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## **Analysis of activities comprising administration of logistic processes**

**Abstract.** Process administration problems have been discussed in the article with reference to logistic processes. The authors have analysed individual stages of process administration with due regard to potential risks. The purpose of the article was to indicate the activities that should be undertaken while administering logistic processes. The conclusions drawn should ensure efficient performance of logistic tasks, on one hand, as well as satisfaction of customers' requirements and an efficient pursuit of the organisation's goals, on the other hand.

**Key words:** logistic processes, process management, process administration

### **1. Introduction**

An organisation may function in a vertical and a horizontal arrangement. The vertical one is characterised by the attention being mainly focused on activities and functions performed, unlike the horizontal arrangement concentrated on the processes identified within enterprises. The vertical arrangement is based on an organisational structure, a division into functions and tasks stemming from a hierarchical layout, whereas the horizontal one functions in reference to processes and relations between them.

In order to meet the requirements of contemporary organisations, systemic process-based solutions must be implemented. Processes are not always performed by a single unit, and not even by one organisational division. This implies a necessity to integrate the vertical approach with the horizontal one for the sake of the strategy envisaged. By facilitating the activities undertaken



based on an analysis of processes, one can improve the operating efficiency of an organisation. A system-based mechanism according to which an organisation functions makes its members realise how important it is to always take the entire set of cause and effect relations into consideration. The analysis of problems from the cause and effect perspective makes it possible to identify the causes of nonconformities and affect the causes which contribute to the fact that the problem has emerged to the largest extent. By eliminating the reasons for a previously identified problem, one can prevent its undesired effects. Initiatives focused on immediate and temporary problem solving do not eliminate the potential for its re-emergence in the future. The analysis of cause and effect relations with reference to a system consists in identifying errors/issues that processes may contain, finding their causes in activities and monitoring their effects in the system. Hence one should address the activities in order to eliminate defects occurring in processes and manifesting themselves in the system. For the sake of substantiation of the hypothesis envisaged, an example of a transport company is worthwhile being considered. Assuming that the company has faced a problem of delays in deliveries to recipients, the consequences will clearly affect the client and the effect can be observed in the organisation's system. Hence the problem is to be sought in the process, most likely the transport or the transport organisation one, whereas the reasons for such a state of matters are either an activity or some activities which contribute to the delay to the largest extent. A direct cause of shipment delays may be, for instance, traffic jams, transport obstacles or insufficient driver's qualifications.

## 2. Logistic processes

A process approach consists in perceiving an organisation as a set of processes and describing it as a map of connections and sequences of processes. Among all the processes identified, each organisation will feature processes referred to as logistic. Logistic processes are those that perform logistic functions. According to Marian Sołtysik, logistics stands for "comprehensive knowledge on logistic processes related to each economic activity and the means to manage these processes efficiently"<sup>1</sup>. One of major logistic categories is a logistic process which comprises a physical flow of goods through individual phases of economic activity. Logistic processes are about the flow of physical goods (materials, raw materials, semi-finished products, finished products and goods) along with the

<sup>1</sup> M. Sołtysik, "Podstawy zarządzania logistycznego", *Gospodarka Materialowa i Logistyka* 1995, No. 5, p. 21.

accompanying information transfer<sup>2</sup>. Logistics involves the notion of a flow, and flows are accomplished in logistic processes<sup>3</sup>. The most important aspects of logistic processes are the flows of material goods, information, related documents and (optionally) payments<sup>4</sup>. Basic logistic processes include those of transport, storage, handling, stock management, order processing, packing, automatic identification and supply<sup>5</sup>. Logistic processes are consequences of the scope of activities involved in the logistics of supply, production and distribution.

Logistic processes are inherent in manufacturing companies as well as service providers. Their number and complexity depend on the organisation size, the sector the company represents and the selection of goods or services offered. As far as service providers are concerned, logistic processes are particularly important, since the service sector is the most dynamically developing one, and furthermore, logistic processes usually occur in the service sector under the categories of core processes decisive of the given company's existence and growth. And it is exactly the logistic processes that service providers use in order to compete against one another in the struggle for market share.

Process approach is more and more commonly applied in Polish enterprises. The advantages of this concept have already been widely recognised, just to mention some examples of the requirements defined in the ISO 9001 standard, the TQM policy, reengineering and outsourcing. Implementation of the process approach requires a cohesive action strategy as well as consistence while following it. Whether the implementation and the functioning of the horizontal arrangement prove to be a success depends on appropriate identification of processes, correct interlinking of their mutual effects as well as the process management knowledge itself. And even though the matters related to process identification are not as problematic as it may seem, managing them is indeed far more complicated.

### 3. Process management

Process management is an overall body of coordinated actions addressing process administration and supervision. Process management can be defined on two levels of generality. In a broader context, process management is described

<sup>2</sup> A. Świerczek, "Koncepcja zarządzania procesami logistycznymi w przedsiębiorstwie", *Zeszyty Naukowe Wyższej Szkoły Zarządzania Ochroną Pracy w Katowicach* 2006, No. 1(2), p. 117.

<sup>3</sup> Compare: *ibidem*, p. 116.

<sup>4</sup> S. Krawczyk, *Zarządzanie procesami logistycznymi*, PWE, Warszawa 2001, pp. 58-59.

<sup>5</sup> *Przedsiębiorstwo usługowe. Zarządzanie*, eds. B. Filipiak, A. Panasiuk, PWN, Warszawa 2008, pp. 283-284.

as considerably comprehensive (covering not only the enterprise itself but also its business partners, suppliers and recipients), continuous (repeatable in time) and systematised (handled in accordance with specific principles and procedures) application of the relevant concepts, methods and tools (techniques) to influence the processes taking place in the organisation (company, institution) with the purpose of attaining its goals and satisfying the needs of its customers, both external and internal<sup>6</sup>.

Process management perceived in a narrow perspective means the planning of changes improving the processes implemented in the company and the control of their progress. It primarily addresses the company strategy, analysing, assessing and channelling (improving), steering and controlling the value creation processes inside companies and between companies<sup>7</sup>.

#### 4. Process administration

Following the logical process management diagram proposed by Stanisław Nowosielski<sup>8</sup>, process administration is one of the activities comprising process management. Process administration is a narrower notion than management. In process management, besides administration, one may also speak of identification, modelling and implementation of processes. Process administration consists of stages illustrated in Figure 1.

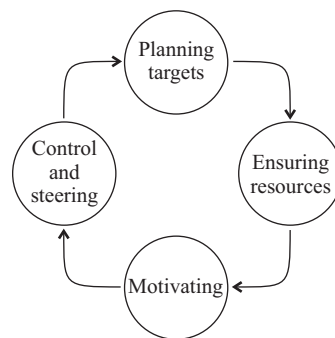


Figure 1. Process administration stages

Source: authors' own study based on: *Procesy i projekty logistyczne*, ed. S. Nowosielski, Wyd. UE we Wrocławiu, Wrocław 2008, p. 71.

<sup>6</sup> *Procesy i projekty logistyczne*, ed. S. Nowosielski, Wyd. UE we Wrocławiu, Wrocław 2008, p. 57.

<sup>7</sup> Ibidem, p. 58.

<sup>8</sup> Ibidem, p. 60.

Administration is traditionally perceived in the theory of process management as a process entailing motivation, leadership and influence on the activities performed by subordinates<sup>9</sup>. According to the process management concept, the notion of process administration is interpreted more extensively, since besides the motivational functions, it also involves planning targets, ensuring resources as well as control and steering.

Individual stages of process administration have been illustrated in Figure 1 and described in detail in the following paragraphs.

The first stage of process administration is **planning of targets**. Ensuring cohesion between the horizontal approach and the functional approach requires that targets of processes should be established in conformity with the organisation's goals. Based on process targets as well as those of departments, targets are defined for individual workplaces. The target planning stage is among the most problematic and complex ones, mainly due to the fact that targets must be ambitious, but also realistic at the same time, so that they are achievable. It is but one of debatable aspects, and the second one is the subject of a target as such. Authors of various publications recommend targets to be focused on relevant matters, and as a standard, it has been assumed that targets should entail customer requirements, quality and costs incurred. Which of these components should be emphasised under the given process depends on the action strategy envisaged and stems from the resulting strategic goals. The main issue in this respect is to properly assign the given strategic goal to an appropriate process or processes responsible for the corresponding relation. Another problematic matter is how to correctly translate the strategic goal into the process target. A success in this respect depends on an ability to decompose the strategic goal. However, an explicit strategic goal is much easier to decompose. Having translated strategic goals into process targets, one should check whether all strategic goals have indeed been reflected in process targets and verify if none have been duplicated or omitted by any chance.

Another task performed under process administration is determination of measures or indicators for the targets defined and making references to standards regulating their performance. This stage also poses numerous threats due to incompatibility between the targets defined and the criteria envisaged for their assessment. Nevertheless, one may observe that such nonconformities are easier to detect and eliminate than it is when establishing process targets. The simplicity of defining indicators and performance standards depends on the explicitness and correctness of the process targets assumed. A frequent mistake is making references to several matters which require more detailed and precise specification

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<sup>9</sup> S. Krawczyk, op. cit., p. 17.

under the indicators being established. A target appropriately defined is one which refers to a measurable parameter based on which an indicator is developed. A target should also be defined in such a manner that a specific performance standard would result from it. While defining indicators, one can make use of diverse measuring methods depending on what data are in need. For instance, when promptness of a service provision process is measured, one may develop an indicator verifying the number of services rendered past the deadline, the number of services rendered in due time or the number of services rendered past the deadline against all the services delivered. The latter provides information on the share of overdue deliveries of services compared to all of those rendered, illustrating the scale of the undesired problem at the same time. It is quite evident that one is left a considerable degree of liberty in the scope of development of indicators, and at the same time, it is an area where modifications can be introduced depending on the demand for specific information.

Another stage of process administration is **ensuring resources** required to perform processes. In this respect, one must take material, human, information as well as financial resources into account. Ensuring human resources is one of major components of the process approach concept. Organising human resources should involve ensuring appropriate qualifications of employees enabling them to perform the activities and tasks assigned. Process teams should be established and engaged in the performance of specific processes, and then a process owner is to be appointed for each of the processes. The work performed by the personnel should be organised based on an internal customer/internal supplier framework. Therefore, it is recommended that one should refer to internal relations between individual 'links' contributing to satisfaction of the external customer's requirements. One should also not disregard the notion of empowerment which enables employees to respond to changes of the final recipient's requirements. Establishing entitlements and responsibilities excludes the matters of argument in the scope of the tasks assigned, and at the same time, ensures cohesion of the targets pursued. Clear definition of entitlements and responsibilities enables employees to make decisions whenever the situation demands it.

Material resources are all kinds of machinery, equipment and hardware used at workstations as well as materials and raw materials required to manufacture a product or render a service. In the first instance, one should determine what material resources are needed to perform the tasks assigned, and then keep monitoring their condition with regard to completeness and operating efficiency, this to apply to hardware, machinery as well as equipment. A worker must be ensured appropriately furnished workstation in order not to waste any time to reorganise it, search for missing raw materials or materials.

Information resources, like the financial ones, are partially reflected in the motivational system assuming the form of remuneration and feedback. Moreover, it should also be stressed that information resources are connected with information transfer both in a vertical configuration, i.e. subordinate/superior, and in a horizontal configuration of internal customer/internal supplier. At this stage of process management, one must establish what information the given employee needs in order to attain the targets defined, what forms of communication are to be introduced as well as how often and in what scope they are to be used.

Under the efforts aimed to ensure information resources, one should also prepare the necessary documentation required for the given process. It must be kept up-to-date in the first place, and secondly, one must make sure that employees indeed use it. Furthermore, the employees should be made to realise their impact on the processes performed and explained the relations functioning in the organisation. Employees should be familiarised with the documentation developed and the nomenclature in use. Misunderstanding or ignorance of certain matters breeds defiance and unwillingness to follow them.

The next stage of process administration is **motivating**. Implementing an appropriate system of incentives is of major importance for the outcomes to be achieved. The system should be prepared in a manner ensuring that people are motivated to act and involved in the tasks assigned. Also remuneration must be connected with the effects attained, otherwise, employees will not be motivated to deliver the best achievable outcomes of their work. Outcomes of work of individual employees are forwarded to successive recipients, i.e. internal customers, and determine the quality of the final product. In process-oriented enterprises, a major share of remuneration should be variable and dependent on results. Employees should display considerable self-reliance and creativeness in order to contribute as much value as possible to the process in which they participate<sup>10</sup>. The motivational system should rely on various incentives encouraging employees to share their knowledge. The process approach is based on team work, and hence such attitudes must be developed in employees which will favour collaboration and work involvement of the entire team, and not only of individual employees focused on individual achievements. The synergy effect triggers much better outcomes, and for that purpose it is necessary to make appropriate use of team work and mutual support of co-workers.

A significant action motivating factor is appropriate transfer of information, both the decision making information, related to delegation of tasks to be

<sup>10</sup> A. Bitkowska, *Zarządzanie procesami biznesowymi w przedsiębiorstwie*, Vizja Press & IT, Warszawa 2009, p. 165.



performed, and the feedback. Correct feedback transfer enables assessment of the effectiveness of the tasks completed in order to be able to introduce the recommended enhancements on such a basis. The foregoing implies a necessity to develop an individual path of career for every single employee. By channeling the path of career, it is possible to develop appropriate competences and skills among employees for the sake of a pursuit of one's own goals conforming with the organisation's strategy. The motivational system should entail training courses the employees may find necessary to perform the tasks assigned to them in an efficient manner. Furthermore, employee initiatives related to the advancement of qualifications useful at their respective positions must be recognised and promoted, thus encouraging employees to proceed with self-development and ongoing improvement. The motivation should establish conditions enabling the employees to bear the responsibility for the tasks they have been assigned and work upon methods enabling the issues emerging at work to be solved.

A different form of employee motivation, commonly practiced in the recent years, is organisation of personnel meetings devoted to the professional problems they may encounter<sup>11</sup>. Assuming a slightly modified form, such a type of personnel integration is often referred to as 'quality circles'. This concept is based on very simple and well-aimed assumptions, and it can be brought down to a discussion on the issues occurring at work and the available solutions which may contribute to their elimination.

Implementing a motivational system based on an analysis of the effects attained is fairly simple among employees engaged in core processes, ones that are connected with the final recipients of services or products. However, achieving this goal becomes much more difficult with regard to auxiliary and managing processes, where the outcome pursued is not that explicit.

Last but not least, process administration comprises the stage of **control and steering**. It consists in verifying the outcomes attained by comparing the actual results with the targets envisaged, analysing the deviations observed and correcting all errors in the process. What proves to be important in terms of **steering** is the prevention of potential errors by undertaking corrective and preventive measures. This stage also involves a potential change in the process targets, if the process analysis results imply significant nonconformities or the signals received from the market suggest the necessity to modify the solutions previously implemented.

The process course may be verified on several levels, as shown in Figure 2.

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<sup>11</sup> M. Staniewski, *Zarządzanie zasobami ludzkimi a zarządzanie wiedzą w przedsiębiorstwie*, Vizja Press & IT, Warszawa 2008, p. 76.



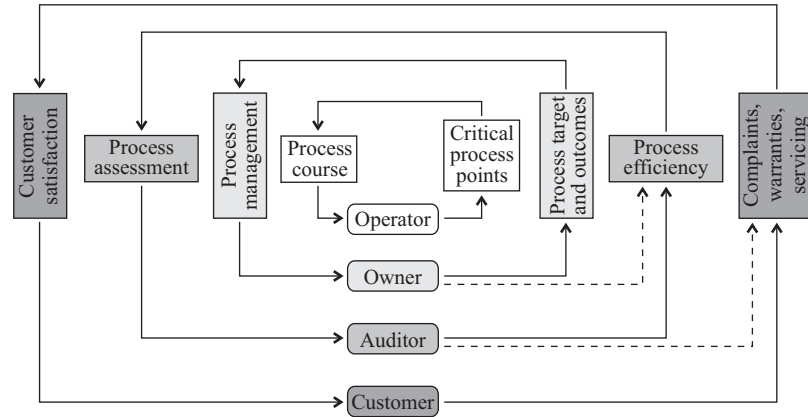


Figure 2. Model cycles of core process adjustment

Source: authors' own study based on: *Zarządzanie procesem*, training materials of TÜV Rheinland/ZETOM Polska Sp. z o.o., Katowice 2001/2002, p. 12.

The first cycle of process adjustment is the process course analysis to be conducted by the operator, i.e. the process executor. The operator's task is ongoing monitoring of the process critical points from the perspective of accomplishment of the assumptions made, and should any nonconformities be detected, introducing corrections in order to ensure that conforming outcomes are attained. Therefore, the operator's role is ongoing process adjustment. The next level of supervision is the process management, being the process owner's responsibility. Process management comprises target defining, analysis of the outcomes attained and efficiency assessment. Moreover, the process owner verifies the correctness of the process course and, if necessary, may introduce specific enhancements or modify the process targets. Also process operators may suggest specific enhancements, but the decision whether to implement them or not is made by the process owner. The process owner is also the one to develop reports on the outcomes attained in the process. Next, based on the process course analysis and comparison with the applicable documentation envisaged, the auditor conducts a process audit identifying any potential inconsistencies. The auditor is also obliged to verify the reports, analyse the level of complaints, warranties and servicing, and assesses the process conformity. The final process course adjustment cycle is the customer expressing their level of satisfaction through a contact with the product, potential complaints and servicing. The customers' assessment is the most objective and relevant one from the organisation's point of view. A high grade of the efficiency assessment granted by the auditor is no success if it is not reflected in the opinion of the product final recipients.

Figure 2 implies that a process can be verified on four levels:

- level I – process adjustment,
- level II – process supervision,
- level III – process auditing,
- level IV – customer satisfaction.

The lower levels of process adjustment enable process steering, whereas the upper ones provide information based on which various enhancements may be introduced. In order to ensure efficient process course, one should focus on adjusting the process and motivating process operators to keep track of process changes. The data acquired as a result of the process analysis will provide grounds for suitable corrective and preventive actions to be undertaken.

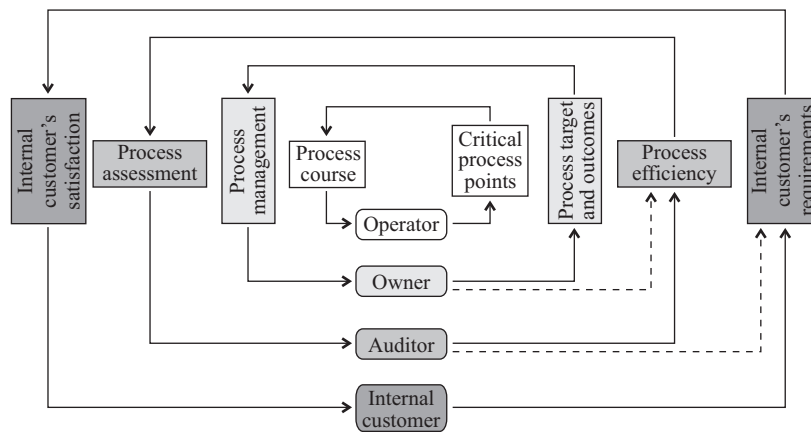


Figure 3. Model cycles of managing and auxiliary process adjustment

Source: authors' own study based on: *Zarządzanie procesem*, training materials of TÜV Rheinland/ZETOM Polska Sp. z o.o., Katowice 2001/2002, p. 12.

The concept of process course adjustment cycle assuming the form provided in Figure 2 applies to core processes. Therefore, this framework must be modified when it is to be used for assessment of managing and auxiliary processes, a group to which logistic processes may also belong. In this respect, the modification of the adjustment cycle will consist in removing level IV of assessment, i.e. the one that refers to the final customer, since auxiliary and managing processes are not directly responsible for satisfaction of the final recipients' requirements. In auxiliary and managing processes, the fourth adjustment cycle may be substituted with assessment of satisfaction of the internal customers' requirements. Consequently, the verification of the process performance correctness will be based on the internal customers' opinions pertaining to the degree of satisfaction of their requirements (Figure 3).

## 5. Conclusions

Logistic processes require appropriate administration in order to ensure that logistic tasks are accomplished. Each stage of process administration is equally important. They are arranged in a sequence, hence the mistakes made in the initial stages are to be repeated in the subsequent ones. Having reached such a conclusion, one realises the necessity to attach special importance to the target planning stage, since its correctness determines the outcomes to be attained.

With reference to the specificity of logistic processes, whose most significant aspect is the suitable flow of materials and information, it seems that administration of such processes should also be focused on ensuring human, information and material resources as well as appropriate steering of their flow.

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## Analiza działań składających się na kierowanie procesami logistycznymi

**Streszczenie.** W artykule poruszono problematykę kierowania procesami, odwołując się do procesów logistycznych. Przeanalizowano poszczególne etapy składające się na kierowanie procesami, zwracając uwagę na możliwe zagrożenia. Celem artykułu było wskazanie działań, jakie należy podjąć w zakresie kierowania procesami logistycznymi. Sformułowane wnioski powinny zapewnić sprawną realizację zadań logistycznych przy jednoczesnym spełnieniu wymagań klientów oraz skutecznym osiągnięciu celów organizacji.

**Słowa kluczowe:** procesy logistyczne, zarządzanie procesami, kierowanie procesami