

Mirjana Todorović

University of Kragujevac
Faculty of Economics
Department of Accounting, Auditing and
Business Finance

Vesna Janjić

University of Kragujevac
Faculty of Economics
Department of Accounting, Auditing and
Business Finance

Vesna Pašić

Megatrend University
Faculty of Management in Zaječar
Department of Finance and Accounting

EXPECTATIONS AND LIMITATIONS OF ACTIVITY-BASED COSTING APPLICATION IN SMALL AND MEDIUM-SIZED ENTERPRISES

Očekivanja i ograničenja primene obračuna troškova
po aktivnostima u malim i srednjim preduzećima

Abstract

In the present study we examine the application of activity-based costing (ABC) in small and medium-sized enterprises (SMEs). We want to investigate the circumstances which determine whether ABC will improve performance and competitiveness of small and medium-sized enterprises. The main objective of our study is to determine the effects (expectations) and limitations of ABC application in small and medium-sized enterprises. In addition to other factors, the expected benefits and potential limitations are the key factors for future implementation of ABC and potential improvement of performance and competitiveness of small and medium-sized enterprises. The analysis is conducted on a sample of 33 small and medium-sized enterprises in Serbia. The study shows that the key benefits of ABC implementation are performance improvement and providing more accurate information. Also, one of the most important obstacles to wider application of ABC in small and medium-sized enterprises is the lack of professional knowledge and practical experience.

Keywords: *small and medium-sized enterprises, management, performance measurement, cost accounting, activity-based costing.*

Sažetak

U ovoj studiji ispitujemo primenu obračuna troškova po aktivnostima (ABC) u malim i srednjim preduzećima (SMEs). Ključno pitanje je koji faktori utiču na to da li će ABC unaprediti performanse i konkurentnost malih i srednjih preduzeća. Cilj naše studije je da se identifikuju efekti (očekivanja) i ograničenja primene ABC u malim i srednjim preduzećima. Pored ostalih faktora, očekivane koristi i potencijalna ograničenja su ključni faktori implementacije ABC, potencijalnog unapređenja performansi i konkurentnosti malih i srednjih preduzeća. Analiza je sprovedena na uzorku od 33 preduzeća iz sektora malih i srednjih preduzeća Srbije. Studija je pokazala da unapređenje performansi i obezbeđenje tačnijih informacija predstavljaju ključne koristi od implementacije ABC. Takođe, jedan od ključnih ograničavajućih faktora šire primene ABC u sektoru malih i srednjih preduzeća predstavlja nedostatak profesionalnih znanja i praktičnih veština.

Ključne reči: *mala i srednja preduzeća, upravljanje, merenje performansi, računovodstvo troškova, obračun troškova po aktivnostima.*

Introduction

Activity-based costing (ABC) was developed by American professors, Robert Kaplan and Robin Cooper during the 1980s. Kaplan and Cooper found that traditional cost accounting methods cannot accurately identify costs and determine the product cost, as they involve the use of inadequate drivers for allocating overhead costs, primarily direct labor hours or volume of activities. Traditional cost accounting provides insufficiently precise information about the product costs, which contribute to inadequate business management decisions and poor operating results of enterprises. Kaplan and Cooper saw the solution to this problem in ABC [15], [14]. ABC is based on the assumption that the cost objects initiate the realization of activities and activities consume resources and give rise to costs. ABC identifies several levels of cost causation, i.e. assesses costs in relation to the change in the volume of production, but also in relation to other factors that cause changes in costs (cost drivers). ABC increases the percentage of costs which are directly linked to individual cost objects, i.e. enables more accurate allocation of overhead costs. More precise and accurate information allows management to focus on business processes and performance that contribute to profit growth. ABC has been successfully implemented in large firms and has a potential to be applied in companies of all sizes. Previous research found that ABC can be the key for creating a competitive edge in small to medium-sized enterprises [3]. The focus of our study is implementation of ABC in the sector of small and medium-sized enterprises (SMEs) in Serbia.

SME sector is the backbone of growth and development of national economies. More than 95% of enterprises worldwide are SMEs, accounting for 67% share in employment and 52% share in value added [3]. SMEs are more innovative than larger companies and they develop and commercialize the majority of innovative products and services [9], [5]. In almost all developed countries, SMEs are the most efficient segment of the economy. They play a crucial role in furthering the growth, innovation and prosperity in developing economies. Developing countries face problems of high unemployment, low level of economic activity, lack of competition, and lack

of investment. SMEs can help developing countries in the transition process and it is necessary to have in mind that they are key drivers of economic development [10]. Whether developing economies are in a state of recovery or moving forward into the future, cost cutting is of crucial importance for them.

Having in mind the importance of SMEs, modern literature attempts to determine the factors that affect their performance [19] and highlights a large number of management tools that SMEs can use to achieve and maintain competitiveness, and achieve significant cost savings, operational efficiency, fast response to customer requirements, etc. Certain authors see ABC as a tool for improving performance, management and competitiveness of SMEs [27], [25], [21]. With theoretical arguments in its favor and evaluations in case studies and surveys around the world, ABC has come into focus of interest [39], [6], [42]. Growing awareness of the importance of SMEs has provided impetus for further investigation of the potential of ABC to help SMEs become more competitive.

ABC can help SMEs to increase efficiency, reduce costs, and strengthen innovation capacity by providing more accurate information on costs, better determination of selling prices and planning (effectively integrated into the budget process) [21]. Through better information support to enterprise management, ABC allows for more efficient management in creating and maintaining competitive advantage [12], [25]. Compared with large firms, SMEs are more exposed to problems of information asymmetry which imply obstacles in accessing external finance [41]. Hence, the creation of better information for management is a very important issue. The research conducted in Great Britain has shown that ABC provides better support to the process of making financial, operational, and strategic decisions and contributes to the improvement of competitiveness of enterprises [21]. Other research has also shown that ABC has significant potential to improve performance and competitiveness of SMEs [27].

ABC can support SMEs in gaining and maintaining a competitive position in global economy [18]. ABC and activity-based management (ABM) can improve the profitability of SMEs [25]. There is a significant link between performance improvement and application of ABC.

Performance improvement can be reflected in time, cost, and quality as key success factors. Some authors claim that the application of ABC has a moderate influence on time, a significant impact on quality, and substantial impact on costs [2]. ABC is beneficial as it increases the possibility of planning, control, and making the right decisions, but, on the other hand, presents a very expensive cost accounting system that requires a large number of details for proper functioning. This raises the question of cost-benefit analysis regarding the implementation of ABC, i.e. the issue of feasibility of its application in SMEs. Also it is necessary to keep in mind that the implementation of ABC in SMEs is not at a high level [25], [12].

General conclusion of the researchers who previously investigated this matter is that ABC is useful for SMEs and can help them to improve performance and competitiveness. Therefore, the key research question our paper will try to answer is what it depends on, while the main goal of our paper is to identify the expected benefits and limitations of applying ABC in SMEs. In addition to other factors, expected benefits and limitations are the key factors for future implementation of ABC, potential performance improvement and competitiveness of SMEs and we tried to determine what those factors are and what they depend on. For the purpose of providing answers to these questions, a survey was conducted on a sample of 33 small and medium-sized enterprises in Serbia. First, we shall try to identify the degree of respondents' familiarity with ABC and the level of ABC implementation in these enterprises. Then we shall analyze the performance of ABC and identify the motives for its implementation and expected benefits and, finally, we shall identify potential barriers to broader implementation of ABC in practice.

To the best of authors' knowledge, there has been no similar research in Serbia. We tried to present the most up-to-date information. In this regard, our study represents a novelty and could be of importance for theoreticians and practitioners dealing with the same matter. Our study contributes to the relevant literature in the areas of cost accounting, management accounting, performance management and decision-making in several ways. It also provides a starting point for researchers to conduct further research in the field of ABC implementation

in SMEs. Furthermore, it provides useful insights for practitioners interested in motives, effects and limitation of ABC implementation in an organization devoted to continuous performance improvement and strengthening of competitiveness.

The conducted analysis can contribute to wider application of ABC in SMEs in developing economies. Unlike other studies that deal with management accounting practices in developed and developing economies [11], our study focuses on a single developing country. Hence, our study fills the gap regarding the lack of empirical research into ABC in SMEs and especially the lack of empirical research on ABC in developing countries.

The paper consists of three parts. The first part presents the context analysis. It points to the basic characteristics of SMEs in Serbia and the level of their development. Furthermore, in accordance with the set goals, this section highlights the specifics of accounting regulatory framework in Serbia, especially in terms of cost accounting. At the same time, the previous and associated research on ABC is analyzed, in particular with regard to ABC application in enterprises in Serbia and other countries. The sample and methodology are discussed in the second part. The third part comprises the analysis of the research results and discussion about them.

Background information

SMEs in Serbia

In the European Union (EU), the term SMEs includes all enterprises that have fewer than 250 employees and meet at least one of the following two criteria: annual turnover not exceeding 50 million euros and the value of the annual balance sheet of not more than 43 million euros (Recommendation 2003/361/EC, 2003). Almost identical classification criteria have been adopted in Serbia, but with slightly different values. Medium-sized enterprises, for example, include all legal entities which do not exceed two of the following three conditions, namely: 250 employees, operating income of 35 million euros in dinar equivalent, and the average value of assets (annual balance sheet) of 17.5 million euros in dinar equivalent.

In the nonfinancial part of the EU economy, there were about 21.2 million enterprises operating in the SME sector, or about 99% of the total number of enterprises. SME sector of the EU generated a share of about 66.8% of total employment and accounted for 28% of the gross domestic product (GDP) of the EU [16], [10]. SMEs are very important in the OECD area, representing a major share of the total number of firms and accounting for more than 60% of total employment and 50% of total value added [35]. In Hungary, Czech Republic and Poland, SMEs account for 60% to 70% of all jobs and for about half of each country's GDP. In Romania, 600,000 SMEs stand for 99.6% of all companies, contributing with nearly 80% of GDP and accounting for approximately 60% of all employees [22], [38]. SMEs in Serbia cover about 99.9% of the total number of enterprises [36], [8] and two thirds of total labor force in the non-financial sector and contribute with about 35% in the formation of Serbian GDP [36]. Generally, the situation in Serbia does not differ significantly from other developing countries [1].

In terms of size, in the structure of Serbian SMEs, the majority are microenterprises and entrepreneurs, which account for about 95% of the total number of SMEs. The share of small business entities is 3%, and the medium-sized legal entities are the least in number, with the share of about 0.7%. The excessive fragmentation of SMEs is also indicated by the low average number of just 2.4 employees per business entity, making a weak starting point for improving competitiveness, achieving economies of scale, and entering new markets. For example, an average European business provides employment for 4 people, including the owner/manager. According to the organizational form, entrepreneurs are the largest in number, making about 70% of this sector, followed by limited liability companies with about 26% [36]. SMEs in Serbia are characterized by pronounced territorial disproportion. Measured by GDP per employee, the Belgrade region prevails, with all other regions lagging behind. Furthermore, SMEs in Serbia are characterized by unfavorable sectoral concentration, with absolute dominance of labor-intensive and service industries, especially wholesale and retail trade and manufacturing industry. Similarly to the situation in the EU, the majority of SMEs are concentrated in the following sectors: wholesale

and retail trade (28%), manufacturing industry (15%), services (26%), transport (10%), etc. [36]. When it comes to SMEs in developing countries, in terms of activity they are mostly engaged in retail trade or manufacturing [17]. Retail is mostly found in urban regions, while manufacturing can be found in either rural or urban centers. SMEs provide over 60% of total employment in manufacturing in most developing countries [7].

The level of competitiveness of Serbian SMEs significantly lags behind the EU average and the majority of comparable countries, which is indicated by a comparative analysis of qualitative performance indicators (employment per enterprise, turnover, GDP and profit per employee). This has been particularly pronounced since 2008, after the onset of the economic crisis. Encouraging the development of SMEs is one of the priorities of economic policy of Serbia. Small and medium-sized enterprises are considered a very important factor in the process of Serbian economy catching up with the developed market economies, as well as in the process of EU integration.

ABC in practice

Different aspects of implementation and performance of ABC have been the subject matter of numerous studies. Researchers have paid special attention to its application in practice. In this regard, the results of studies in Serbia and the rest of the world have indicated much lower level of acceptance of ABC in practice than it was expected. In the early nineties, only around 10% of large enterprises in Great Britain applied the ABC system. In 1996, only 10.7% of Italian enterprises implemented ABC, whereas in 2005 this percentage was 17.9%. It was not until 2000 that Greece recorded 12.7% of enterprises that adopted ABC. Furthermore, in 2000, only 17.6% of enterprises in Germany decided to implement ABC [8]. In most cases, countries report a usage rate of the ABC method equal to or below 28%, specifically Japan [23], India [29], Estonia [20] and Finland [30]. The application of ABC in developing countries is far lower [32]. In Serbia, the situation is similar.

One of the first studies on implementation of ABC in Serbian enterprises was conducted in 2010. The sample included 121 enterprises of all sizes. The results showed

that less than 1/5 of respondents were fully familiar with ABC and 62% of respondents were not familiar with ABC whatsoever. Only 13% of the total number of surveyed enterprises used ABC actively [31]. In 2011, a study was conducted on a sample of 84 enterprises of all sizes (16.7% of small, 20.8% of medium-sized, and 62.5% of large enterprises). The results showed that as many as 62.5% of respondents were not familiar with ABC, while 80.5% were not familiar with Time-Driven ABC (TDABC) [43]. A group of authors conducted a study that included 45 enterprises [14]. The sample consisted of enterprises of all sizes as follows: 17.7% of large enterprises, 40% of medium-sized enterprises, and 42.22% of small enterprises. The results showed that less than 10% of respondents knew about the characteristics of the modern costing systems and applied some of them. Low average score regarding all modern costing systems, below 3 (on a scale of 1 to 5), indicates that respondents had very poor knowledge thereof. Respondents were least familiar with TDABC. As many as 44.74% of respondents assessed their degree of familiarity with TDABC with 1. On the other hand, respondents were most familiar with ABC (average score of 2.61 on a scale of 1 to 5).

Generally, the current situation in Serbia is characterized by a relatively low level of development of cost accounting. There are many reasons for that. Among other things, the role and importance of cost accounting are not understood, reducing this system to mere compliance with legal provisions. Also, accounting regulations do not provide for the obligation of cost accounting by cost center (it is only obligatory to evidence cost by cost objects). Only 60% of the analyzed enterprises applied cost accounting, while only 40% of them organized cost accounting by cost centers [28]. In practice, costs are directly transferred from financial accounting to cost objects, eliminating cost centers. What is more, the dynamics of this methodology is inadequate, resulting in frequent inefficiency in cost accounting. Additional features of cost accounting in enterprises in Serbia are dominant obsolescence of traditional costing systems, unfamiliarity with and non-application of modern costing systems. The level of implementation of modern costing systems is very low. Among contemporary costing systems, ABC

is the most common and the results of previous studies on implementation of ABC in Serbia point to a relatively low level of ABC in practice. Although small and medium-sized enterprises were included in some of the previously conducted research in Serbia, none of them had them in focus. Furthermore, no research into the influence of ABC on the management and performance of SMEs has been conducted in Serbia so far.

Sample and methodology

Our study focuses on small and medium-sized enterprises (SMEs) in Serbia. The survey was conducted in the period July-September 2016. Enterprises were selected from the database of the National Agency for Regional Development, taking care to ensure equal participation of enterprises from all regions of Serbia. The survey was conducted through a questionnaire. One hundred questionnaires were sent out. The enterprises that did not return the questionnaire in the first round received it again and 33 enterprises responded to it.

The questionnaire consisted of three parts. The first part comprised 15 questions, pertaining to basic information about the enterprise and the respondents with the focus on cost accounting of the surveyed enterprises. In this regard, respondents were asked which costing system their enterprises applied. There were also questions about respondents' familiarity with ABC and intention to apply it in the future. Respondents gave answers by circling one or more options. The second part of the questionnaire focused on the study of expected performance, i.e. the analysis of the motives for implementation of ABC. The third part of the questionnaire focused on identifying the reasons for non-application of ABC in analyzed SMEs. In the second part of the questionnaire respondents were offered seven, and in the third part of the questionnaire six statements. They evaluated the significance of these statements using a five-point Likert scale (1 indicating the lowest level of agreement and 5 indicating the highest level of agreement with the given statement). In terms of methodology, descriptive statistics were calculated and statistical tests were conducted. Data analysis relied on the use of SPSS statistical package, version 20.1.0.

Enterprises from the sample were analyzed according to their core activity. The total number of analyzed enterprises included about 36% of production enterprises and as many service enterprises, about 21% of trading enterprises, while production and trade and service and trade enterprises participated with 3% each. Analysis of respondents was performed according to their gender, age, education, and job position. Women prevailed in the structure of respondents, with about 72%. All age groups were equally represented, except for the age group associated with the end of working life. In that age group, which included people over 55, there was only one respondent. The results of this analysis are shown in Table 1.

Table 1: Structure of respondents by age

Age groups	Total	%
Between 25 and 35	10	30.30%
Between 35 and 45	11	33.33%
Between 45 and 55	11	33.33%
Over 55	1	3.03%
Total	33	100

Source: Authors' calculation.

In terms of education, it was found that about 9% of respondents had a master's degree, 48% of respondents had a university degree, 15% of them had a college degree, and 27% completed secondary education. The participants in the survey were persons engaged in accounting and finance activities in the analyzed enterprises. Accountants prevailed with 54%, followed by heads of accounting departments with 27%, while there was the least number of financial managers, about 18%. The average number of employees in enterprises in the SME sector in Serbia is 2.4 which is very low. The dominant share of accountants in the structure of respondents confirms this data, as well as the fact that one employee in SMEs performs more than one job (acts as an accountant, business administrator, etc.). This result is below EU average which is 4. Low average number of employees per business entity makes a weak starting point for SMEs to improve competitiveness, achieve economies of scale, and enter new markets.

Furthermore, our aim was to determine the familiarity of respondents with ABC. In this regard, respondents were asked whether they were familiar with ABC, where their knowledge stemmed from (formal education, technical

literature, etc.), and whether they found it necessary to organize additional professional education on the subject of ABC. About 63% of respondents had knowledge about ABC (Pearson's chi-square test showed no statistically significant differences in responses between different groups of respondents, divided according to gender, age, qualifications, with respect to their familiarity with ABC). Researchers worldwide received slightly different results. For example, a study of Mexican SMEs shows that 66% of SMEs use traditional systems and that their employees do not have any knowledge of ABC. Only 34% of the sample was familiar with ABC [39]. A study of ABC in small and medium-sized Portuguese enterprises shows that the majority (59%) of the people responsible for managerial accounting is not aware of ABC [33]. The results of our study show a slightly higher level of respondents' knowledge regarding ABC. It should be emphasized that the level of ABC knowledge is measured according to respondents' subjective attitudes. We did not check the actual level of their knowledge. But the fact that more than 50% of respondents said that they gained basic knowledge of ABC within formal university education goes in favor of these results. However, as regards cost accounting, especially ABC, over 90% of respondents said that they needed additional training [34]. The key assumption in implementation of modern concepts (tools) in enterprises is the possession of adequate expert knowledge and skills associated with them. While the issue of implementation of modern cost accounting systems is certainly not the primary responsibility of professional accountants, it seems that one of the important preconditions for their application is the possession of adequate knowledge and skills. Employee training and managerial commitment are prerequisites for effective implementation of ABC [4].

The first segment of the research was aimed at determining the level of ABC implementation in analyzed SMEs. The results showed that more than 87% of the analyzed enterprises applied the traditional actual cost accounting system, while only 3% of them applied the standard costing system. As many as 93% of respondents said they did not apply ABC. However, about 60% of them said that they intended to implement ABC in the future. The results obtained in this study do not differ

significantly from the results of the previously conducted studies [33], [37], [23], [39], i.e. they confirm the low level of familiarity of accountants with ABC and very low level of ABC implementation in the analyzed SMEs.

Empirical results

Having in mind the general aim of our study, the most important questions have been: what is the expected benefit and what is the most important limitation of ABC application? The second part of the research was aimed at testing respondents' attitudes regarding potential performance, i.e. the expected effects of ABC, and the possible motives for its application in the future. At the same time, this segment enabled a more detailed determination of respondents' level of familiarity with ABC. Respondents were offered a number of statements regarding the performance of ABC, whose significance they evaluated using a five-point Likert scale. Descriptive analysis of the data is given in Table 2.

Table 2: Evaluation of the expected performance of ABC

Statements	Mean	Std. deviation
Application of ABC improves the performance of enterprises.	3.39	1.19
Application of ABC provides accurate information used for more efficient measurement of the productivity of enterprises.	3.39	1.19
Application of ABC provides accurate information used for rational business decision-making by the enterprise management.	3.36	1.14
Application of ABC allows a more efficient identification of profitable products.	3.21	1.17
Application of ABC allows a more efficient identification of profitable customers.	3.18	1.13

Source: Authors' calculation.

The literature recognizes a number of potential benefits of ABC for SMEs. We focused on five of them (Table 2). The highest average score was given to the first two statements, based on which ABC contributes to the improvement of enterprise performance (3.39) and provides more accurate information in the area of productivity management and decision-making. Our results are in accordance with the results of other researchers [42]. ABC creates a more

accurate product cost [15], [14]. More precisely, creation of product cost allows for more efficient management of the production program and identification of profitable products. Our results show a surprisingly low level of ABC performance in this area. Similarly, respondents attached the lowest significance to the performance of ABC in identifying profitable customers. Theorists' attitudes, on the one hand, and the results of empirical research [14], on the other, show just the contrary. In fact, they point out that ABC has an outstanding performance in identifying profitable customers and products. The abovementioned speaks in favor of the previous conclusions about the low level of familiarity of respondents with ABC and the need for additional training in that area. Previous research also shows the existence of a positive relationship between the implementation of ABC and the performance of enterprises [4], [40]. But we should also have in mind that the research has demonstrated that the use of performance measures in SMEs is limited [24]. Performance measures are typically ad hoc and lack formal structure. It is evident that there are general problems in performance measuring in SMEs. Therefore, our findings are not surprising. There are significant opportunities to improve performance measurement process in SMEs.

It was especially interesting to determine whether there was a statistically significant difference in the above statements among the respondents who were familiar/unfamiliar with ABC, on the one hand, and those who intended/did not intend to implement ABC in the future, on the other. In both cases, there was a statistically significant difference in respondents' attitudes regarding the expected performance of ABC. We can conclude that the respondents who intended to apply ABC valued the expected performance, i.e. advantages of ABC, more highly than those who did not intend to apply ABC in the future. Answers of the respondents who said that they were familiar with ABC were almost identical. Further analysis rested on a nonparametric Mann-Whitney U test. This test showed that there was a statistically significant difference in attitudes between the two groups (in the first case, the Mann-Whitney U was 57.5, and in the second 54.50, with probability being $p = 0.0009$ and $p = 0.0004$, respectively). Such results support our previous conclusions.

The third segment of the questionnaire aimed at identifying the obstacles to wider application of ABC in the analyzed SMEs. Respondents were given five statements, which they evaluated on a five-point Likert scale. Table 3 shows the descriptive statistical analysis of the variables that describe the obstacles to implementing ABC in the analyzed SMEs in Serbia.

Table 3: Limitations to the application of ABC

Statements	Mean	Std. deviation
Lack of practical experience on ABC	3.56	1.16
Management is satisfied with the current cost accounting	3.34	1.09
Lack of adequate resources for implementation of ABC	3.29	1.07
Lack of qualified accountants for implementation of ABC	3.17	1.23
For the enterprise, the costs of implementing ABC are greater than the benefits	2.63	0.89

Source: Authors' calculation.

According to respondents, the biggest obstacle to the introduction of ABC was the lack of practical experience and knowledge regarding this accounting system. Similar conclusions were reached by researchers around the world. The study dealing with the application of ABC in SMEs in Vietnam has shown that the most significant barriers to wider application are: lack of human resources, high costs, and complexity of the system [26]. The same issue has been in the focus of the study carried out in Portugal which identified a very low level of implementation of ABC. The most significant barrier to the application of ABC was seen in the low level of respondents' knowledge. As many as 59% of respondents said that they were not familiar with ABC [33]. The results in Romania showed that there was not enough adequate staff with specific and specialized knowledge, i.e. that there was insufficient knowledge of modern management techniques [22], [38].

Another obstacle to the implementation of ABC in the analyzed SMEs in Serbia lies in the fact that the management is satisfied with the current cost accounting system, i.e. the management does not provide support for the introduction of a new cost accounting system. A research conducted in Romania, in connection with the application of modern management tools (ABC, among

others) has shown that the management is not ready to change in as many as 67% of cases [22], [38].

Lack of adequate resources and qualified accountants for the implementation of ABC are among the reasons respondents estimated important for non-implementation of ABC. The results indicate that there is significant room for further improvement of knowledge of modern accounting methodology. The only way to do this is through continuous education of professional accountants, as well as managers in an enterprise. Educating managers is necessary for at least two reasons. The first lies in raising awareness about the importance and quality of information support for the decision-making process, especially about cost accounting based on the application of modern methodology. The second reason is the fact that without the management's initiative and support to education of accountants and implementation of modern costing systems, there is no room for improvement [34], [4].

Just like in the second segment of the study, the existence of a statistically significant difference was analyzed between the attitudes of the respondents who were familiar/unfamiliar with ABC, on the one hand, and those who had/did not have the intention to implement ABC in the future, on the other. The respondents who were familiar with ABC and those who intended to apply it in their enterprises rated the obstacles to the implementation of a new system with a lower average score than those respondents who were not familiar with the new system and who did not intend to implement it (these differences were not statistically significant).

Conclusion

ABC is in the focus of researchers around the world [39], [6], [42]. Growing awareness of the importance of SMEs has provided the impetus for further investigation of the potential for ABC to help SMEs become competitive. ABC reduces costs, increases efficiency and strengthens innovation capacities due to creating more accurate information on the costs and through the provision of better information support to the decision-making process [3], [25], [12], [21], [18]. Generally, ABC is useful for SMEs and can be a tool for improving performance and creating

and maintaining competitiveness of SMEs. The question is what it depends on. Having in mind the importance of SMEs, especially for developing economies, our study tries to identify the extent to which ABC is used and the expected benefits and key limitations of ABC application.

The level of implementation of ABC in analyzed companies in Serbia does not correspond to the attained level of application in countries with the developed accounting profession. Our results indicate a relatively low level of development of the practice of cost accounting in the analyzed SMEs. The level of development of cost accounting has been viewed from the prism of implementation of modern accounting methodology, especially ABC. The results showed that more than 87% of the analyzed enterprises applied traditional cost accounting and as many as 93% of respondents said they did not apply ABC. The results obtained in this study do not differ significantly from the results of the previously conducted studies [33], [37], [23], [39], i.e. they confirm the low level of ABC implementation in SMEs.

It is surprising that the results showed that more than 60% of respondents possess knowledge of ABC. This is opposed to the results of a similar research which indicate a significantly lower level of knowledge of this kind of system [39], [33]. Also, more than 50% of respondents said that they gained basic knowledge of ABC within formal university education and over 90% of them said that additional training regarding ABC was necessary [34]. Human resources and management experience, among other important factors, have a positive impact on the performance of an enterprise [13]. These results are very important given the facts that employee training and managerial commitment are preconditions for effective implementation of ABC and that ABC implementation has an impact on performance of SMEs [4]. ABC has the potential to improve the performance of a company. Research shows a positive relationship between the implementation of this cost accounting system and the performance of enterprises [40]. However, there are many problems in the domain of SME performance measurement process that need to be solved.

Our study shows that the most important obstacle to the implementation of ABC was the lack of practical

experience and knowledge regarding this system [26], [33], [22], [38]. There are two more factors associated with this one: “the management is satisfied with the current cost accounting” and “lack of qualified accountants”. There is significant room for further improvement in the area of cost accounting education, both among accountants and among managers. Without the management’s initiative and support to education of accountants and managers, it is impossible to think about improvement in the cost accounting practice [34]. Hence, the management has a double responsibility: to support education processes and to support the implementation of innovative accounting techniques.

Our findings imply that researchers should direct their interest towards deeper understanding of the limiting factors of ABC implementation and towards discovering the manner to overcome them. They also imply that there is a need for further research on ABC implementation in transition and developing economies, especially in the area of the effects of ABC on performance of an enterprise. Furthermore, our findings suggest that SMEs need to improve their performance to fight strong competition, especially in developing countries. Practitioners and SMEs in developing countries should seriously consider the possibilities of using ABC and many research studies have seen ABC as a tool for creating and maintaining competitiveness. These findings are in line with the arguments of similar research. In general, improvement in the domain of cost accounting practices can provide initial impetus for strengthening SMEs, provided that adequate institutional factors of growth and development of the economy as a whole have been ensured. Therefore, strengthening the competitiveness of SMEs, in addition to action at the micro-level, requires comprehensive economic and political measures at a national level. We should point out that a single optimal solution does not exist. It is necessary to conduct a cost-benefit analysis and make the right business decision regarding the implementation of ABC.

The authors are aware of the possible limitations of this study. The focus of the research involved only SMEs in Serbia and the sample was relatively small. Hence, it should be pointed out that analysis of a larger sample might lead

to different results, i.e. a larger sample would allow making general conclusions about SMEs in Serbia. A more detailed statistical analysis also could not be conducted due to a small sample. Furthermore, respondents expressed their subjective position in relation to the given statements, and the researchers were not able to objectively determine the actual level of their knowledge. Nevertheless, we believe that our study offers useful insight into the field of ABC implementation in SMEs. Future research should certainly include a larger number of respondents and questions in the questionnaire with a view to conducting a more detailed analysis of the reasons for a relatively low level of development of cost accounting, and proposing measures for improvement in this sphere. Also, particular attention should be paid to the analysis of the impact of ABC on enterprise performance.

References

1. Abor, J., & Quartey, P. (2010). Issues in SME development in Ghana and South Africa. *International Research Journal of Finance and Economics*, 39, 218-228.
2. Anderson, S. (1995). A framework for assessing cost management system change: The case of activity-based costing implementation at General Motors 1986-1993. *Journal of Management Accounting Research*, 7, 1-51.
3. Ayyagari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2011). *Small vs. young firms across the world. Policy Research Working Paper 5631*. Washington: World Bank.
4. Barker, T., & Frolick, M. (2003). Enterprise resource planning implementation failure: A case study. *Information Systems Management*, 20(4), 43-49.
5. Baumol, W. (2009). Small enterprises, large firms, and growth. In A. Lundstrom (Ed.), *The role of SMEs and entrepreneurship in a globalised economy*. Expert Report No. 34 to Sweden's Globalisation Council.
6. Baykasoglu, A., & Kaplanoglu, V. (2008). Application of activity-based costing to a land transportation company: A case study. *International Journal of Production Economics*, 116(2), 308-324.
7. Beck, T., Demirguc-Kunt, A., & Levine, R. (2005). SMEs, growth, and poverty: Cross-country evidence. *Journal of Economic Growth*, 10(3), 199-229.
8. Bhimani, A. M., Gosselin, M., Ncube, M., & Okano, H. (2007). Activity-based costing: How far have we come internationally?. *Cost Management*, May/June, 12-17.
9. Block, J. H., Thurik, R., & Zhou, H. (2013). What turns knowledge into innovative products? The role of entrepreneurship and knowledge spillovers. *Journal of Evolutionary Economics*, 23(4), 693-718.
10. Bosma, N., & Levie, J. (2010). *Global Entrepreneurship Monitor - 2009 Global Report*. Retrieved from <https://www.babson.edu/Academics/centers/blank-center/global-research/gem/Documents/gem-2009-global-report.pdf>.
11. Brandau, M., Hoffjan, A., & Wömpener, A. (2014). The globalisation of a profession: Comparative management accounting in emerging and developed countries. *European Journal of International Management*, 8(1), 73-105.
12. Carnezo, P., & Turrola, A. (2010). The diffusion of management accounting systems in manufacturing companies: An empirical analysis of Italian firms. *Studies in Managerial and Financial Accounting*, 20, 457-499.
13. Celec, R., Globocnik, D., & Kruse, P. (2014). Resources, capabilities, export performance and the moderating role of entrepreneurial orientation in the context of SMEs. *European Journal of International Management*, 8(4), 440-464.
14. Cooper, R., & Kaplan, R. S. (1991). Profit priorities from activity-based costing. *Harvard Business Review*, 69(3), 130-135.
15. Cooper, R. (1987). The rise of activity-based costing –part one: What is an activity-based cost system?. *Journal of Cost Management*, 2(2), 45-54.
16. European Commission. (2014). *Annual report on European SMEs 2013/2014*.
17. Fisher, E., & Reuber, R. (2000). Industrial clusters and SME promotion in developing countries. *Commonwealth Trade and Enterprise Paper No. 3*. London: Commonwealth Secretariat.
18. Foroughi, A., Kocakulah, M., Stott, A., & Manyoky, L. (2017). Activity-based costing: Helping small and medium-sized firms achieve a competitive edge in the global marketplace. *Research in Economics and Management*, 2(5), 150-171.
19. Haase, H., & Franco, M. (2016). What factors drive performance of small and medium-sized enterprises?. *European Journal of International Management*, 10(6), 678-697.
20. Haldma, T., & Lääts, K. (2002). Contingencies influencing the management accounting practices of Estonian manufacturing companies. *Management Accounting Research*, 13(4), 379-400.
21. Hall, O., & McPeak, C. (2011). Are SMEs ready for ABC?. *Journal of Accounting and Finance*, 11(4), 11-22.
22. Hodorogel, R. G. (2011). The global economic crisis challenges for SMEs in Romania. *Theoretical and Applied Economics*, 18(4), 129-140.
23. Hopper, T., Koga, T., & Goto, J. (2012). Cost accounting in small and medium sized Japanese companies: An exploratory study. *Accounting and Business Research*, 30(1), 73-86.
24. Hudson, M., Lean, J., & Smart, P. A. (2001). Improving control through effective performance measurement in SMEs. *Production Planning and Control*, 12(1), 804-813.
25. Hughes, A. (2005) ABC/ABM – Activity-based costing and activity-based management: A profitability model for SMEs manufacturing clothing and textiles in the UK. *Journal of Fashion Marketing and Management*, 9(1), 8-19.
26. Huynh, T., Gong, G., & Ngo, N. (2013). Apply ABC to calculate product cost in small and medium enterprises. *International Journal of Business and Economics Research*, 2(3), 59-68.
27. Gunasekaran, A., Marri, H. B., & Grieve, R.J. (1999). Activity based costing in small and medium enterprises. *Computers and Industrial Engineering*, 37(1-2), 407-411.
28. Janjić, V., Todorović, M., & Jovanović, D. (2014). Računovodstvena profesija kao faktor efikasnog upravljanja: analiza preduzeća grada Kragujevac. In Maksimović, Lj. and Stanišić, N. (Eds.)

- Stanje i perspektive ekonomskog razvoja grada Kragujevca* (pp. 429-443). Ekonomski fakultet Univerziteta u Kragujevcu, Kragujevac.
29. Joshi, P. L. (2001). The international diffusion of new management accounting practices: The case of India. *Journal of International Accounting Auditing & Taxation*, 10(1), 85-109.
 30. Kallunki, J., & Silvola, H. (2008). The effect of organizational life cycle stage on the use of activity-based costing. *Management Accounting Research*, 19, 62-79.
 31. Knežević, G., & Mizdraković, V. (2010). Exploratory research of activity-based costing method implementation in Serbia. *Economic Research*, 23(3), 68-81.
 32. Lui, Y. L., & Pan, F. (2007). The implementation of activity-based costing in China: An innovation action research approach. *British Accounting Review*, 39(3), 249-264.
 33. Machado, M. J. C. V. (2012). Activity based costing knowledge: Empirical study on small and medium-size enterprises. *Revista Contemporânea de Contabilidade*, 9(18), 167-186.
 34. Majid, J. A., & Sulaiman, M. (2008). Implementation of activity based costing in Malaysia: A case study of two companies. *Asian Review of Accounting*, 16(1), 39-55.
 35. Markatou, M. (2012). The role and the importance of the Greek SMEs in the production of innovation. *Journal of Innovation & Business Best Practice*, 10(3), 1-10.
 36. Ministarstvo privrede (2017). *Izveštaj o malim i srednjim preduzećima i preduzetništvu*, Beograd.
 37. Needy, K., Nachtmann, H., Roztocky, N., Warner, R., & Bidanda, B. (2003). Implementing activity-based costing systems in small manufacturing firms: A field study. *Engineering Management Journal*, 15(1), 3-10.
 38. Popescu, N. E. (2014). Entrepreneurship and SMEs innovation in Romania. *Procedia Economics and Finance*, 16, 512-520.
 39. Ríos-Manriqueza, M., Muñoz Colominab, C., & Rodríguez-Vilariño M. L. (2014). Is the activity based costing system a viable instrument for small and medium enterprises? The case of Mexico. *Estudios Gerenciales*, 30(132), 220-232.
 40. Sanchez, A. A., & Marin, G. S. (2005). Strategic orientation, management characteristics and performance: A study of Spanish SMEs. *Journal of Small Business Management*, 43(3), 287-308.
 41. Serrasqueiro, Z., Leitao, J., & Smallbone, D. (2018). Small- and medium-sized enterprises (SME) growth and financing sources: Before and after the financial crisis. *Journal of Management & Organization*, 1-16.
 42. Stefano, N. M., & Filho, N. C. (2013). Activity-based costing in services: Literature bibliometric review. *Springer Plus*, 2(80), 1-11.
 43. Todorović, M. (2018). *Obračun troškova po aktivnostima zasnovan na vremenu: konceptualno-metodološki okvir i primena*, Ekonomski fakultet Univerziteta u Kragujevcu, Kragujevac.



Mirjana Todorović

is Associate Professor at the Faculty of Economics, University of Kragujevac. She teaches Accounting Information Systems and Management Accounting. Her key areas of interest are contemporary cost accounting and cost management systems and different aspects of organization and functioning of accounting information systems. She published several papers in international journals, as well as in numerous national journals.



Vesna Janjić

is Associate Professor at the Faculty of Economics, University of Kragujevac. She teaches Cost Accounting and Management Accounting. She co-authored a textbook, and authored and co-authored a number of scientific and professional papers published in journals of national and international importance. Her areas of scientific interest include management accounting, cost accounting, cost management, and enterprise performance management.



Vesna Pašić

is Teaching Assistant at the Faculty of Management in Zaječar, where she teaches Accounting and Business Analysis. She is a Ph.D. student at the Faculty of Economics, University of Kragujevac, majoring in accounting and business finance. Her main areas of interest include strategic accounting, business finance, and financial management. She authored papers in these fields, which were presented at international scientific conferences and published in journals.