

THE CHALLENGES OF UNIVERSAL POSTAL SERVICE COST MANAGEMENT

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Abstract

The provision of information with an accurate and timely description of all business processes holds a prominent position among various activities for enhancing the operations of network industries. Since price pressure is the primary consequence of competition in network industries, it is necessary to perform a cost analysis of the business processes of the industry's monopolists. The realisation of all business activities that make up a production chain at as low a cost as possible, without affecting the quality of products and services, is the main issue of concern to network industry management. A key problem of cost management in network industries is their specific structure characterised, inter alia, by high participation, rapid growth and diversification of overhead costs.

The research subject of this paper is the theoretical identification and understanding of the basis of a potential Universal Postal Service (UPS) cost accounting model of the Public Postal Operator (PPO) in Serbia. EU Directive 97/67 represents the starting point for providing the guidelines for the development of this model, such as separate internal accounting for several PPO service segments. The existing legislative framework which defines the relations on the national postal service market pays special attention to the cost of UPS, which provide the basis for service pricing. The relevant result of this research, which has a significant practical application, is the basis of the model for calculating the cost of universal postal service, designed to provide informational support to management in the process of service pricing.

Key words: Public postal operator, universal postal service, cost accounting, ABC approach, overhead costs

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ИЗАЗОВИ УПРАВЉАЊА ТРОШКОВИМА УНИВЕРЗАЛНЕ ПОШТАНСКЕ УСЛУГЕ

Апстракт

Међу бројним активностима за унапређење пословања мрежних индустрија, посебно место заузима обезбеђивање информација са тачним и правовременим описом свих њихових пословних процеса. С обзиром на то да се примарна последица конкуренције у мрежним индустријама манифестује у форми ценовног притиска, неопходна је анализа трошкова пословних процеса доскорашњих монополиста. Питање реализације свих пословних активности које чине производни ланац уз што ниже трошкове, а да се при томе не угрози квалитет производа и услуга, у фокусу је посматрања менаџмента мрежних индустрија. Основни проблем управљању трошковима мрежних индустрија представља њихова специфична структура коју карактерише, између осталог, високо учешће, убрзан раст и диверсификовање општих трошкова. Предмет овог истраживања је теоријско идентификовање и разумевање основе могућег модела обрачуна трошкова универзалне поштанске услуге (УПУ) јавног поштанског оператора (ЈПО) у Србији. Полазну основу чини Директива ЕУ 97/67 у којој су дате основне смернице развоја овог модела, као што је вођење одвојеног интерног рачуноводства за неколико сегмената услуге ЈПО. Актуелни законодавни оквир којим се уређују односи на националном тржишту поштанских услуга посебну пажњу посвећује питању трошкова УПУ, који представљају основу за формирање цена овог сервиса. Релевантан резултат истраживања, који има значајну практичну примену, је основа модела обрачуна трошкова универзалне поштанске услуге, осмишљен као информациона подршка менаџменту у одлучивању о ценама.

Кључне речи: Јавни поштански оператор, универзална поштанска услуга, обрачун трошкова, АБЦ приступ, општи трошкови

INTRODUCTION

Network industries comprise economic activities in which people, products and information are transported from one place to another via a certain physical network. As such, network industries are of particular economic and social importance, which reinforces the long-established opinion about the need for maintaining one's monopoly status on the market. However, at the beginning of the 1990s, the EU initiated network industry reforms since the negative consequences of the dominant market position became too great an obstacle to faster economic development. The main objective of these reforms was to create conditions to set up new companies in the competitive segments of the network industry, while the non-competitive segments were allowed to continue functioning as they had been before the reforms.

Postal services, from the aspect of the existence of competition, consist of two parts: universal and commercial services. The Universal Postal Service (UPS) segment is further divided into two subgroups: reserved services (RS monopoly – reserved for public postal operator) and part of non-reserved services (PPO enjoys a de facto monopoly). Com-

mercial services are fully open to competition. In Serbia, UPS includes posting letter-post items weighing up to 2 kg and packages weighing up to 10 kg, which is almost identical to the solutions applied in the national legislation of EU countries. The UPS is one of the basic achievements of civilization, which is why the state is ready to take the appropriate steps to ensure its general availability. The first step involves the appointment of a UPS provider, and the second step is the creation of an environment in which the UPS provider, as well as all other postal service providers, enjoy conditions that guarantee unhindered market competition with benefits for users.

The independent regulatory body has the obligation to establish a control system which will prevent the abuse of the position of the PPO. It is allowed, with the income generated in the monopoly segment, to cover only the costs of UPU and nothing else. The regulator must have accurate, realistic, transparent, and objectively presented UPS costs in order to create an adequate pricing policy (Official Journal L 125, 2001, *Deutsche Post AG*).

Cost accounting and cost management of postal services have become topics of interest to public postal operators (henceforth PPO) in the European Union only in the last decade. Unfortunately, owing to the relatively protected market position, the importance of comprehensive cost accounting has been greatly overlooked. Only external pressure, exerted by the regulatory body in charge of, among other things, promoting fair market competition rules, has forced PPO to further improve the traditional approach to costs by focusing on issues such as the costs of a particular stage of the provision of services, or group of services a group of services. The PPO in Serbia faces the very same task. The successful completion of this task will be a response to the demands of the regulatory body on the one hand, and it will contribute to the qualitative and quantitative improvement of the decision-making system on the other. Given the tendencies on the national postal service market, the effects of the application of cost accounting and management may go beyond merely satisfying the requirements of the regulatory body. Having in mind the legal and other requirements of the regulatory body, the aim of this research is to trace the basis of the model of monitoring and managing the costs of the Serbian PPO's universal postal service. The goal is to consult the theoretical and practical achievements in the field of cost management and to initiate the continuous improvement of the methodology of cost calculation in order to provide informational support to management.

The difficulty in calculating the costs of the national PPO, the Post of Serbia, is a result of the fact that, in addition to the market of postal services, this company also operates within the markets of telecommunications, printing services, maintenance of facilities, equipment and vehicles, and the like. Postal services are not homogeneous either, and many of them share the same production resources, which makes it difficult to

determine the cost of each individual service. Most of the costs of PPO, including the Post of Serbia, can be marked as indirect or common.

The research process began with observing the existing organization of PPO in Serbia, and analysing the process of providing postal and other services. The second stage of the research process consisted of comparing the manner of providing services and monitoring the costs of the PPO in Serbia with PPOs in EU countries. The results of research in cost management literature, legal requirements, and the practices of PPO indicate that the integrated application of the ABC approach and elements of the current practice of cost tracking can be a solution to the problem of universal postal service pricing.

The main problem of the cost management of network industries is their specific structure, which is characterized, among other things, by high participation, rapid growth and the diversification of overhead costs. The accuracy of cost information is conditioned by finding an adequate relation between overhead costs and cost objects, identifying and tracing cost drivers and output measures of activities, as well as by monitoring the cost behavior of different levels of a product. Considering that it implements new and accurate techniques, activity-based costing (ABC) presents a sophisticated way of overhead cost allocation, consistent with the cause and effect principle.

THE CHARACTERISTICS OF THE MODERN BUSINESS CONDITIONS OF THE POSTAL SECTOR

Network industries comprise those economic activities whose role in the process chain is being part of the network infrastructure. Delivery of services, i.e. products, to consumers in such industries is highly unlikely unless it involves various elements that form a network. Furthermore, the development of products and services is not feasible without a coordinated and interactive operation of a number of factors of production in geographically different locations. The components of the network infrastructure link the units in which one or more products or services are formed for the purpose of being delivered to or provided for users. Each network industry is made up of three components: the core product (service), network infrastructure, and product delivery or service provision to the final consumer (Hrivnak, Križanova, 2006, p. 32).

Network industries bring together companies active in the transport sector (road, rail, water and air transport) and the flow of information (mail, telecommunications). Additionally, network industries comprise utility networks (electricity, gas, water), which undoubtedly leads to the conclusion that a significant part of the world economy belongs to exactly this segment. Network industries account for 9% of the European Union

GDP, while their share in employment is 6.5%, or 13 million people (Belgian Federal Planning Bureau, 2006, p. 28).

Due to their great importance, expressed not only via their share in the total economy but also by being the basic prerequisite to any economic activity, network industries have long enjoyed a monopoly status. Besides, they often serve public interests, which is the main reason why the companies belonging to network industries have until recently been exclusively state-owned businesses. Their economic strength, measured in terms of a multiplier effect on both economic and social relations, has widely been used by states as a powerful tool (Tsai, Lin, Chou, 2010, p. 190).

The provision of products, i.e. services, of public interest is under the purview of network industries, which means that they have a significant economic and social impact. Network industries are not only a prerequisite for economic efficiency and competitiveness. In many areas, their outputs satisfy basic human needs as well. During the 1990s, a process of network industry deregulation was initiated in the European Union. The main objective of this process was creating conditions for setting up new companies in the competitive segments of the network industry, while the non-competitive segments were allowed to continue functioning as they had been before the reforms (Postal User's Group, 2006). The expected effects of the regulatory reform of network industries are observable on both sides: the supply and demand for network industry products and services. In regards to supply, the competition against natural monopolies focuses its market position on new products and services. Simultaneously, innovations in supply lead to a rise in demand, which, in turn, lowers the prices.

The specific characteristics of network industries imply that the deregulation of this economic segment is not an easy task. The course of influencing industry conditions in order to introduce competition is a process which occurs together with a number of specificities absent from other fields of economy. One of these specificities is the fact that businesses and companies within the network industry retain the obligation of universal service provision, whose basic characteristics are general geographic availability, and general affordability. Then, deregulation has to solve the problem of accessing the natural monopolist network through competition, primarily from the aspect of price. In addition, there is the issue of cross-subsidisation between the competitive activities of the natural monopolist and the non-competitive ones. The network industry regulatory reform in the EU, therefore, should essentially achieve the following three goals: stimulate competition in the segments where it is still lacking, guarantee a minimum level of public service, and ensure the efficient use of the network infrastructure (Magli et al., 2010, p. 3).

The deregulation of the postal service markets, as a part of the EU network industries, has fallen behind the markets of other products or

services belonging to this economic sector. The reasons for this primarily lie in the characteristics of this sector, such as the following: the output of the postal industry is service; natural monopoly occurs in the postal network segment; this is a labour-intensive network industry; the postal market is discernibly affected by the economies of scale and economies of scope; there is a simultaneous production of a wide range of services (Bradley, 2003). Postal service providers cannot produce supply services. The production and consumption of postal services occurs simultaneously, which in turn means that postal operators always need to be available to satisfy demand. Availability is particularly noticeable in the public postal operator (PPO) as a natural monopolist. The natural monopoly of the PPO is the result of defining the range and characteristics of the universal postal service, the term derived from the issue of the deregulation of this sector in the EU (Directive 97/67/EC).

Companies active in the postal sector cannot function without a corresponding network. When it comes to the PPO network, it should be emphasised that it was not established as a consequence of market demands. On the contrary, both its current and potential dimensions are mostly determined by non-market factors, such as the already mentioned universal postal service. Unlike other network industries, the postal sector is markedly labour-intensive. This characteristic should be viewed from two aspects. The first aspect focuses on the issues which may arise from fast market liberalisation, i.e. the transfer of the PPO users to other providers. Hence the deregulation of this sector needs to have a social dimension, too. The second aspect, which is the dominant share of staff costs, affects the process of cost accounting and management.

Similarly to other network industries, the effects of the economies of scale and economies of scope are evident in the postal sector as well. The economies of scale result from the postal network infrastructure whose capacities are fixed – the increase in services provided leads to a decrease in cost per service. Effects of the economies of scope in the postal sector arise from the simultaneous production of several different services. The costs of such joint production per service unit are lower than would be the case if each service was produced separately.

According to statistics, the postal sector accounts for a significant part of the EU economy. Letter, parcel and express mail deliveries in the EU generated an income of 79 billion euros in 2017. There were 1.8 million people employed as PPO. According to some studies, it is estimated that the indirect effect of the postal sector on the EU economy amounts to 203 billion euros (Copenhagen Economics, *Postal services in the EU*, 2019).

The value of the world parcel market, in which numerous private companies besides PPO are also active, reached 70 billion EUR in 2019. As a result of current epidemiological developments, it is anticipated that the parcel market will grow by 20% during 2020. For example, the Italian

PPO (Poste Italiane) has already recorded a growth of 53.9%, the PPO of Great Britain (Royal Mail) has recorded a growth of 38%, and the French PPO (La Poste) has recorded a growth of 33.2% (Apex Insight, European Parcels Market Insight Report 2020).

The effects of postal market liberalisation are expected in several areas, among which tariffs are the first area expected to reveal changes. The gradual emergence of competition on the market which had until just recently had completely monopolistic characteristics resulted in pressure being exerted on the PPO's prices. There is also a significant need to create accounting information in an effort to meet the request of new stakeholders (Khlif, Hussainey, 2016, p. 184). As a monopolist, a state-owned company is not forced to maximise its profit, but it sets prices driven by average costs. The price data shows that in more than half of the EU Member States, the postage for the most frequent postal service (delivery of letters up to 20 grams) has not risen in real terms. Productivity is the next area where positive effects of liberalisation are expected to occur. Competition pressure inevitably imposes a need for the improvement of the PPO's business processes, which results in a more rational use of the available resources. This affects the reduction in costs which consequently has an impact on the price policy (Ruiz de Arbulo Lopez, et al., 2013).

Additionally, the price structure of the postal services is changing. During the monopoly of PPO, the basic characteristic of the tariff policy is uniformity, i.e. there is no sufficient correlation with costs. The deregulation of the privileged PPO position sets the conditions for the arrival of the new postal service providers, who act in market segments with the highest price margin. These tendencies will lead to a gradual adjustment of prices in relation to costs, i.e. to a reduction of prices. The deregulation of postal service markets is an impulse for ultimately introducing innovations. The postal sector is the embodiment of an economic activity that has been functioning for decades, even centuries, in the same way. With the emergence of new participants on the market, innovation has become one of the ways of boosting competitiveness. Private providers taking over a part of the market is a strong incentive for the PPO to not only improve the existing processes and quality of services but also to introduce new ones. Due to the deregulation process, quality of services also shows positive tendencies. Innovations in the production process, prompted by competition pressure, have resulted in the shorter transfer time of mail, an increased level of the postal service availability, the enhanced reliability of these services, improved relationships with the clients, modification of traditional postal services, etc.

The characteristics of the postal sector have a dominant influence on the nature of costs. More precisely, they make monitoring costs a very complex process. Some of the problems that stem from the cost monitoring and management of PPO are: cost accounting and management when

the provision of some service is prescribed by law, cost accounting of cost centres, criteria for overhead cost allocation, costing per service, etc.

The necessary provision of the universal service, prescribed by law as a continual and mandatory activity for the whole national territory, is only one of the problems in the field of cost management (Postal Law of the Republic of Serbia). Its fulfilment requires the use of substantial resources, which results in high costs, making the disparity between installed and used capacities more complicated. How to transfer to services a part of the costs arisen from the provision of the universal service? The PPO network is not formed on the basis of the perceived market demands. Instead, it is a consequence of its historical development. Yet, due to the regulation of postal services, PPO has the obligation to practically maintain the given situation, which considerably restricts the possibility of adjustment to market demands, and rational cost management.

To do costing according to cost centres (which represent the particular organizational segments within the organizational PPO scheme), is yet another problem which occurs during the cost monitoring and management of PPO. The postal services are produced through an interaction of a smaller or greater number of the postal network units, i.e. cost centres. Given the complexity of the service process chain formation, this means that costs relating to one service arise in more cost centres. One of the perhaps most important elements of an adequate approach to cost management is based on an analysis of cost per every cost centre.

The PPO cost structure is yet another of the factors which make the process of cost management in these companies complex. As regards every postal company, direct costs are rare, i.e. their share in the total costs is frequently very low. Therefore, costs that can be called indirect, i.e. overhead costs, are predominant. Their allocation to groups of services, i.e. a particular service, is a new challenge to cost accounting and cost management.

A wide range of postal services which are simultaneously produced by frequently using the same resources is a new problem to the PPO cost accounting and management. Universal services, as well as those from the commercial segment (available to the competition) result as a consequence of using the same resources. There are no separate service lines, not even on the level of groups of services, and most frequently there is no time distance during service provision. This situation additionally aggravates costing per each individual service.

Basically, a key problem which, if left unresolved, prevents the quality cost management of the postal operator, is the choice of the proper approach to cost accounting and analysis. Assuming that a data collection process on cost amount is adequately organized, the PPO faces a dilemma about the way cost should be allocated so as to, eventually, enable costing per specific service. It is only then that it becomes possible to analyse cost amount, cost structure and other aspects of adequate cost management.

*THE SPECIFIC PROBLEMS OF COST ACCOUNTING
METHODOLOGY IN NETWORK INDUSTRIES*

An approach to cost accounting adjusted to the specific situations of the postal activity should also evaluate the costs caused by providing a specific service in situations when several services are simultaneously provided, all while using the same resources. While identifying a particular methodology of cost accounting (<https://posta.rs/lat/o-nama/menadzment.aspx#izacionaStruktura>), the initial step is to discern two different categories of costs:

- costs completely attributed to the production of specific services,
- costs incurred regardless of whether a specific service is produced or not.

The first group of costs refers to direct costs definitively related to specific services, wherein one cost is attributed to one service. Conversely, the second group of costs refers to indirect costs, which demand the application of certain criteria (keys) for allocating them to specific services.

The allocation of indirect costs is one of the biggest challenges to regulators and bodies responsible for determining the conditions for fair competition (Dragendorf, 2019, p. 18). A separate act of the European Commission emphasises the importance of problems caused by a complex process of allocation of costs incurred during simultaneous provision of different services. According to Article 14 of Directive 97/67/EC, costs which cannot be directly assigned to a particular service shall be allocated, whenever possible, on the basis of direct analysis of the origin of the costs themselves. The following principles of cost allocation need to be considered (Directive 97/67/EC):

- Allocation of all costs incurred – all costs directly or indirectly assigned to postal service provision shall be so assigned;
- Causality – costs shall be allocated in accordance with the activities that caused them to be incurred;
- Objectivity – costs are allocated on the basis of an objective analysis, avoiding unjustifiable treatment of the company subject to regulation, or any other company;
- Transparency – a method of cost allocation needs to be transparent;
- Comparability – the criteria for cost allocation should be such as to provide comparability of cost data at regular intervals;
- Elasticity – cost allocation methodology needs to be responsive to changes in operator functioning;
- Consistency – cost allocation needs to be in compliance with the regulator's stated objectives (e.g. economic efficiency, fair

distribution) and legal obligations (respecting the user's interest, guaranteeing provision of the specific set of services, etc.); and

- Feasibility – cost allocation methodology needs to be feasible.

Upon considering the specific character of companies active in the postal sector, the importance of selecting an approach to cost accounting and management, as well as different allocation principles, it has become evident that cost allocation for the purpose of calculating the real cost price of postal services is a very complex task. This is likewise emphasised in Directive 97/67/EC, in Article 14 which thoroughly describes costs, their classification into direct and common costs, and their allocation to services. Serbia's Law on Postal Services deals with this issue in Article 24, using terms such as internal accounting, direct analysis of cost drivers, indirect measure of costing, etc (Law on Postal Services of the Republic of Serbia).

Both of the above mentioned documents, i.e. the sections dealing with costs, unambiguously point to Activity Based Costing (henceforth ABC) as an accounting approach which may be applied to the costing of postal services. Cost allocation to cost units according to the ABC postulates is based on an analysis of the microstructure of their (cost) drivers (Horngren et al., 2003, pp. 136-156). An equation connecting cost drivers and output (of products or services) is often used with certain approaches, but it is not valid in the ABC approach. When the same resources are component parts of the production process of different goods or services, direct cost allocation is not likely. It is necessary to separate each of the cost objects into components: it is true that certain resources must be mobilised to create a product or service, but in the production chain, however, various activities are realised. As a rule, performing several different activities contributes to the development of one product or service, which implies that all costs need to be allocated to specific activities (Everaert, Bruggeman, 2007, p. 19). In the next step of the research, each activity is connected with the final product or service.

As for the elements necessary for postal service cost accounting and management, financial accounting is the main data source of expenses and revenues. Yet, this data is not analytical enough for cost allocation, since various services frequently use the same resources. Noticeable deficiencies of the financial accounting data call for tailor-made PPO internal accounting which would provide detailed data, particularly on costs. As regards cost accounting, objectivity and accuracy of cost allocation is provided at the level of narrower organizational units – cost centres (henceforth CC). Implementing activity-based costing is in direct relationship with the existence, i.e. the quality, of internal accounting, whose structure is adjusted to, above all, the accounting needs of PPO management. The quality of management's decision-making depends on, inter alia, the level of detailed data on costs.

As regards cost accounting, objectivity and accuracy of cost allocation is provided at the level of narrower organizational units, which are in the public postal operator's case, cost centres (CC). If this lower organizational level can be described in terms of not only costs but also parameters which define the activities performed, then there are prerequisites for the application of the ABC approach (Jablan Stefanović, 2019, pp. 442-445).

Although the number of CCs has a direct influence on the cost allocation results, the internal accounting structure which identifies several cost systems need not indicate the quality and availability of data at the same time. As regards costing, a separate CC hierarchy will not be fully effective unless internal accounting strictly complies with the following principles (Directive 97/67/EC):

- *Cost centre structure elasticity*: organizational changes, such as opening new postal network units, must necessarily be reflected on the change of CC structure in internal accounting;
- *Organization plus*: the number, structure and interrelationship of cost centres is determined by the company's organizational structure; however, in internal accounting there should also be the possibility for a more detailed presentation of costs of the organizational parts that have not been mentioned in the organizational scheme, complying with the principle of cost-effectiveness;
- *Necessary book entry on CC accounts*: by booking all costs according to their origin one of the allocation principles is obeyed, that of causality, which means that costs are entered in centres where activities that drive them have been realised.

As regards the specificity of every CC, in relation to the character of processes that take place in them, one can differentiate between *production* and *non-production* cost centres. The production CC category is not homogeneous: a part of the centers is active in the core activity, while the other part is active in non-core activities.

All CC which comprise activities included in the production chain belong to production cost centres. Costs of these cost centres are always a part of the company product or service cost, irrespective of their being allocated in a direct or indirect way.

Non-production cost centres are a support to production organizational units. By indirect allocation, their costs become a part of the total cost of the final products or services, but only after an analysis of the nature and effects of their activities has been performed. This group of costs reaches up to 20% of the total costs of PPO (Dragendorf et al., 2019, 18).

The next aspect of CC focuses on an analysis of the effects of engaging production CCs. Nowadays, postal companies are characterised by a diversified service program, which means that they appear on the market not only as service providers from the core postal activity but also as

providers of other similar services. Hence a difference is made between production CCs in the postal operator *core activity* and production CCs in the postal operator *non-core activity*.

In both categories of CC attention should be paid to the so-called internal transfers, i.e. interrelated, intracompany service exchange. Comprehensiveness, as one of the principles of cost accounting, asks for a careful monitoring of the interdependency of all CCs, precisely by including and monitoring these internal effects.

Eventually, as for the functioning of ABC, it is necessary to differentiate between non-production CCs of *the specific character* and non-production CCs of *the general character*.

The first group comprises those cost centres whose activities are related to either the postal operator CC in the core activity or the postal operator CC in the non-core activity. Their costs are allocated to the results of the work process of one of these two groups of cost centres, in accordance with the parameters set for the activities performed in them.

For the general non-production CCs, the rule is that their operation provides support to all production units, both to segments in the core activity and those in non-core activities. According to the general allocation criteria, allocation of these costs is made to all CCs of the postal operators, irrespective of the production chain to which they belong.

Generally speaking, according to the previously defined accounting information system of the postal service provider we can discern three data driven, closely related areas: *financial accounting*, which monitors and sends data on costs according to cost types; *internal accounting* which monitors and sends data on costs according to cost centres; and *activity-based costing*, which should enable an adequate cost allocation to postal services.

Public Postal Operators need to allocate total costs to all products or services on which they earn income, so the focus is on the *Fully Distributed Costs* approach (henceforth FDC), (Directive 97/67/EC). Its application is relatively straightforward concerning PPOs who have not significantly entered the process of diversification. However, these examples are rare today, which is why the FDC approach requires a careful analysis of the organizational parts of PPOs, i.e. of each cost centre.

The complexity of the postal operators' cost accounting results from the fact that, apart from the postal service market, these companies also operate on the market of telecommunications, graphic services, and services of maintaining facilities, equipment and vehicles, etc. Postal services are not homogeneous either, and many of them *share* the same production resources, which makes costing per specific service very difficult. Most costs of these companies may be termed indirect, or common costs.

A key prerequisite for applying the ABC approach is a careful classification of all costs into four groups, taking into consideration their

drivers and the possibility of allocation to cost units. These are as follows: *direct costs*, *direct production costs*, *indirect production costs* and *indirect central costs* (ERPG, Costing access to the postal network, services and elements of infrastructure, 2017, p. 6).

A global cost data analysis needs to recognise *direct costs* in the first step of allocation (Maher et al., 2017, pp. 234-242). Direct costs are generated in the production chain, or in the part of it which relates to only one service or a group of them, which is why they are directly allocated. Allocation is made in accordance with the level of employment of resources which caused the costs to be incurred.

Direct production costs arise in those organizational units (cost centres) whose activities directly participate in the development of one or several different products or services. As regards the postal operator, these are the costs of the postal network units (PNU) which simultaneously produce different services, some of which are postal services. Because of the specificity of postal service production, direct production costs are allocated in compliance with the ABC approach (Drury, 2013, pp. 372-377).

A part of the postal operators' costs has the character of indirect (common) costs, as regards allocation to cost units of all services produced. These are the costs of organizational units which are not directly included in the postal operator's production chain, but whose activities are described as a support to the process of product or service development. The impossibility of a direct analysis of the causes of their origin is solved by the principle applied to previously allocated costs. This category of costs is not uniform. Thus, considering their relationship with direct production costs, a difference is made between *indirect (common) production costs* and *indirect (common) central costs* (ERPG, Costing access to the postal network, services and elements of infrastructure, 2017, p. 6).

The first group comprises the costs of cost centres whose activities are a direct support to the functioning of the production cost centres which are not directly included in the production chain of services. However, a link between these centers and concrete production cost centres may be clearly established. One of the examples of such cost centres is the territorial or functionally structured management of production cost centres. Their costs are allocated to the postal operator's services either from the core (postal) activity or from other, non-core activities. Since the direct analysis of the causes of their origin is not possible, they will be allocated according to the *cost-to-cost* method, which means that allocation to cost units is to be performed in the same way as in the case of allocating the same costs or group of costs at the level of production CCs.

Indirect central costs, the second sub-category of common costs, are also attributable to activity-based support to the core activity. These are the costs of cost centres (e.g. boards) which supervise all cost centres directly involved in the production of all services. Each of the boards

should be separately monitored so as to single out those which exclusively support postal activity. For other boards with multifunctional authority, a part of the costs is assigned as a consequence of support to the operations of the cost centre's postal activity. The final stage of the board cost allocation to postal services is not feasible on the basis of direct allocation alone, but the *cost-to-cost* allocation principle is applied (ERPG, Costing access to the postal network, services and elements of infrastructure, 2017, p. 6).

Allocation of all PPO costs to all their products and services (the FDC approach) is a starting point for defining the procedure, and it encompasses postal service costing. Therefore, it is necessary to perform an analysis of the functioning and interrelationships of the PPO organizational parts which can deal with: providing only postal services; providing other services in addition to the postal ones, using the same resources; and providing services in support of the core activity, outside the postal service chain.

The object of allocation in the first case are total costs of PPOs whose cost units represent each of the postal services produced. All costs, direct or indirect, in line with the defined parameters, are objects of allocation. The current development of the EU public postal sector indicates that the dominant trend is horizontal and vertical diversification of the production program. A diversified production and service program need not be an obstacle from the aspect of cost accounting, if every organizational unit represents a vertically complete system which functions independently of others.

However, the provision of only postal services is not characteristic of the postal sector. On the contrary, economic reasons, primarily obeying the principles of the economies of scale and scope, direct PPO operations toward the rational use of all resources available, from technical to human, which implies raising the level of capacity utilisation. Public postal operators are the typical example of companies whose cost structure is dominated by fixed costs incurred as a consequence of building and maintaining the network capable of satisfying the high standards of the universal postal service prescribed by law. Production possibilities of the installed capacities, primarily those in the network, are greater than the level of demand for universal service, which forces PPOs to use the declared surplus in the production of other services. Cost allocation in such cases depends on application of objective and verifiable criteria which express the level of resource utilisation during the production of every group of services, i.e. a specific service.

The third case exists when PPOs themselves perform activities which are not a part of the production chain of any service, spending specific resources accordingly. Say, instead of hiring an external contractor, one organizational unit within the PPO will renovate the facility of the postal network unit. In this case, cost is incurred by service provision in

the postal network unit, since renovation is necessary for a free flow of activities in that PPO functional unit. This means that in accordance with the causality principle, renovation costs must be recorded in the total amount of the activity costs realised in the postal network unit, and thereby in the cost price of its services as well. In other words, the costs of the internal realisation of products and services are part of the total costs of corresponding organizational parts of the postal operator (<https://posta.rs>).

The starting point for the grouping of costs for allocation purposes is the analysis of the nature of costs according to types described in financial accounting. As regards adequate cost allocation, it is necessary to respect the specific character of the postal activity and the basic principles of the ABC approach. With that in mind, while classifying costs of postal operators it is necessary to pay attention to: *quality of allocation parameters, allocation feasibility, importance of associated costs and possibility for identifying cost drivers* (Official Journal L 125, 2001, *Deutsche Post AG*).

The significance of costs is primarily determined by their share in the total costs. Allocation focuses on costs which account for the greatest part of the company's total costs which need to be as objectively allocated to final cost units as possible. Special treatment of low costs reduces costing feasibility and has, at the same time, an insignificant influence on the accuracy of the cost price.

Defining the types of costs is also possible by identifying parameters which will objectively describe their connection to activities. If such parameters do not exist or can be only theoretically defined, the identification of certain types of costs is unnecessary. Cost grouping for the purpose of adequate allocation is performed on the basis of costs calculated on the level of the postal operator production cost centres, specifically those directly included in the postal service production chain. Cost grouping on that level will reflect on other cost centres in which cost allocation to services will follow the *cost-to-cost* principle.

Costs incurred at the level of cost centres directly included in the postal service production chain may be *production* or *non-production* costs. Production costs arise as a direct consequence of work processes in the production cost centres, i.e., production process of all services provided at cost centers from that group. Non-production costs are only indirectly related to activities performed at the level of production cost centres. These are financial and other expenses which are not directly related to activities in production cost centres. The drivers of these costs are numerous and very complicated to identify, so that allocation is frequently made on the basis of the amount of previously allocated costs.

According to monitoring and their adequate allocation, *production costs* may be divided into: staff costs, depreciation costs, facility costs, equipment costs, vehicle costs and other production costs. This classifica-

tion of costs is determined by a tendency to allocate costs to cost units in compliance with the causality principle.

Costs booked in the production cost centre accounts are to be allocated to all PPO services. A part of these costs, or a rather small number of them, will be directly allocated to final units because of the specific character of the PPO production process. Conversely, allocation of most costs will be indirectly made, on the basis of identified activities which make up a specific service.

Before describing the allocation process, let us go back to direct costs which need to be further classified as:

- direct costs of postal service provision, and
- direct costs of the PPO postal and other services.

According to ABC, direct costs that refer to only one phase of the postal process chain are viewed as separate (direct) costs. In order to allocate them to a specific postal service, it is necessary to separate their allocation to the phase level by applying different criteria (parameters). Unlike direct costs at the phase level, the service direct costs (postal and other) skip the first step of allocation (costing of phases) and are allocated to a specific service or a group of services. According to ABC, allocation of all other types of costs called direct production costs (the biggest part of the PPO costs), is made in two steps: *allocation of CC costs to activities* and *allocation of activity costs to postal services*. Allocation is based on the identification and careful analysis of Resource Drivers and Activity Drivers, which are specific parameters that describe the interrelationship between costs and specific activity or service (Ostrenga, Probst, 1992, pp. 5-9). Data on using specific resources is booked in cost centre accounts. Among the group of all PPO cost centres, we used data from the accounts of those CCs which are directly included in production processes of postal or other services.

Upon direct cost allocation to a part of the postal production process or a service, the parameters which objectively indicate specific resource drivers are defined. Parameters for resource mobilisation will be defined for each of the identified type of costs separately (section 6.4), by answering the following questions: In what part of the service production chain (or the postal service phase) are resources mobilised? Which factors affect the emergence and intensity of resource mobilisation?

THE IMPLEMENTATION OF A POSSIBLE MODEL OF COST ACCOUNTING IN THE POSTAL SERVICES SECTOR

According to the ABC model, in order to adequately allocate costs to units, costs are attributable to separate phases of the postal service *production process*. As regards Serbia's PPO there are four stages to this process: *reception, sorting, transport and delivery*.¹

The allocation of staff costs to the service production process phases is based on a *realised minute standard* as an indicator of the work load of the staff in the postal network units. Allocation of depreciation costs basically has the PPO resource structure. A share of each of the four groups of resources in the total depreciation costs is to be determined (facilities, equipment, vehicles, etc.). Facility costs are allocated according to their use, so that in the total area of each postal network unit there is a section for reception (front-office), sorting, delivery, transport and other jobs. The determined percentage structure of the total area of the facility represents a parameter for all cost classifications included in this category of costs. Equipment costs are also allocated according to their use, so that the equipment structure of each postal network unit differentiates the following groups: for reception sorting, delivery and other activities. Vehicle costs are allocated according to their number and the structure of their use which serve as parameters for determining the costs of vehicles used during reception, transport, delivery, i.e. vehicle costs for specific services and non-technological purposes. The group *Other production costs* comprises a heterogeneous category of costs booked at the level of the postal network unit for which allocation parameters cannot be identified. The allocation of these costs is based on information about realised minute standard at the level of a specific postal network unit, according to service types.

In the continuation of the paper, we will focus on postal activity, a segment which is still the most important to every PPO despite deregulation. Taking staff costs as an example, we will show a model of the choice and use of resource allocation parameters. To allocate this category of costs, it is necessary to observe the amount of these costs realised at post offices and postal centres as production cost centres. The key to allocation is the number of realised minute standard of the staff employed in different jobs, which need to be grouped in two steps so as to recognise the adequate allocation parameters:

¹ The specification of the phases of the process of providing postal services and the graphic illustration of the allocation of costs in the following text was created on the basis of insight into the organizational scheme of PPO and detailed monitoring of the actual functioning of the process of providing services in PPO in Serbia (<https://posta.rs/lat/o-nama-menadzment.aspx#izacionaStruktura>).

- the classification of all minute standard items into postal services, and
- the classification of all minute standard items into one of the four phases of the postal service production chain (reception, sorting, transport, delivery).

The fact is that, for a smaller number of jobs, which in turn means fewer staff at post offices and postal centres, time standards setting is hard to perform. Staff costs in non-standardisation jobs will be dealt with in the allocation process as costs of staff directly engaged in the realisation of some of the phases of the postal service production chain, i.e. some of the services. Because of that, staff costs, at the level of the *Post office* and *Postal centres* cost centres will be the object of allocation, which is, in a simplified manner, illustrated in Figure 1.

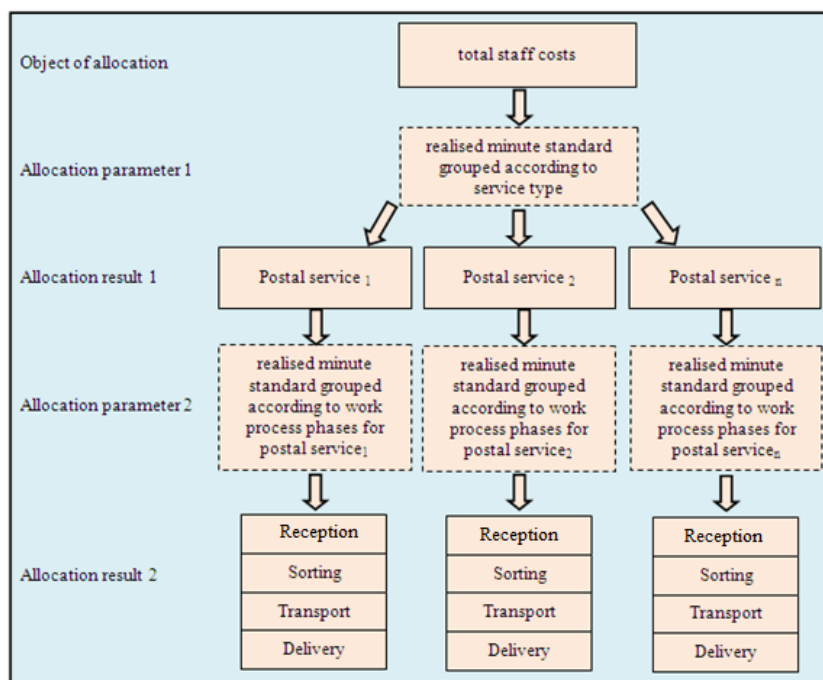


Figure 1. Allocation of staff costs

The next step in postal service costing requires the identification of parameters which describe the extent to which specific services need the realisation of certain activities. The allocation result of the defined types of costs (costs of staff, facility, equipment, vehicles, other production costs) is the postal service costs according to the work process phases, illustrated in Figure 2.

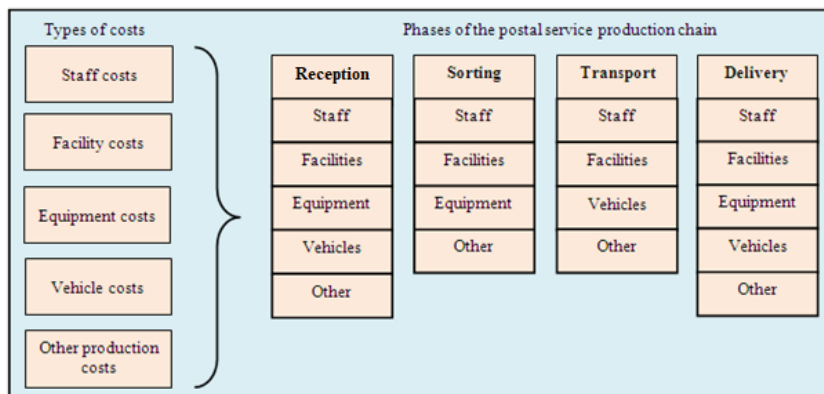


Figure 2. Results of allocation according to resources

The goal of allocation of activity-based costs is to do costing per specific postal service. To reach this goal, it is necessary to identify parameters which describe what services and to what extent some activities need to be realised. Figure 3 is a simplified general representation of cost allocation from the phases of the postal service production chain to a specific postal service.

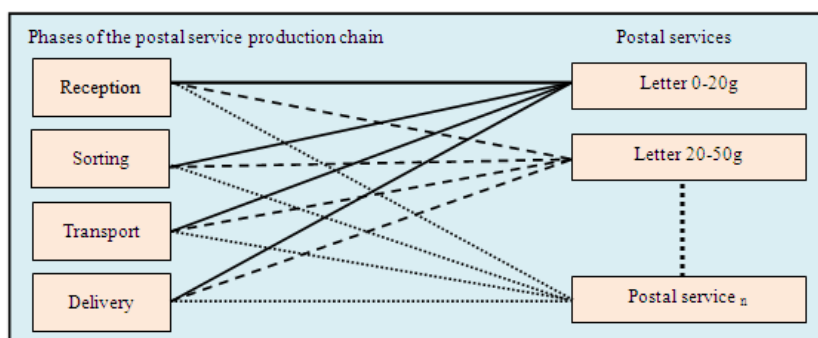


Figure 3. Goal of activity-based allocation

We will show the procedure of cost allocation from the described phases to a specific postal service using the first phase of the postal service production process, *reception*, as an example. As a result of cost allocation of post offices and postal centres, the staff, facility, equipment, vehicle and other production costs are assigned to a *Reception* phase of the postal service production chain. In this way, costing of the *Reception* phase includes reception costs of all services from the group of postal services. The allocation task consists of identifying a part of the costs in the *Reception* phase incurred as a consequence of reception of each spe-

cific postal service. It is necessary to define such an activity parameter which in the best way indicates the cause-result relationship of the origins of reception costs and the specific postal service (Barndt et al., 2015, p. 23).

Prior to cost allocation of the *Reception* phase, grouping of costs into two categories occurs: the first comprises the staff, facility, equipment and other production costs, whereas the second includes vehicle costs. The first group of costs will be allocated to postal services according to the number of realised minute standard in the *Reception* phase, for the period in which costing is done. The data on realised minute standard is shown at the level of every specific postal service. Vehicle costs are allocated according to a parameter which is a result of recording the number and structure of mail (according to weight) received via each vehicle. Cost allocation to cost units according to activity parameters is shown in Figure 4.

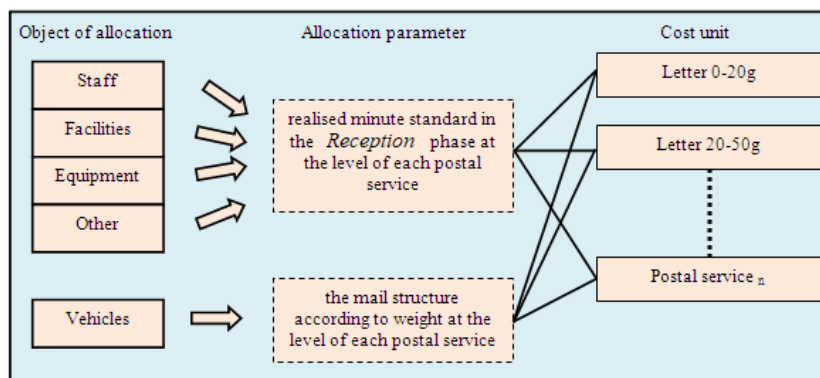


Figure 4. Activity parameters: reception

Costs of the *Sorting* phase are allocated to postal services according to the time spent on sorting each service. The structure of realised minute standard of the sorting activities is the parameter applied for their allocation (Baker, 1994, pp. 28-29). All costs of the *Transport* phase are allocated to postal services following the allocation parameter defined on the basis of monitoring the structure of the total number of transported mail (according to weight). The costs of the *Delivery* phase are grouped in the same way as those of the *Reception* phase. The first group of costs will be allocated to postal services according to the number of realised minute standard of the *Delivery* phase, expressed at the level of each separate service. Vehicle costs are allocated on the basis of data on the structure of the total number of delivered mail (according to weight).

Cost allocation of the production cost centres does not conclude the costing process of the postal services. Indirect (common) production and indirect (common) central costs are also allocated to specific postal

services, according to the applied principle of the fully distributed cost allocation. However, unlike the production costs, these two groups are allocated according to the *cost-to-cost* principle, that is, on the basis of the amount of the *previously allocated costs*.

The first step of cost allocation from the account of non-production cost centres is recognising direct costs which are directly calculated to the phase or specific postal service.

The second step of allocation includes the application of the *cost-to-cost* principle. Its functioning may be explained if staff costs of the board of one postal work unit are taken as an example. A part of the board salary costs which will charge, for example the *Reception* phase, is calculated on the basis of a percentage share of the total costs of salaries of the production cost centres of the given work unit (the post office and postal centre) allocated to the *Reception* phase, in the total costs of salaries of the production cost centres of the given work unit. The allocation of indirect production costs to the *Reception* phase, exemplified by the staff costs of the Head office of the postal work unit cost centre, is illustrated in Figure 5.

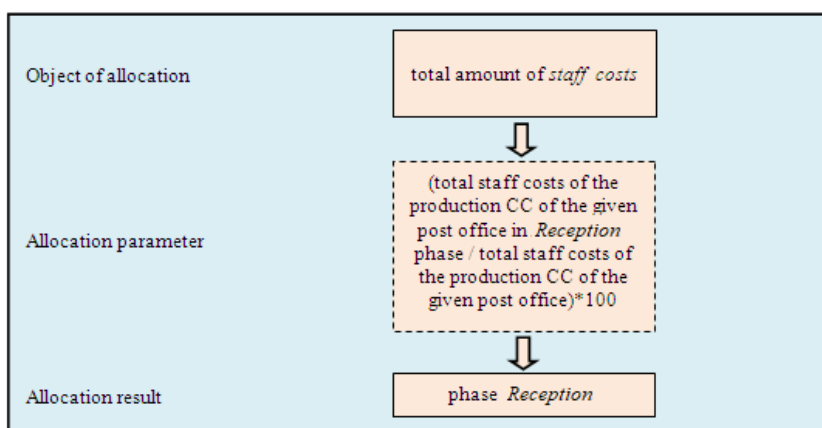


Figure 5. Indirect production cost allocation.

Central costs are allocated according to the similar principle applied to indirect production costs. The only difference is the basis which is taken into consideration while calculating allocation parameters: in the case of central costs these are all the production cost centres at the PPO level.

$$\text{Allocation parameter of staff costs of the Board to the Reception phase} = \frac{\text{total staff costs of all PPO production CC allocated to the Reception phase}}{\text{total staff costs of all PPO production CC}} * 100$$

The principle of *previously allocated costs* is applied to a part of indirect production and central costs, such as financial and other expenses (Dragendorf et, al., 2019, pp. 18). A key prerequisite for their allocation is the previous termination of cost allocation of the boards, i.e. territorially organized boards of the postal work units. Such costs are identified as production costs. The result of the production cost allocation is expressed as a percentage structure of the share of a specific phase from the postal service production chain in the total production costs of the board, i.e. the board of the postal work units. That structure represents parameters according to which associated costs are allocated to each of the four phases of the postal service production chain, and then from that phase to the corresponding postal service according to the previously described procedure.

The importance of costs data for the pricing of postal services imposes the need for adequate calculation of costs, i.e. cost allocation in accordance with the ABC approach, which successfully respects the specifics of the costs of postal operators.

CONCLUSION

There are three key characteristics of the current stage of the EU PPO development, and these apply to our national postal operator as well: liberalisation, development of new communication channels which jeopardise traditional ones, and economic crisis. The process of cost management is of vital importance for overcoming all three challenges, which, in turn, leads to considerable changes in priorities the PPO management focuses on. In the previous stages of development, the emphasis was placed on solving technological problems, mainly on how to produce a wide range of services with available resources. The production process costs were the topic at the end of the priority list of the PPO management. Performance success was assessed by the level of the satisfaction of the public interest. The inevitable consequence of such a relationship was ultimately the uneconomical spending of the available resources, manifested as a higher price paid by the final users.

The process of postal service liberalisation aims to reduce prices, improve the quality of the existing services and develop new ones. Managements' orientation toward adequate cost management is getting full recognition for striving to maintain and enhance the market position.

The significance of cost data for setting the postal service price calls for adequate cost accounting, i.e. cost allocation according to the ABC approach, which successfully takes into consideration the specific character of the postal operators' costs. The relevant results, which are practically applicable, are the basis of the model of calculating the cost of universal postal service, designed to provide informational support to management during pricing.

This paper shows the basics of a potential Universal Postal Service (UPS) Cost Accounting Model of the Public Postal Operator (PPO) in Serbia. EU Directive 97/67 represents the starting point for providing the guidelines for the development of this model, such as the separate internal accounting for several PPO service segments. This internal accounting system should be based on the principles of consistency and impartiality, appreciating all the functional complexities of a PPO. The existing legislative framework which defines the relations on the national postal service market pays special attention to the cost of UPS as the essential point for forming the price of this service.

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ИЗАЗОВИ УПРАВЉАЊА ТРОШКОВИМА УНИВЕРЗАЛНЕ ПОШТАНСКЕ УСЛУГЕ

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Резиме

У раду је образложена теоријско-методолошка основа могућег приступа обрачуна и управљању трошковима универзалне поштанске услуге у условима либерализације тржишта поштанских услуга. Истраживање је подразумевало детаљну анализу захтева Закона о поштанским услугама Републике Србије, законске регулативе ЕУ у вези са мрежним индустријама, праксе регионалних оператора, доступне стручне литературе и детаљног снимања процеса пружања поштанских услуга од стране ЈПО у Србији. Посебан организациони сегменти у организационој шеми ЈПО су места трошкова, јер поштанске услуге се производе у интеракцији већег или мањег броја ових јединица поштанске мреже. Структура трошкова ЈПО је још један од фактора који усложњава процес управљања трошковима у овим компанијама, зато што доминирају трошкови које можемо да означимо као индиректни трошкови. Њихова алокација на групе услуга, односно појединачну услугу је изазов за обрачун и управљање трошковима. Могући модел обрачуна трошкова, који је резултат истраживања, представља предлог интегрисаног функционисања добре праксе традиционалног приступа и основа АБЦ приступа. Резултати истраживања у овом раду требало би да подстакну стално унапређење обрачуна и управљања трошковима поштанских услуга у правцу адекватне информационе подршке менаџменту ЈПО.