introduction of changes and re-assessment, the questionnaire was made available as an online form.

A pilot study of process awareness in an organisation was carried out in the first quarter of 2019. Its purpose was:

- for respondents to evaluate the study questionnaire (i.e. if the questions were simple and how easy it was to provide answers).
- to select the type of business run by a respondent (indicated by specific numbers of the Polish Business Classification) to the study.
- to select respondents to further studies on the basis of company size (initial analysis of the occurrence of relation between the size of the organisation and its process awareness).
- to initially analyse the results of the pilot study in order to make research hypotheses (apart from hypotheses formulated on the basis of reference books).

The subject of the study included employees of different departments who carry out processes on an operational level and who had agreed to take part in the study. Answers from 20

people were collected as part of the pilot study. The questionnaire was completed with missing information at the respondent's premises, during an interview made on the occasion of analysing a selected process. It allowed meeting the first goal.

Figures 2 and 3 show the structure of the studied population according to the type of business and company size.

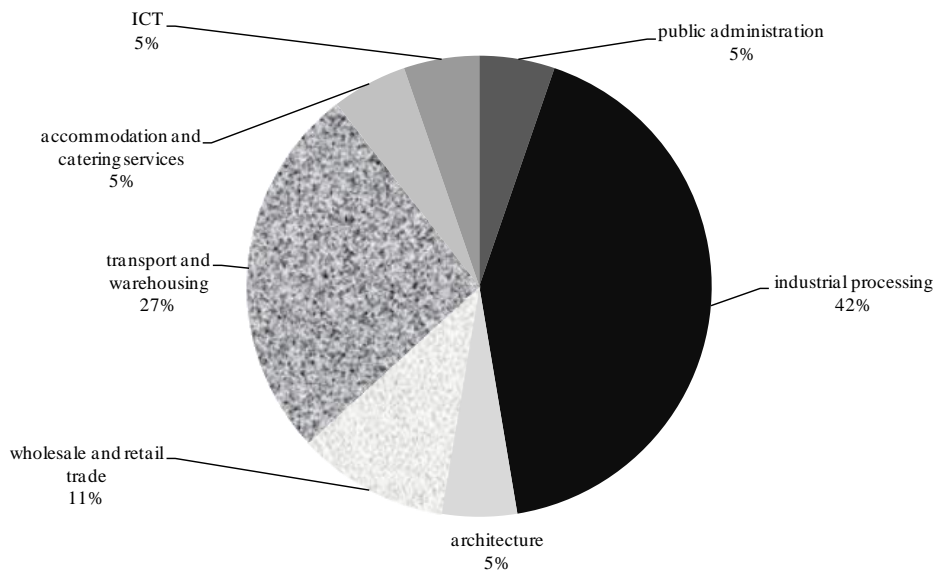


Fig. 2. Type of business run by respondents.

Source: own study on the basis of research results (n=20).

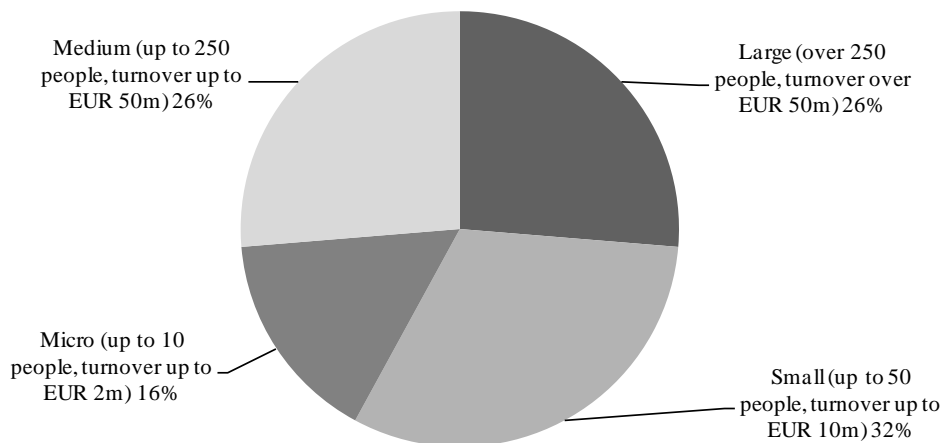


Fig. 3. Company size.

Source: own study on the basis of research results (n=20).

The pilot study was participated mostly by respondents representing the industrial processing industry (42%) and transport and warehouse management (27%). Taking the size of a company into account, it is possible to observe that they are represented approximately in the same way.

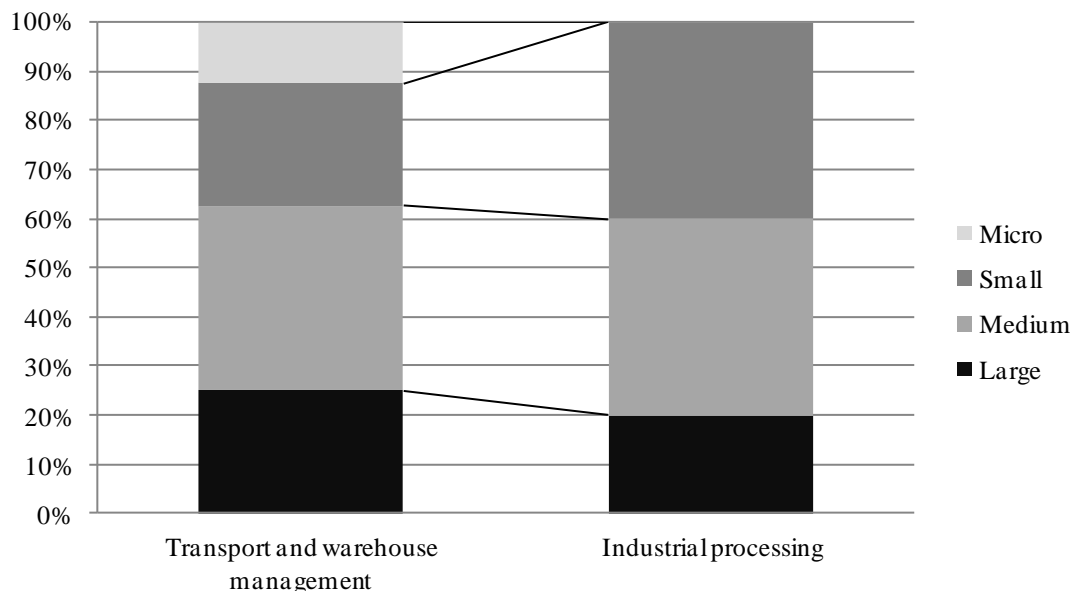


Fig. 4. Share of companies of specific size, depending on industry (the most numerous ones).

Source: own study on the basis of research results (n=20).

The analysis of industries with the largest number of respondents, providing for the size of companies, led to the conclusion that the companies were of different sizes (Fig. 4). There were not any micro-enterprises in the transport and warehouse management industry.

## RESULTS OF PILOT STUDIES

Study results were subject to a quantitative analysis and an analysis of obtained results in the context of a specific industry and size of an organisation represented by a specific respondent.

The first question concerned defining a prevalent form of organisational structure. Respondents were to indicate if there were functions, departments or functional units in their organisations (Fig. 5). The majority of surveyed companies (78.9%) acknowledged that such division existed. Only micro- and small-sized enterprises stated there was no division (which results from the absence of such need in such small entities). Making a conclusion on the basis of

these answers, the author claims that this question does not need to be included in the questionnaire.

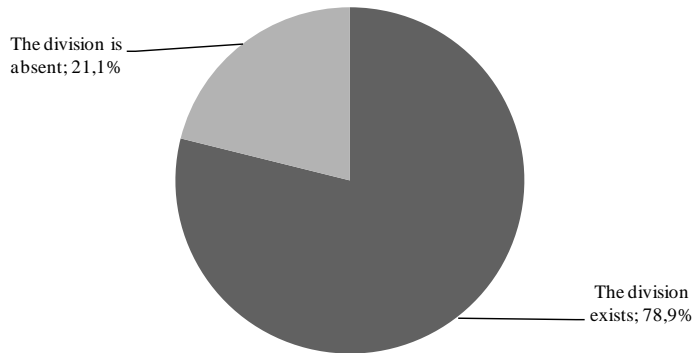


Fig. 5. Division to functions, departments or functional units in an organisation.

Source: own study on the basis of research results (n=20).

The second question required the respondents to indicate which actions concerning process management were carried out (a multiple choice question). The question was to allow the identification of declared actions in the area of process management in organisations. The answers have been presented in Fig. 6.

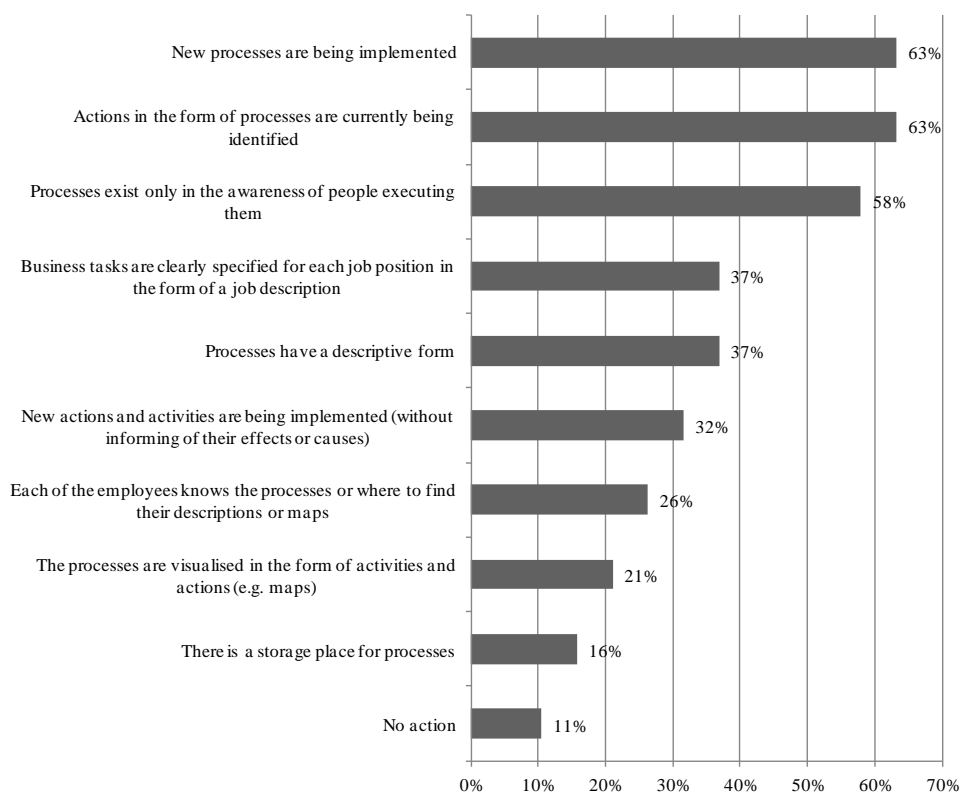


Fig. 6. Declared actions in an organisation.

Source: own study on the basis of research results (n=20).

Answers provided by respondents most frequently (in about 60% of cases) concerned such actions as: identification of present actions in the form of processes, implementation of new processes and existence of processes only in the minds of people executing them. Only 21% of respondents replied that processes were visualised and 16% of them acknowledged that there was a process repository. These respondents represent industrial processing industry and transport and warehouse management industry (the group was narrowed to these sections). Other possibilities indicated by respondents include: processes are in a descriptive form (37%), business tasks are clearly specified for each job position in the form of job descriptions (37%), new actions and activities are implemented without informing of their effects and causes (32%), each of the employees knows the processes or where to find their descriptions or maps (26%). Respondents from two companies did not provide any answer (micro-enterprises with business profile suggesting that actions from the list will rather not occur).

The analysis of the responses taking into account the size of the enterprise allows to indicate the following theses that should be resolved during the proper research:

- actions in the form of processes are currently being identified in each size enterprises,
- in small enterprises rarely new processes are being implemented,
- processes exist only in the awareness of people executing them in small and medium enterprises,
- business tasks are clearly specified for each job position in the form of a job description in medium and small enterprises,
- only in large enterprises the processes are visualised in the form of activities and actions (e.g. maps) and processes have a descriptive form,
- only in large enterprises there is a storage place for processes and each of the employees knows the processes or where to find their descriptions or maps,
- only in large enterprises new actions and activities are being implemented (without informing of their effects or causes).

Another analysed issue is the presence of a process owner in an organisation. The analysis of results shows that about a half of all organisations covered by the study have persons responsible for processes. A more profound analysis has shown that an answer to this question does not depend on the industry or on company size. On the other hand, 16% of respondents have acknowledged that their organisations includes a group which handles processes (and which also includes process owners).

Two of the effects that occur in process management are a single employee's influence on added value provided to customers, and the knowledge on how the effects of work of a specific employee influence the value. 85% of respondents answered "yes" to the question if employees know what happens to the effects of their work. The result did not depend on the size of the organisation or the industry. The distribution of answers to the question concerning employees' knowledge on their role in the process was similar.

In search of abilities to achieve improvement in terms of processes taking place in an organisation, one should verify the level of knowledge and application of specific terms. Fig. 7 shows respondents' answers (to multiple choice questions).

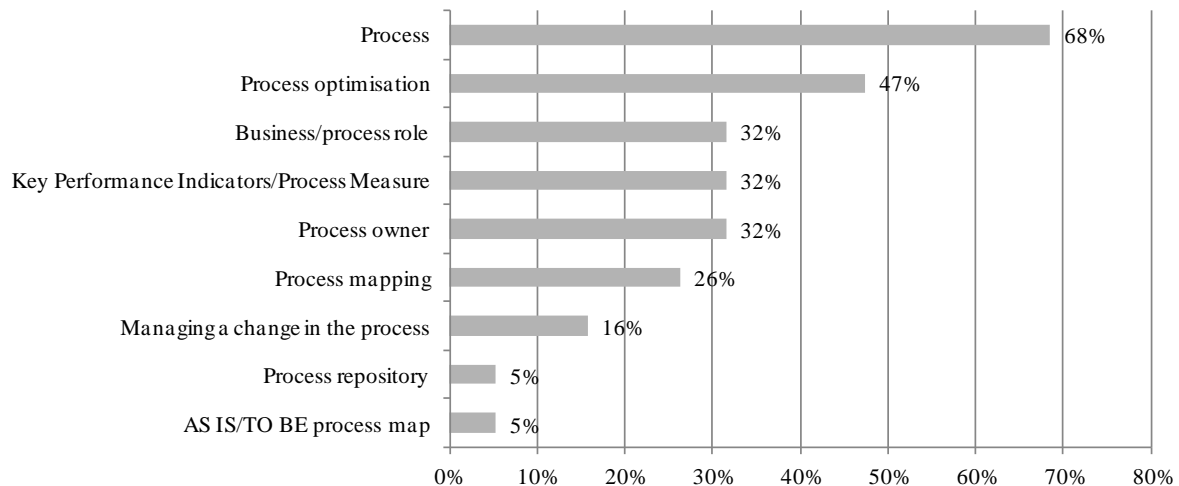


Fig. 7. The degree to which an organisation uses specific terms.

Source: own study on the basis of research results (n=20).

"Process" is the term most commonly used among respondents – 68% of indications. Another term is "process optimisation" (47% of indications), which, as observations and conversations show, is interpreted rather as improvement. 32% of respondents answered that their organisations used the terms "process owner" (presence of such a person was indicated in approx. 50% of organisations), "key performance indicator" (process measure) and "business (process-related) role". 26% of respondents know and use process mapping. Other terms (process change management, AS IS / TO BE process map and repository) are known in individual cases, which results from the nomenclature assumed in the area of process analysis (e.g. the BPMN 2.0 standard).

The analysis of responses taking into account the size of the enterprise allows to indicate the following theses:

- most small and micro enterprises do not use process-related concepts,
- large and medium enterprises use specific terms as: process and process optimisation,
- large enterprise use specific terms more often than another size enterprises.

## CONCLUSION

The research carried out indicates that there is a big difference in the process opinions of enterprises depending on their size. Preliminary results of the research, which process awareness



is much higher in large and medium-sized enterprises. However, each of the respondents indicated that they identify the activities used in the forms of processes. Therefore, it is worth conducting in-depth research on a group of statistically representative respondents.

Further research will be carried out in the group of small, medium and large enterprises involved in industrial processing as well as transport and warehouse management. The scope of research will concern the settlement of these set out in the article.

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