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PUBLIC SECTOR VALUE CHAIN: IMPACT ON PRICES AND BUSINESS MANAGEMENT

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Abstract: *The paper presents the interconnection of public sector and enterprise value chains in the field of price policy implementation, which can influence both changes in new value and the enterprise management model. The starting point was the hypothesis that the value chain system of a company is not only connected with the value chain of other companies, but also of public sector institutions. This hypothesis is tested on the examples of two public sector institutions in the Republic of Serbia - the Regulatory Agency for Electronic Communications and Postal Services and the Tax Administration, whose decisions directly affect the change in regulated sales prices of companies or adjust the profits of related parties based on transfer prices. A modified public sector value chain is also given for this example. In the case of price regulation, companies are also obliged to calculate costs based on activities (ABC - Activity Based Costing). ABC may later influence possible changes in the management of the company and application of the ABM (Activity Based Management) model. Due to the wide range of possible consequences for changes in companies, the public sector has a great responsibility in improving the design and modification of its own value chain. All together it should lead to greater efficiency and effectiveness of both the public and private sectors.*

Keywords: *public sector value chain, regulated service prices, transfer pricing, ABC cost model, ABM management model.*

INTRODUCTION

For the past few decades, there has been a well-known term from business management - value chain (Porter, 1998), which classifies all company activities as primary and secondary, to make as much profit as possible. Primary activities relate to the physical creation of products or services, sales, maintenance and service support, and secondary activities support those from the primary flow. The value chain does not end in one company, because there is an overlap with the value chains of customers and suppliers. Value chains exist in both the private and public sectors, except that in the public sector they necessarily adapt, because profit is not the primary goal, but the satisfaction of service users (Heintzman and Marson, 2003). These are mostly citizens, but depending on the type of public sector institution, they can also be other users of these services: users of budget funds - in the case of taxes; companies - in wholesale markets; all end consumers of regulated services at the retail level - both private and business users, etc.

The paper hypothesizes that the value chain of the public sector can directly affect changes in prices and management in the company. This hypothesis is tested on the examples of two public sector institutions in the Republic of Serbia. One is the regulatory body for two areas in which there is a natural monopoly - electronic communications and postal services, which define the selling prices of services (Official Gazette of RS, 53/21 and 126/20). The second is the Tax Administration, which, among other competencies, deals with checking the calculation of transfer prices between related parties, to determine the correction of profit and the amount of tax on this basis (Official Gazette of RS, 95/21). In both cases, public sector institutions influence the new value of the company, profit, through the selling prices of regulated services and profit as the tax base, through the correction due to deviations of transfer prices from market ones. After periodic measurements of the effects of these changes, corrective actions are taken, which further influence the changes in the company.

In the process of managing the value chains of these two sectors, the Activity Based Costing (ABC) method provides significant support. It is built into the methodology of regulating fair sales prices of monopoly operators in the Republic of Serbia and fits into the analysis of the value chain of companies, all with the aim of obtaining the most accurate calculation of cost prices and fair sales prices of services. The ABC method is an introduction to new business management models such as Activity Based

Management (ABM) which is very popular in developed countries. The paper confirms the hypothesis, because the value chain of the public sector can really influence changes in prices and company management. For this purpose, methods of description from the relevant literature, comparisons of examples in practice and analytical derivation of conclusions were used.

The paper is structured in five parts. After the introduction, the second part discusses value chain management in general, with the ABC costing method as a significant support in more accurate cost allocation. The third part presents the value chain in the public sector as a modification of the value chain in the private sector. This part practically tests the hypothesis of their mutual influence, on the example of two regulatory institutions in the Republic of Serbia. The hierarchy of activities and modification of the value chain of the two regulators is explained in more detail, whereby the Tax Administration is also conditionally called “regulator”, due to the influence on the “regulation” of the tax base. The fourth part presents the basic foundations for the ABM management model, which can be the starting point of the ABC model, all to find opportunities for faster growth of efficiency and effectiveness of business. The fifth part of the paper is the conclusion, followed by the references used.

1. VALUE CHAIN MANAGEMENT AND ABC CONCEPT

For a company to make a satisfactory profit, it is necessary to have a good competitive position in the market. It cannot be achieved if the primary and ancillary activities of the company are not adequately managed. The primary ones are: input logistics, production, output logistics, marketing and sales, and the ancillary ones are: infrastructure, human resources management, technology development and procurement (Porter, 1998: 37).

In addition to the importance of analyzing each activity in the value chain, in terms of whether it adds new value or not, value chain analysis is also important in terms of costs, in terms of various savings that can be achieved along the business process in each of its activities. These savings are significant both because of the precise calculations of prices of products and services and their more correct distribution to those carriers to whom they should belong, and because of the possible decision to move some of the secondary activities to another company. Savings are achieved in various ways, using

primarily the methodological tools of strategic management accounting, which include both financial and non-financial information. The ABC model (Langfield-Smith, 2008) and the Kaizen concept (Cooper and Slagmulder, 2014), which refers to small incremental but continuous internal improvements, are most widely used to create added value for the customer. The paper will pay more attention to the ABC concept of costing, because it is also used in the Republic of Republic of Serbia.

Numerous authors have argued that the ABC concept is one of the main techniques of strategic management accounting, even “one of the most important innovations of the twentieth century” (Gosselin, 2007: 641). This technique is becoming increasingly important due to the change in the cost structure, due to the accelerated development of information and communication technologies, which has led to an increase in the share of indirect costs in the total costs of the company. As the share of direct costs decreases, the problem of adequate allocation of total costs to appropriate products and services, also increases. In essence, the ABC concept of costing is the pursuit of a more correct allocation of indirect costs to the products and services to which they relate, but through activities as their main drivers and adequate keys for their further allocation. At the same time, the ABC concept serves as a more reliable basis for strategic decision-making. This costing can significantly reduce production costs, even in some cases by one third or more (Drucer, 1995: 55).

The use of the ABC concept has found great application in the service sectors, where information is provided on the costs of many activities and services provided, so that conclusions can be drawn about the profitability of each service, customer profitability, customer groups and markets. Modifications of this concept have been made for this purpose, and the Time Driven ABC (TDAB) version is especially popular, although not yet widely tested in practice. Here, time appears as the main driver of costs and measures of the duration of an activity, which makes it suitable for service sectors (Szychta, 2010).

2. VALUE CHAIN IN THE PUBLIC SECTOR IN THE REPUBLIC OF REPUBLIC OF SERBIA

In the public sector, such as the private sector, there is also a constant need to increase the efficiency of institutions within it, which is viewed in two ways:

1. within the public sector institution itself, whose control is performed both internally and externally: internally - through the system of financial management and control and the internal auditor; externally - through the state audit institution and independent auditors;
2. the impact that the institution has on the efficiency of the company under regulation or provided services to end users.

The further focus of this paper will be another aspect of public sector efficiency and the changes that occur in companies on this occasion.

The main difference between public sector and enterprise value chains is in focus. While in companies the focus is on profit, in the public sector it is on the user of services (Rapcevičienė, 2014). The public sector value chain model is a modified value chain in the private sector, which also has a primary and ancillary flow of activities, but they differ from those in enterprises (Figure 1). Given that the satisfaction of end users as new values is influenced primarily by people and resources that provide a service, the primary activities are concept and design of the service, procurement of physical resources, selection and personnel management, service delivery and customer care. Ancillary activities are strategic planning, financial management, ICT development, brand management, and accounting and management control (Heintzman and Marson, 2003). This general model can and should be adapted to the value chains of different public sector institutions, depending on their competencies and goals.

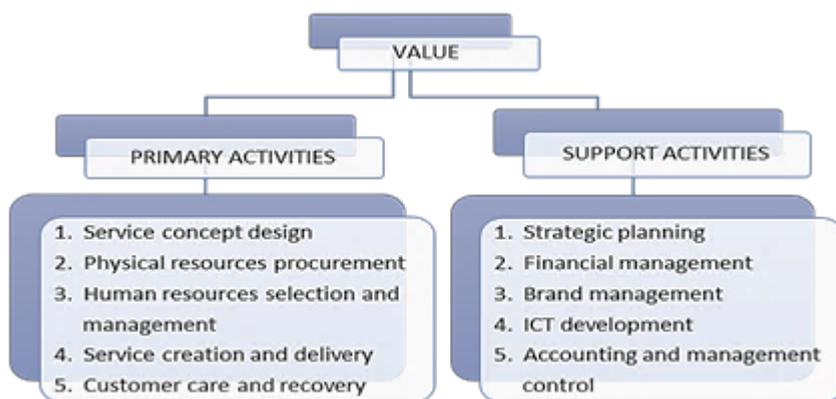


Figure 1. Activities in the public sector value chain (according to Heintzman and Marson, 2003), author's illustration

In the following, the modified value chain of two public institutions in the Republic of Serbia will be presented in more detail, on the example of which the hypothesis about their influence on the company price policy will be tested. In the first case, the Regulatory Agency for Electronic Communications and Postal Services (RATEL) after submitting regulatory reports of monopolist companies defines their fair sales prices of services, instead of prescribing them to the company's management (Mata vulj, 2021). In the second case, it is about transfer prices that companies charge in transactions between related parties, and their compliance with market prices is checked by the Tax Administration, according to the prescribed methodology (Official Gazette of RS, 95/21). If they deviate so that the income is underestimated and the expenditure is overestimated, the company's profit is corrected as the basis for additional tax payment. In practice, the company's pricing policy is being influenced again, as its managers will adjust business decisions on transfer pricing to the prescribed methodology, with the aim of paying lower taxes. It can be either a change in the system of related parties and a different choice of transactions within the group, through a change in the organizational structure of these companies, changes in the market in which they operate and the like.

2.1. Modified value chain of two regulators

Although RATEL and the Tax Administration are two different public institutions of the same public sector, they have a common link in the value chains with the companies they control. For companies, it is the impact on the primary activity that deals with price policy - marketing and sales, but also an ancillary activity - infrastructure (accounting and tax calculation). In the case of regulators, it is the impact through the primary activity - the concept and design of the service, with the strong support of the ancillary activity - strategic planning.

Table 1 shows a comparative overview of the hierarchy of activities of these two regulators for the areas within their competence.

Table 1. Hierarchy of activities of regulators, which influence the company's pricing policy

Key activities relevant to pricing policy	Regulation of electronic communications prices	Regulation of the price of universal postal service	Profit adjustment because of transfer pricing checks
Strategic documents	Rulebook on cost principle	Rules on accounting separation	Rules on the method of calculating transfer prices
Strategic goal 1: Satisfied users of company services	Competitive prices on the closed market	Cost-based selling price	Tax revenue control and prevention of tax evasion
Strategic goal 2: Changes in the realized values of the company	Better reporting and business decision making. Ability to analyze each activity and profitability by segment by the company's manager.		Better approach to the calculation of transfer pricing and corporate tax.
Development of professional competencies of employees	Continuous monitoring of European regulations and practices in the field of electronic communications, postal services and transfer pricing, training, seminars, learning from more developed countries.		
Design of methodology for price calculation and method of reporting to regulators	1. Cost accounting models: HCA, CCA, LRIC 2. ABC method	1. Cost accounting model – HCA 2. ABC method	Methods: 1. comparable uncontrolled prices, 2. resale prices, 3. cost prices, 4. profit sharing 5. transactional net margins
Decisions of the regulator, after the opinion of the auditor	Decision on the amount of the fair selling price of services	Decision on approval of proposed prices	Decision on correction of the tax base - profit.
Control of the effects of regulatory decisions	Market analysis and monitoring the implementation of decisions	Monitoring the implementation of decisions and suggestions	Measuring total tax base adjustments

(Source: Author, based on the application of the rulebook (Official Gazette of RS, 53/21, 126/20, 95/21))

It can be seen from Table 1 that the impact of the value chain of the two regulators on the value of the company is expressed in another strategic goal related to the new price or profit adjustment. From the aspect of the regulator, it is a higher quality of

reporting on all elements for the calculation of fair sales prices of electronic communications and postal services, with the help of the ABC concept of cost allocation. It is similar in transfer pricing, where under the methodological pressure of the tax regulator, the calculation of prices in transactions with related parties is approached in a more analytical and market way, although these prices are calculated internally in companies, outside the influence of market laws. This area also has a broader context, because in addition to increasing tax revenues, it prevents the outflow of taxes to other countries, but also avoids double taxation.

The first strategic goal is a higher priority for the regulator, because it refers to the satisfaction of end users of company services, including individuals (at the retail level) and other companies (at wholesale markets), but also users of state budget funds.

In both cases, transparency, methodological correctness, and the ability to verify the effects of regulatory activities are important. Above all, it is important to have competent staff who have the capacity to carry out all planned activities and monitor the effects of methodological procedures and regulatory decisions. In terms of measuring the effects, in practice there is space for improvement, which is mostly related to better education of employees in the Tax Administration and the existence of access to external databases of comparable companies, so that the burden of verification is not fully transferred to external audit firms (Matavulj, 2021a).

Based on the above, we arrive at a slightly modified common value chain of regulators (Figure 2) compared to the previously exposed public sector value chain. The main activities follow the hierarchy given in Table 1 and relate to both strategic objectives. Ancillary activities remained the same, with strategic planning, which was an ancillary activity, now becoming the main activity. It is concretized through documents and goals that are followed. This is because the main documents for the actions of both regulators are the rules on price calculation and reporting, the changes of which may be periodically influenced by the regulators.

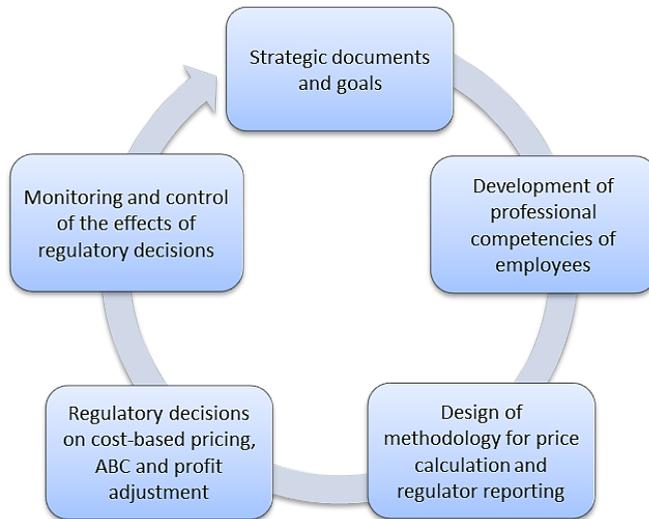


Figure 2. Modified value chain of two regulators - main activities, author's illustration

2.2. ABC in the regulation of service prices in the Republic of Republic of Serbia

The ABC concept was introduced into the regulations of the Republic of Republic of Serbia in 2008, through the first rulebook on the cost principle of regulated prices of monopoly operators in the field of electronic communications. This rulebook has been changed two more times to date, but the ABC concept has been retained. It is a “two-stage calculation” of costs, where in the first stage activities are identified as cost drivers, then direct costs are directly linked to services as their bearers, while general costs are first linked to certain activities, because their bearers cannot be directly identified. At the same time, similar activities are required that form a homogeneous group, which is joined by the same groups of overhead costs. Further, these costs, according to certain allocation keys, are allocated to products and services. (Official Gazette of RS, 53/21).

In regulatory reports, ABC was used first within the Historical Cost Accounting (HCA) model, from 2008-2011. year, and then within the Current Cost Accounting (CCA) model, which is valid to this day. Mandatory detailed breakdown of costs and effects by type has been introduced, with clearly visible business elements to determine their profitability, as well as the costs that are the subject of allocation (Stevanović, 2008). The aim is to see the cost structure of the service, which consists of variable and fixed

costs. In the short run, variable costs are like marginal costs, so information about them is important for calculating marginal profit. This also reflects the contribution of that whole to the total profit of the company (Milićević, 2000: 60-62). After the allocation of costs and effects, the target profit is allocated for each type of service, most often through the rate of return method, to obtain the selling price of each service. All the above has a deeper meaning and belongs to the domain of strategic planning of company profits (Malinić, 2007: 171-190 and 237-262).

During the previous thirteen years of regulatory reporting on the cost principle in the field of electronic communications, the result was a continuous reduction in prices of regulated services. The number of regulated markets has changed, first three retail and six wholesale markets and the last few years four wholesale markets. By using the cost of models that incorporate the ABC concept, wholesale prices of services have been reduced, as has been the trend in all European countries where they have been applied (Matavulj, 2021b). At the same time, the inspection of the public financial reports of regulated companies did not show that their profits decreased after the applied regulatory measures. This indicates the adjustment of the company's business policy and more efficient management. It remains to be seen how prices will move in the future under the new Long Run Incremental Cost (LRIC) model, which will take effect in 2022. This model has been dominant in other countries for several years because it includes monitoring of cost increments with the change in the scope of the service, which certainly provides greater opportunities for efficiency growth.

Like the concept of regulatory reporting on fair sales prices of regulated services of monopolist operators in the field of electronic communications, the same concept has been applied in another sector of public services - postal services. With the adoption of the Rulebook on the manner of keeping separate accounting and checking the reliability of regulatory reports of the public postal operator (JP PTT Republic of Serbia) (Official Gazette of RS, 216/20) in 2021, the first trial regulatory reporting began, with the aim of regulating the universal postal service. From 2022, this reporting will be mandatory. The basis of regulatory reporting in the field of postal services is the HCA cost model, with full allocation of costs and effects and the use of the ABC concept, all tailored to the nature of the business of this operator.

In this paper we will not deal in more detail with the methodology of price calculation, because our focus is on activities in the value chains of the two sectors, which are undoubtedly interacting when it comes to prices. This proves the initial

hypothesis that the value chain of the public sector affects the value chain of the company through price policy. It is certainly one of the important factors in the company's management philosophy, given that it is a basic element in making a profit. By the way, the advantages of the ABC model in the field of telecommunications have been noticed by other authors (Hopper and Major, 2007: 77) who expect that other companies will continue with this successful practice. The ABC model is just an introduction to more advanced management models in companies, which we hope will become a practice in the Republic of Republic of Serbia as well.

3. ABM MANAGEMENT MODEL - CONTINUATION OF THE ABC MODEL

One of the advanced starting points of the activity-based costing model, which can increase the efficiency and effectiveness of the company's overall business, is the Activity Based Management model. ABM model enables the achievement of both operational and strategic goals of companies with fewer invested resources (Kaplan and Cooper, 1998). It represents the whole philosophy of activity management, due to the realization of greater value for the customer and profit growth (CAM-I, 2001). It is equally applied in all sectors, but also in the public administration, i.e., its agencies. ABM includes the ABC model and its relationships with other managerial analysis tools, such as: cost driver analysis, activity analysis and performance measurement, and cost and value chain analysis (Figure 3).

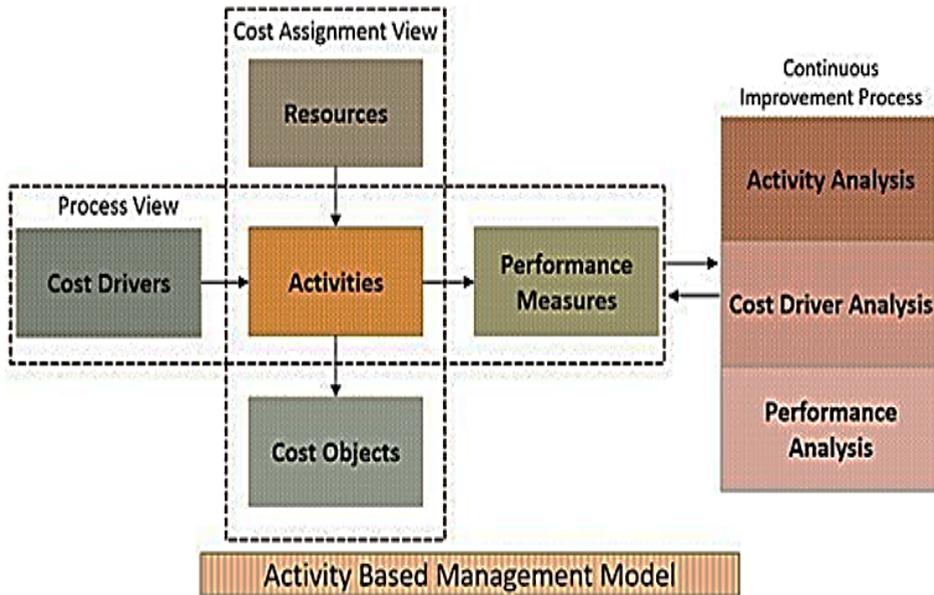


Figure 3. ABM model, Miller (1996:236)

On the left side in Figure 3, the ABC model is practically presented in the ABM model, and on the right side there are improvements in terms of the mentioned analyzes. The ABM model should be viewed as a tool for other improvement programs because the outputs of the ABM model are always inputs to another system.

Companies and institutions have started to adopt ABM for various reasons, and the most common are pressure to reduce costs; competitive pressure; regulatory obligation; transition from vertical management of business processes to horizontal - from orientation to functions to process orientation (CIMA-I, 2001). As we can see, the regulatory obligation is one of the most common reasons for the application of the ABM model, and it should be emphasized that this is an indirect consequence after the directly introduced obligation of ABC costing. Returning to the value chain of the regulatory body in the Republic of Republic of Serbia, one can notice the connection of the activities of regulators with the ABM model, although the effect of the ABM model in regulated companies is expected. At the same time, improvements are being made in the organization of regulators, precisely because of the need to measure the effects of the entire regulatory process and take corrective action. It would be inspiring to introduce

the ABC model in public sector institutions as well and to analyze possibilities for increasing efficiency, such as the real sector

CONCLUSION

The paper proves the hypothesis that the value chain of the public sector affects the value chain of the company, through the pricing policy that deals with one of the primary activities of the company. This is shown through the modified value chain of two public sector institutions in the Republic of Serbia - RATEL and the Tax Administration. The result of a series of activities in their value chain is new value, shown through competitive regulated monopolist price in the markets of electronic communications and postal services or additional corporate tax (higher profit), due to its correction based on transfer prices.

The methodological approach to the regulation of service prices incorporates the ABC concept of calculating costs by activities as their drivers, which further emphasizes the importance of analysis of activities along value chains. Regulated companies in the field of electronic communications in the Republic of Serbia have been forced to apply this concept for the last thirteen years, and from next year it will be an obligation in the postal sector as well. Companies also get their own benefits, because they will more efficiently manage the costs and effects of business segments and make better business decisions.

It is similar in transfer pricing, where, under the methodological pressure of the tax regulator, the calculation of prices in transactions with related parties is approached in a more analytical and market way, although these prices are calculated internally in companies, outside the influence of market laws. This area also has a broader context, because in addition to increasing tax revenues, it prevents the outflow of taxes to other countries, but also avoids double taxation.

The application of the ABC concept has opened the space for the introduction of a new model of management – ABM, based on activity. It contains the ABC concept in combination with other managerial analysis tools, such as: cost driver analysis, activity analysis and performance measurement, and cost and value chain analysis. Companies from all sectors have started to introduce the ABM model for various reasons, and

regulatory ones are one of them. Therefore, there are realistic expectations that these changes will occur in the Republic of Republic of Serbia, not only in companies, but also in the institutions that regulate them. This would certainly increase the opportunities for increasing the efficiency and effectiveness of business in the public sector, such as the real one.

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