

**Grzegorz Jędrychowski**

The School of Banking and Management in Kraków  
ŁUKASIEWICZ Research Network,  
Institute of Ceramics and Building Materials,  
Division of Glass and Building Materials  
gjedrychowski@gmail.com

**Joanna Piękoś Ph.D.**

The School of Banking and Management in Kraków  
jpiekos@wszib.edu.pl

## **PROCESS MANAGEMENT IN A SELECTED INSTITUTE OF THE ŁUKASIEWICZ RESEARCH NETWORK**

### **Introduction**

Process management is a set of activities that take place in every organization affecting its resources to achieve intended goals<sup>1</sup>. As a plan for organizing organization's resources around the processes, it serves to achieve more efficient company management in the conditions of the growing dynamics of the environment<sup>2</sup>.

The aim of the article is to present how the concept of process management can be used as illustrated by a selected Institute which is a part of the Łukasiewicz Research Network.

### **1. Process management as a theoretical issue**

The PN-EN ISO 9001 standard<sup>3</sup> is the basis for process management. It is an international standard that specifies the requirements for a quality management system; it can be used by all organizations irrespectively of their size and the type of operations. The PN-ISO standard defines a process as a set of interrelated activities aimed at transforming inputs into outputs. A process consists of operations that make it possible to transform input elements into output elements that frequently constitute the beginning of a next process. Input elements include requirements, data, documents, raw materials, while output elements may be intermediate products, final products, as well as production documentation, databases or control protocols.

---

<sup>1</sup> M. Przybyła (red), *Organizacja i zarządzanie. Podstawy wiedzy menedżerskiej*, Wydawnictwo AE Wrocław, Wrocław 2001, p. 28.

<sup>2</sup> J. Czekaj (ed.), *Zarządzanie procesami biznesowymi. Aspekt metodyczny*, Wydawnictwo UE w Krakowie, Kraków 2009, p. 25.

<sup>3</sup><https://docplayer.pl/628268-Polska-norma-wymagania-pn-en-iso-9001-wrzesien-2001-systemy-zarzadzania-jakoscia-polski-komitet-normalizacyjny.html> (accessed: 30 September 2021).

To make sure that a process is conducted properly, adequate resources, including human resources and information, must be provided.

Pursuant to ISO 9001:2015, process management is one of the quality policy rules. Clause 4.4.1 of the standard indicates that the organization should define processes necessary in a quality management system. To do so, the organization has to<sup>4</sup>:

- establish the sources and inputs and the outputs expected from these processes,,
- define the sequence and interaction of these processes,
- determine the resources needed for the processes and ensure their availability,
- assign the responsibilities and authorities for the processes,
- address the risk and opportunities as determined in accordance with the requirements,
- apply the methods and assessment criteria of the effectiveness of the processes,
- implement changes needed to ensure that the processes achieve the intended results,
- improve the processes and the quality management system.

The above rules define the concept of process management as a systematic identification and determination of processes that are necessary for proper functioning of an organization. In practice this means that necessary resources, criteria and methods should be determined to ensure the effectiveness of the processes through monitoring, measurement and improvement. The objective of these activities is to achieve multidimensional benefits, including a high level of flexibility, in order to cope with the competition and consequently, to increase the value of a company<sup>5</sup>.

Every organization is a set of processes. They are interrelated and their identification enables a better understanding of value creation and permanent improvement. The improvements result in an increase in effectiveness and functionality of organization as well as in the growth of satisfaction of both internal and external clients.

A process-oriented approach refers to companies in various sectors. This concerns material (manufacturing) and non-material (information) processes. Of particular importance is the skillful management of logistics processes in industry, services, trade as well as in administration. The degree to which the rules of the process management are applied in organizations may differ. There are four main types of process-based companies:

---

<sup>4</sup> Polska Norma PN-EN ISO 9001:2015, PKN – 2015, p 11.

<sup>5</sup> P. Grajewski, *Turbulencja i laminarność procesów – elastyczne kształtowanie konfiguracji biznesu w przedsiębiorstwie*, [in:] A. Stabryła (ed.), *Zarządzanie rozwojem organizacji w społeczeństwie informacyjnym*, Studia i prace UE w Krakowie, V.1, Kraków 2008, p. 376.

- function-based company – its approach is conservative, reluctant to change, with a hierarchical structure and process-oriented only in terms of product functions and geographic regions,
- company is aware of the interrelations between different stages but is devoid of process integration of systems and employees. The processes are developed and defined; however, there are no activities that would lead to their full integration,
- organization designs and manages customer-oriented process from start to finish and is concentrated on a comprehensive process classification,
- company subordinates everything to processes and focuses on their management. The integration of the company is conducted in terms of processes.

Organizational culture has a crucial impact on the effectiveness of company process management. Process management requires all the employees to be willing to gain experience and learn new solutions. Information flow should be clear and the staff must be open to discussion and exchange of opinion. The organizational culture is to promote customer-oriented approach, support independence and professionalism of employees. Friendly work environment is the key to success and the achievement of intended targets<sup>6</sup>.

## **2. Process classification in organizations**

The literature on the subject includes numerous different process classification criteria. One of the most frequently presented classifications is the one by P.Grajewski, which divides processes into three groups: basic, subsidiary and management processes. Basic processes include marketing, sales, design and distribution of new products, i.e. processes that directly generate value added and are most easily noticed by customers and influence the customers' assessment of the quality and effectiveness of the entire company. Subsidiary processes generate value added in an indirect way, the customer cannot clearly see their quality and as a result they have an insignificant impact on the external image of the company. These processes include activities related to warehousing, quality control, maintenance, staff recruitment and assessment as well as financial and accounting services. It is management processes that have a strategic impact on the way how value added is generated. Their main goal is to define the mission, strategy and operating principles of the entire organization, including the monitoring of the effectiveness of the basic and subsidiary processes. In terms of the contribution to the

---

<sup>6</sup> P. Grajewski, *Procesowe zarządzanie organizacją*, PWE, Warszawa 2012, pp. 11-15, 18, 21,23, 73-90, 112-113.

achievement of company's goals, P.Grajewski distinguished smart processes that use their own knowledge to optimize the flow of operations with regard to the desired results and the non-smart processes that implement outputs with no contribution to the company<sup>7</sup>.

Also M.Ossowski looks at processes with regard to the value chain and customers' requirements, and divides processes into the ones that are either directly, indirectly or relatively involved with value creation and the ones that do not create value, have no relationships with customers and are a symptom of waste<sup>8</sup>.

American Productivity Quality Center (APQC) presented a complete classification of processes, referred to as *Process Classification Framework – PCF*. It is given in Table 1.

**Table 1. APQC's Process Classification Framework**

Process	Characteristics
Operating	1.0 Develop Vision and Strategy 2.0 Develop and Manage Products and Services 3.0 Market and Sell Products and Services 4.0 Manage Supply Chain 5.0 Deliver Services 6.0 Manage Customer Service
Supporting	7.0 Develop and Manage Human Capital 8.0 Manage Information Technology 9.0 Manage Financial Resources 10.0 Acquire, Construct and Manage Assets 11.0 Manage Environmental Protection and Health and Safety at Work, 12.0 Manage External Relationships 13.0 Manage Knowledge, Improvement and Change

Source: based on the Author's research from: Cross Industry Process Classification Framework, Version 7.3.0., p.2, <https://www.apqc.org/process-frameworks> (accessed: 12 January 2021).

PCF was developed by APQC and its member companies as an open standard to facilitate organizational improvement through process management and benchmarking, regardless of industry, size or location. PCF organizes operating and management processes in 13 enterprise-level categories, including process groups and over 1 000 processes and associated activities. These processes are decomposed in line with the hierarchy below<sup>9</sup>:

- level I – category,

<sup>7</sup> Ibidem, p. 34

<sup>8</sup> M. Ossowski, *Identyfikacja i klasyfikacja procesów w przedsiębiorstwie*, „Zarządzanie i Finanse” 2012, R.10, No 4, part 3, p. 297-312.

<sup>9</sup> Cross Industry Process Classification Framework, Version 7.3.0, <https://www.apqc.org/process-frameworks> (accessed: 12 January 2021).

- level II – group,
- level III – process,
- level IV – activity, indicating key events within a process,
- level V – task, representing the next level of activities.

Table 2 presents an example of hierarchical process structure in the APQC framework

**Table 2. Hierarchical structure of the process of developing and managing products/services in the APQC framework**

Category	Group	Process	Activitye	Characteristics		
2.0	Develop and Manage Products and Services					
	2.1	Govern and manage product/service development program				
		2.1.1	Evaluate performance of products/services against market opportunities			
			2.1.1.1	Confirm alignment of product/service concepts with business strategy		
			2.1.1.2	Prioritize and select new product/service concepts		
			2.1.1.3	Plan and develop cost and quality targets		
			2.1.1.4	Specify development timing targets		
			2.1.1.5	Plan for product/service offering modifications		
		2.1.2	Manage product/service life cycle			
		2.1.3	Manage patents, copyrights and regulatory requirements			
		2.1.4	Manage product and service master data			
	2.2	Define new product/service concepts				
	2.3	Develop products and services				

Source: based on the Author's research from: <https://www.apqc.org/process-frameworks> (accessed: 10 January 2021).

APQC is a high-level, industry neutral model of enterprise processes that makes it possible for organizations to see their business processes from a cross-industry viewpoint. The solution presented by APQC is not ready to be implemented in every company. This is a set of advice and process examples that may facilitate the development of classification within a particular company. This is a general model that must be adjusted to the specifics and needs of a given organization.

### 3. Process map in a selected institute of the Łukasiewicz Research Network

Identification of organizational processes is necessary as it is the starting point for:

- developing process maps,
- identifying relationships between the processes,
- examining the course of processes to identify their place and role in the achievement of goals,
- developing procedures, instructions and forms,
- developing quality-oriented model of quality management.

Process mapping makes it possible to identify the course of a process within the organization as well as to analyze the ongoing operations and relations between the organization and the contractor. A process map is a graphical presentation of ongoing operations; thanks to the form of a block scheme it is clear to read both for the process participants and the others who are interested in particular operations.

Figure 1 presents a process map in an institute which is a part of the Łukasiewicz Research Network. The Institute defines the following parties as the stakeholders of the Integrated Management System:

- **customers** – their requirements specified in orders, technical conditions, specifications, permanent monitoring through the evaluation of the declared product quality compliance with their actual quality, customer satisfaction assessment of supply timeliness and appropriate customer service including complaint management.
- **suppliers** – their requirements specified in contracts involve both the terms of the contract and the timeliness of payment. The Institute analyzes the suppliers with regard to meeting the Institute's requirements for quality, environment, health and safety at work.
- **employees** – the expectations regarding employment stability, salary, responsibilities, compliance with work regulations and requirements for health and safety at work.
- **State administration entities** – the requirements of institutions that supervise the Institute which results from their statutory responsibilities. The requirements are specified in legal regulations – acts, ordinances, etc.
- **Local community** – defined as the requirements of local social organizations. This facilitates the Institute's involvement in supporting the local community and protecting the environment.



The Institute monitors and continuously reviews the information about stakeholders and their requirements. Detailed rules of the conduct regarding legal and other requirements are specified by particular procedures that are in force at the Institute.

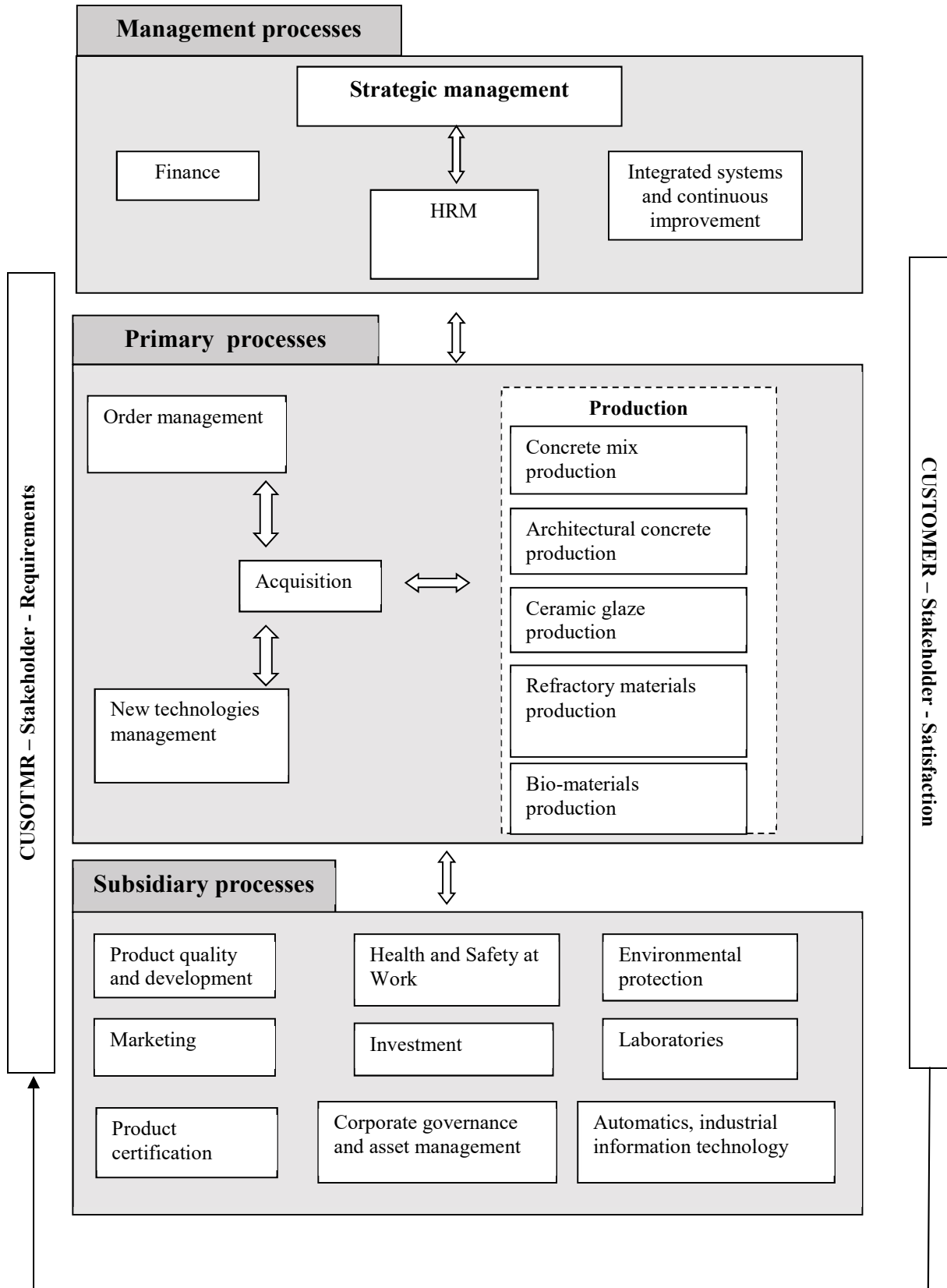
Particular sources of the input elements of the processes are determined by the presented quality management system components.

The processes are divided into management, primary and subsidiary processes. The Institute defines the sequence of processes, the required inputs, the expected outputs as well as their mutual interrelationships.

Each of the processes includes elements that are crucial to the fulfilment of customer requirements. It reduces a negative influence on the environment considering the requirement of a rational use of energy during the production cycle and decreases such risks as accident hazards to employees of the Institute. The identified processes in the organization are assigned competences and responsibility scopes; the interrelations between them are specified as well as the criteria and methods necessary to ensure a proper course of the processes and the monitoring of established measurable indicators that are used to measure effectiveness.

Every identified process is assessed with a particular emphasis on the risk of factors or conditions that may have a negative impact. On the basis of continuous monitoring, adjustments are introduced to ensure the intended results. The methods used to ensure effectiveness and to monitor the identified processes, risks and opportunities are described in procedures, instructions and other internal normative provisions of the Institute.

Figure 1. Process map in a selected Institute of the Lukaszewicz Research Network



Source: Author's research.



#### **4. Selected issues of process implementation in the organization under examination**

In order to understand the specifics of processes conducted in the Institute of the Łukasiewicz Research Network under examination, several important aspects should be discussed that have a fundamental impact on their course. They are:

- Risk and opportunities – to achieve the intended targets, all the processes described in the integrated management system of the Institute must be monitored. This enables the determination of their capacity and facilitates their continuous improvement. The analysis of risk and opportunities should provide the answer to the question whether the processes can lead to proper results and they do not generate undesirable effects. This is carried out in two stages. Stage 1 consists in the determination of the significance of all the identified processes and the assessment of their risks and opportunities. Stage 2 concerns only production processes, including the risks and opportunities related to manufacturing. The identification of the risks and opportunities for production processes is carried out through:

- process analysis,
- analysis of the process external conditions,
- analysis and review of the components used,
- analysis of the infrastructure,
- analysis of internal and external auditing introduced to the organization, analysis of incompliance,
- assessment of customer satisfaction and complaints,
- analysis of organizational factors,
- data monitoring.

The analysis of the problem should include the consideration of environmental issues. All significant aspects of the area under analysis should be extracted and analyzed. They constitute the basis for planning and implementing operations and are used to determine the environmental targets and tasks of the company. Every aspect should be assigned all current and potential, both beneficial and negative impacts on the environment. The aspects must be assessed against established criteria. Moreover, the main risk as well as the related opportunities should be recognized and controlled with the consideration of:

- emergencies or potential threats,
- legal and other requirements,
- risks related to the implementation of new technologies and the use of new materials.

Occupational risk at work stands is also an important issue. In the Institute, occupational risk assessment is based on factors that occur in the work environment. The recognition of hazards and the determination of activities that would eliminate them is the basis for the determination of health and safety at work targets. All activities presented below are continual processes that aim at the improvement of work environment.

- Legal requirements and other – products manufactured in the Institute must comply with the applicable legal requirements and other legal regulations adopted for particular products. The management system in the Institute ensures the identification and access to legal requirements and other. This applies to the area of designing, manufacturing as well as the distribution and use of the products.

- Planning and reaching targets – quality, environmental, health and safety and other targets that are set by the Institute are meant to be used in manufacturing good products, achieving customer satisfaction and improving work conditions as well as decreasing a negative impact on the environment. Having performed multifaceted analyses, checked technical capabilities and identified process risks and opportunities, the management of the Institute sets targets and tasks for particular activity areas. The achievement of the targets is subject to continuous monitoring, checking and consequent corrections.

- Changes – all changes in the Institute are planned and their effectiveness is continuously analyzed. This is to facilitate the implementation of operations related to process improvement. The processes are supervised and the introduction of changes is accompanied by a thorough analysis with regard to:

- potential effects of the changes,
- the purposefulness of the introduced changes,
- the compliance with the requirements of the integrated management system,
- technical capacities (materials, raw materials, machinery),
- the determination of responsibilities.

- Resources – to ensure proper functioning of processes, the Institute provides the necessary resources, the infrastructure as well as competent, knowledgeable and properly qualified staff. The structure of the system ensures the identification of the needs and the provision of the necessary resources in all areas. The issues related to the renovation of the infrastructure should be taken into consideration. The machinery and devices are supervised by specialists; scheduled renovation and maintenance activities are performed, which definitely has a positive effect on their efficiency and reliability. In order to ensure the reliability of

measurements, every measurement device is checked before it is used and regularly calibrated and certified. Necessary inspections and maintenance operations are conducted in line with the requirements given in the appropriate documents of the company. The organization also has a control plan which includes data concerning the measurements, the accuracy of measurements and the frequency of accuracy checks of the measuring devices.

- Process environment – each process has its owner who monitors and supervises it on an ongoing basis. The process owner operates in a work environment organized in the company in the way that ensures correct operation processes and successful manufacturing of products compliant with the requirements. This is the reason why appropriate management of this environment is so crucial.

- Knowledge, competencies and awareness – the Institute attaches great importance to the manufacturing of all products. This requires knowledge as well as its skillful management, which takes place in the following areas:

- legal requirements and other,
- analysis of risk and opportunities when designing processes,
- development of company's appropriate organizational structure,
- qualifications, staff training and development,
- selection of suppliers and customers.

Every employee is subject to improvement through adequate training. Trainings are planned and their system makes it possible to maintain an appropriate level of staff qualifications. The implementation of training plans is monitored and evaluated also during periodic meetings with individual employees. The institute secures financial resources for the trainings, which guarantees their smooth implementation. The awareness of the Institute staff is high. The employees are aware of the requirements introduced by the integrated management system, particularly of the ones that concern the company's policy, objectives, environmental issues and hazards in the workplaces.

- Communication and documented information – the Institute has a system of internal and external communication. Communication in all areas of operation is based on the documentation of the integrated management system which includes:

- book of the integrated management system,
- internal regulations,
- process cards,
- procedures,

- instructions,
- quality plans,
- records and other documents issued by various organizational units.

## Conclusions

Process management consists in a systematic identification and determination of processes that are necessary for the functioning of a company. Management practice involves the determination of necessary resources as well as of the criteria and methods of process monitoring and measurement, which facilitates their continuous improvement. The aim of these activities is to reach a high level of flexibility in order to maintain competitiveness and, consequently, to achieve an increase in the value of company.

## Bibliography

- [1] Czekał J. (ed.), *Zarządzanie procesami biznesowymi. Aspekt metodyczny*, Wydawnictwo UE w Krakowie, Kraków 2009.
- [2] Grajewski P., *Procesowe zarządzanie organizacją*, PWE, Warszawa 2012.
- [3] Grajewski P., *Turbulencja i laminarność procesów – elastyczne kształtowanie konfiguracji biznesu w przedsiębiorstwie*, [in:] A. Stabryła (ed.), *Zarządzanie rozwojem organizacji w społeczeństwie informacyjnym*, Studia i prace UE w Krakowie, V.1, Kraków 2008.
- [4] Ossowski M., *Identyfikacja i klasyfikacja procesów w przedsiębiorstwie*, „Zarządzanie i Finanse” 2012, R.10, No. 4, part 3.
- [5] Przybyła M. (ed.), *Organizacja i zarządzanie. Podstawy wiedzy menedżerskiej*, Wydawnictwo AE Wrocław, Wrocław 2001.
- [6] <https://www.apqc.org/process-frameworks>.
- [7] <https://docplayer.pl/628268-Polska-norma-wymagania-pn-en-iso-9001-wrzesien-2001-systemy-zarzadzania-jakoscia-polski-komitet-normalizacyjny.html>.
- [8] Cross Industry Process Classification Framework, Version 7.3.0. <https://www.apqc.org/process-frameworks>.

## Abstract

The article presents the use of the process method in the management practice, as illustrated by a selected Institute which is a part of the Łukasiewicz Research Network. A process map was developed to present primary, subsidiary and management processes. The article indicates and describes input elements and process improvement methods that are used to obtain the desired output elements of the system.

## Key words

Process management, quality management system, process, process map.