

TIME-DRIVEN ACTIVITY-BASED COSTING AS A TOOL OF BUILDING AN INTEGRATED MANAGEMENT SYSTEM

UDC 657.474:005

Mirjana Todorović

Faculty of Economics, University of Kragujevac, Serbia

Abstract. *The implementation of the defined strategies and achieving operational excellence are inextricably linked and equally important for achieving excellent enterprise performance. Achieving success within both of these vital management processes, strategic and operational, and within enterprise management in general, requires the development and implementation of an integrated approach. In this regard, theory and practice have come up with different approaches. The aim of this paper is to identify opportunities for the use of Time-driven Activity-based Costing (TDABC), for the purpose of linking strategic and operational management. The analysis has shown that TDABC has outstanding performance, to be applied both in the field of strategic and operational management individually, and more importantly, in the domain of their integration.*

Key words: *Strategic and Operational management, Performance Measurement, Cost Accounting, Time-driven Activity-based Costing (TDABC)*

INTRODUCTION

The common position of a large number of theorists and practitioners is that there is a need to create and implement an integrated system of management. Such a system should ensure operational excellence, at the operational level of business processes, and implementation of the defined strategies, at the strategic level. The existence and implementation of a formal system of linking strategic and operational management, which is systematic and coherent, is a crucial prerequisite for successful enterprise management, achieving excellent performance, and creating and sustaining competitive advantage. For the purpose of creating such a management system, different tools have been developed. The ones that are often referred to are Balanced Scorecard (BSC), Dupont Model, Theory of Constraints, Hoshin Kanri Planning, etc. Also, the key role of an adequate performance

Received September 18, 2015 / Accepted March 11, 2016

Corresponding author: Mirjana Todorović

Faculty of Economics, University of Kragujevac, Djure Pucara Starog street 3, 34000 Kragujevac, Serbia

E-mail: mtodorovic@kg.ac.rs

measurement system in the process of building an integrated management system is emphasized. Reviewing the performance measurement system inevitably leads to the question of the role of accounting and its segments, particularly cost accounting, in the processes of implementation of strategic and operational management. With this in mind, the subject of the present research are instruments (tools) for integrating strategic and operational management, with a focus on performance measurement system and TDABC, as a quantitative basis of cost accounting.

The main research objective is the consideration of the possibilities and potentials for the TDABC application, as well as its performance evaluation in the field of integration of strategic and operational management. Bearing in mind the subject of research and the defined goal, the paper will rely on methodological procedures and techniques, inherent in the social sciences, i.e. qualitative methodology, based on the study and a descriptive analysis of the defined research subject. Reference to the relevant literature, based on theoretical analyses and examples from international practice, including a specific case study, should allow the synthesis and drawing general conclusions.

The paper consists of four parts. The issue of the necessity of linking strategic and operational management, and the need for building an integrated management system, is the focus of the first part of the paper. The second part is devoted to the analysis of six-stage framework for the integration of strategic and operational management. The third part discusses the TDABC potentials in the construction of an integrated management system, while the fourth part is devoted to the analysis and presentation of a case study, related to the implementation of TDABC in a specific enterprise.

1. NECESSITY OF INTEGRATION OF STRATEGIC AND OPERATIONAL MANAGEMENT

Literature usually describes quality management by using the expressions “effective” and “efficient”, and it is considered that the enterprise is successful if it does “the right things” in the “right way”. Although they have different meanings, the link between efficiency and effectiveness is unbreakable. Although there are opposing views [2], authors often point out that it is possible to achieve efficiency without effectiveness, while, without efficiency, there can be no effectiveness. This means that the enterprise, as a business system, can be efficient even if it does not do the right things, i.e. if it does not choose the best possible alternative use of capital (if it is not effective). Efficiency is, therefore, seen as the essential (necessary) condition [15]. If the enterprise does not operate in the right way, i.e. does not achieve maximum results with minimum investment (if it is not efficient), there is no room for effectiveness [17, 183]. The reason for this lies in the fact that effectiveness is linked to the process of identifying and defining objectives and creating and implementing strategies, and, in this regard, the long-term directing of the enterprise’s course of action. Effectiveness is predominantly within the competence of top management, and implies a long-term aspect of contemplating and decision-making. One of the basic instruments to achieve effectiveness is strategic planning. On the other hand, efficiency focuses on the mode of realization of business processes, with the aim of maximizing results, while minimizing waste. Efficiency is a measure of operational excellence [16]. It falls within the responsibility of the lower (operational) management, and includes the use of different techniques and tools to achieve operational improvement.

Focus on efficiency, while neglecting effectiveness, leads to ephemeral profitability. In contrast, focus on effectiveness, with disregard for efficiency, leads to unprofitable growth [16]. Therefore, the basic assumption of successful management, i.e. the enterprise's success, is the balance between effectiveness and efficiency, i.e. the coherence and integration of strategic and operational management.

Strategic management includes both decision-making on the future direction of enterprise development, through strategic planning, and implementation of activities aimed at achieving the defined goals, i.e. strategy implementation. Strategic decision-making focuses on the future, with the aim of achieving the desired long-term objectives, so that the consequences of these decisions are far-reaching. On the other hand, operational management has a short-term focus. The main activity of operational management is the organization and connection of all, financial, technical, technological, human, financial, and information resources, for creating products and services of different scope, variety, and demand. Traditionally, the focus of operational management is the technological, organizational, and architectural dimension of an enterprise's business processes and operations [18]. Business processes, understood as fully enclosed, time- and logically separated activities or series of activities, whose execution leads to the realization of the processes themselves, are treated as the main value generators. They directly determine and are responsible for the consumption of resources and overall efficiency/inefficiency and productivity of the enterprise. An integral aspect of business process management is their improvement.

Achieving operational excellence at the level of business processes and implementation of the defined strategies are equally important for achieving excellent performance of enterprises [21]. Not even a visionary and masterfully defined strategy can be realized unless associated with operational excellence and operational management. Conversely, operational excellence can result in lower costs, quality improvement, and lead time reduction, but without integration with strategic vision, it is unlikely that the enterprise will achieve sustainable and long-term success, i.e. achieve and maintain a competitive advantage. Accordingly, high-performance business processes are necessary, but not sufficient.

The existence of a kind of gap between the formulation of ambitious strategic plans and their implementation, i.e. execution at the level of departments, business processes, and their teams, is a common problem which enterprises face. Empirical studies in the last few decades have shown that 60% to 80% of enterprises fail to achieve the goals set in the strategic plan. One of the main reasons for the enterprise's failure in the implementation of the strategy or business process management lies in the lack of the management system, which integrates and harmonizes these two vital segments of the management process. The above-mentioned gap also stems from the unsystematic and uncoordinated use of various instruments of strategic management and operational management. In recent decades, a large number of these instruments have appeared. The domain of strategy implementation includes defining and statements of mission, values, and vision (MVV), competitive, economic, and environmental analysis, i.e. SWOT analysis (strengths, weaknesses, opportunities, threats), strategic map, and Balanced Scorecard (BSC). On the other hand, the area of operational management most commonly refers to the following management instruments: Total Quality Management (TQM), Six Sigma, Kaizen, Lean Management, Business Process Reengineering (BPR), and others. Contemporary costing systems, which basically rely on business activities, are often used to determine the

profitability of outputs (products and services) and customers, as the key indicators of the strategy success. In addition, they are considered to be very effective in identifying waste and implementation of operational improvements. The use value of the above-mentioned instruments of strategic and operational management is high. However, they often do not give the expected results. The reason for this is their fragmentary, incoherent, unsynchronized, and unsystematic implementation, based on ad hoc solutions.

The results of empirical research clearly indicate the need for the creation and implementation of a specific integrated approach to management. Some note that the existence of a formal system of linking the strategic and operational management increases the probability of success of implementation of the strategies created by two to three times [8, 3]. The application of systematic, comprehensive, and integrated approach to ensuring coherence between strategy implementation and achieving business process excellence is the key prerequisite for successful enterprise management, and creating and sustaining competitive advantage.

However, the crucial question is how these different strategic and operational instruments of improvement can act together as a coherent system [8, 7]. How to successfully realize the set long-term goals and created strategies, aimed at building and sustaining competitive advantage, while at the same time bringing continuous improvement of business processes and operational excellence? The answer lies in a synchronized and coherent management system, whose base comprises processes of adequate measuring and reporting on the results achieved. Measurement processes have three basic functions: control, communication, and improvement, thus allowing the creation of links between strategy, its realization, and the process of value creation [14, 211]. Performance measurement and determination of results have their stronghold in the top management of the enterprise, but are equally focused and involve the middle management, up to the top line management (operational management), i.e. the level of business processes of the enterprise.

2. POSSIBLE APPROACHES TO INTEGRATING STRATEGIC AND OPERATIONAL MANAGEMENT

In order to integrate strategic and operational management, different approaches have been developed. Some of them are: BSC [10], Dupont model [11], Theory of Constraints [12] and others. BSC is a very important tool of top management. It has a significant role in the rapid and effective strategy implementation, through the integration of the performance measurement system and management system. In fact, it sets the strategy at the center of the management process, thus, in a certain way, leading the enterprise towards strategic orientation. The Dupont model allows the operational improvement (in the field of operational management) to be adequately valorized, i.e. presented in financial statements, in a way that responds to the needs of strategic management [14, 215]. The main objectives of the theory of constraints are: Increase Throughput, Reduce Inventory, and Reduce Operating Expense. For that reason, there are objections to this theory, as to being too focused on business processes and operational improvements. Some enterprises use Hoshin Kanri Planning for translating high strategic goals into the goals of operating departments. It is an instrument that allows the management to communicate objectives through all hierarchical levels of the organization, i.e. create detailed plans for the future, which require serious planning and resources.

A number of authors speak of a performance measurement system as a key information system that enables effective and efficient management. For this purpose, a performance measurement system needs to integrate all the relevant information, i.e. enable the development of strategic and operational objectives, and provide information for decision making and control [3]. In support of this, and in the context of the measurement process, the issue of the connection between accounting and strategy inevitably arises. Although research on this subject has been carried out for more than half a century, a large number of authors point out that this relationship has not been fully explained and clarified yet. Furthermore, they often emphasize the accounting support to the process of strategy realization, but not to the process of its adoption [7], [1]. The research carried out in 2010 aimed at analyzing the role of different accounting tools in the process of defining, redefining, and implementing the strategy. The authors' global conclusion is that the role of accounting in all these processes is very active and important [20].

In connection with the performance measurement system, the essential question is how to develop an adequate measurement system. The traditional performance measurement system is based on cost accounting information, based on the application of the concept of full costs, and financial accounting information, which is primarily of a historical character. Traditional accounting information is objected to as being unable to support the realization of strategy, business objectives, and continuous improvement. In their work, Kaplan and Norton claim that one should rely on the cost accounting information of new type and information based on new accounting methodologies. They developed an approach for the integration of strategic and operational management, which is based on the strategic and operational planning. Their theoretical framework, which provides an integrated approach to strategy formulation and planning, and to operational management and achieving excellence, comprises six stages, and is shown in Figure 1.

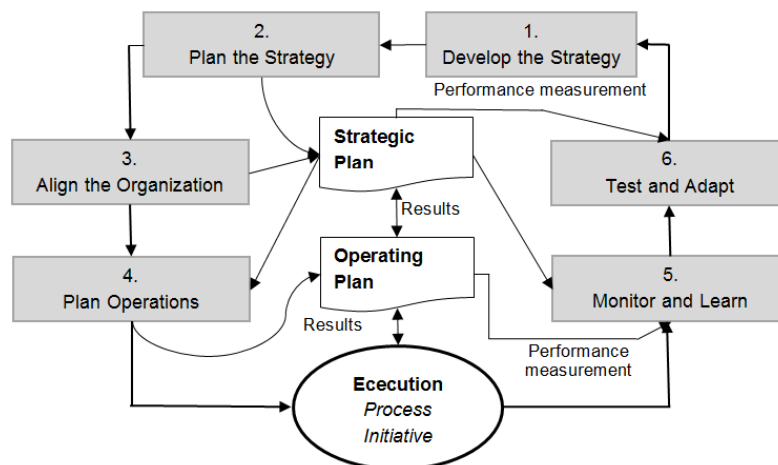


Fig. 1 Stages of integration of strategic and operational planning [8, 7]

The first and crucial phase of the presented framework includes strategy development. Strategy development includes formulating mission, vision, defining values, implementing

strategic analysis (including analysis of macro and microeconomic environment, resources, and other business opportunities, but also an analysis of progress of previously formulated strategies), and strategy formulation. The strategy, by its nature, relies on the vision, mission, and goals of the enterprise. It is considered a key link in the chain of dispositive business and financial decisions and operationalization of tasks, and stands for the defined best course of action for the realization of the objectives of enterprise, and the most important interactive element between the enterprise and its environment.

After strategy formulation, the focus is on its planning. Strategy planning includes defining strategic goals, strategic initiatives (planned action aimed at achieving performance in respect of the goals established in the strategic map), performance measures, and the necessary budget. It can be implemented by introducing the strategic map. The strategic map describes the process of creating value through a series of cause-and-effect links between the defined goals and four different perspectives of BSC. Understanding the strategic goals and strategic directions, their development and measurement of achieved performance levels, control of realization and use of the information obtained for the purposes of effective and efficient management in modern business conditions are becoming critical success factors.

The key activity in the process of strategy planning is budgeting. Budgeting is the process of preparing information for the thoughtful directing of activities of the enterprise, i.e. the process of tracing its path towards the desired goals, directions, and global development strategies [19, 18]. The result of the budgeting process is the budget, i.e. quantitative expression of future of the enterprise, i.e. expected revenues and expenses for a certain period. The budget is the formal expression of planned future actions, and serves as a communication tool by which the defined long-term and strategic goals are, through the delegation of tasks and responsibilities, transformed into specific operational activities. In the context of the integration of strategic planning and operational management, i.e. translating strategy into action, one should distinguish between long-term and short-term budget. The result of the strategic planning is a long-term budget. Long-term budget is the instrument which primarily serves to reconsider financial effects of different strategic options and, as such, is used in the area of decision-making, and very rarely, or almost never, as a means of control. In contrast, short-term (master) budget is the expression of the operating management intentions, and, as such, represents an important instrument in the area of decision-making, but it is primarily a means of control, i.e. a tool to assess the quality of decisions made. The relationship between long-term and short-term budget is such that long-term budgeting raises the quality of short-term budgeting, in a way which prevents orientation of management exclusively towards short-term goals. The implementation of strategic initiatives or portfolio of initiatives, according to Kaplan and Norton, requires the development of a specific budget, also known as STRATEX – Strategic Expenditures. This budget defines the resources for the financing of the implementation of selected strategic courses of action, which provide long-term benefits. In fact, it abandons the traditional approach to budgeting, based on existing organizational business units, and switches to cross-functional and cross-sectoral budgeting.

Strategy planning is followed by the third phase, i.e. alignment and diffusion of the defined strategy at the level of the business units, work teams, and all employees. This is a crucial stage for the success of strategy implementation. Strategy diffusion and alignment in the enterprise can be implemented vertically and horizontally. Vertical diffusion should ensure that each organizational unit contributes to the realization of high strategic goals,

at the same time striving for the successful realization of the goals set at the operational level. Horizontal alignment among organizational parts should allow for the synergy in respect of the exchange and sharing of technology, knowledge, best practices, joint training and education of employees, and others. Implementation of this phase should allow all organizational segments in the enterprise to, through a balanced approach, achieve the optimization at the operational level and contribute to the realization of the strategy of the enterprise as a whole. The fourth stage involves planning at the operational level by using the above-mentioned instruments, namely: quality management, process management, business process reengineering, forecasts, activity-based costing, capacity planning, and dynamic budget development. The fifth phase involves monitoring of the results achieved on the basis of the strategy implementation, as well as improving business processes and defining strategy, based on the obtained information, and learning processes related to identified problems, barriers, and challenges. The sixth phase relates to testing and modification (adaptation) of the strategy, based on internal operational data and data from the environment.

The basis of the above theoretical framework is the establishment of clear and unbreakable link between long-term formulated strategy and almost daily operational activities. The key to success is actually coordination of activities related to improving processes (operational improvements) and strategic priorities. Therefore, the development of operational plans is a key thing. In the process of developing operational plans, two issues are central, namely: what the key business processes are, i.e. which business processes should be improved in order to ensure the implementation of a defined strategy and how to establish a connection between strategy and operational plans and budgets, i.e. how to plan resource capacities.

With regard to the first question, enterprises need to focus on improvements and achieving the desired performance of key business processes, since it is the only path that leads to the implementation of a defined strategy. After identifying key business processes, which will be subject to improvements, operational management needs to define the most important performance indicators for these processes. This ensures employees' focus on business process improvement, as well as appropriate feedback on achievements. The essence of the second question relates to the adjustment and transformation of operational improvement plans and strategic targets into the annual operating plan, with this operational plan including three components: sales forecast, resource capacity plan, and budgets (operating and capital budgets). The first component of the operational plan involves translating the strategic plan of target revenues into sales forecast. The second component of the operational plan requires translating detailed sales forecasts into the assessment of the required resources of the enterprise, i.e. resource capacity needed for a defined forecast period. The instrument (tool) which, according to Kaplan and Norton, ensures the most efficient implementation of the given task is Time-driven Activity-based Costing – TDABC [8].

TDABC plays an important role in providing answers to both of the above-mentioned questions in connection with the preparation of operational plans. It allows the measuring of performance at the level of business processes, and determining the necessary resource capacities for the purpose of creating the annual operating plan.

3. TDABC CONTRIBUTION TO BUILDING AN INTEGRATED MANAGEMENT SYSTEM

TDABC is a contemporary cost accounting system, which was created with the aim of overcoming and eliminating defects of traditional Activity-based Costing (ABC). TDABC introduces several essential innovations into cost calculation; it takes into account the practical capacity, i.e. capacity utilization, and introduces a time variable. TDABC methodology requires only two sets of estimates: the capacity cost rate and the time required to perform each business activity. The capacity cost rate is the quotient of the cost of capacity supplied and practical capacity of resources supplied. The primary function of the capacity cost rate is to allocate cost of resources to cost object by estimating the demand for resource capacity that each cost object requires. Costs are allocated on the basis of the time necessary for the realization of the specific business activities, where the time is determined by using time equations. Hence, organizational and methodological design of TDABC system requires, first, determination of the cost capacity rate, which raises the problem of determining the practical capacity, and second, identification of the time required for the realization of specific business activities, which requires creation of time equations.

Companies that implemented TDABC identified the following as the most common motives of their decision: increase in the degree of capacity utilization and increase in the efficiency of the processes (operational improvements). They point out that the achievement of these effects is possible due to the fact that TDABC provides more detailed and reliable information for the purpose of performance measurement processes, budgeting, and implementation of “what if” analysis. Furthermore, some of the possible positive effects of the use of TDABC can be: creation of profit- and profitability-oriented enterprise, through regular reports on the profitability of each customer or product/service, creating a company oriented towards the realization of the goals and strategies, through connecting TDABC and BSC, improving decision-making processes, and others [9]. TDABC information has significant and different application potential. Different areas of the use of information provided by TDABC are given in Table 1. The systematization of areas of information use has been done from the perspective of strategic and operational management levels.

Table 1 The fields of application of TDABC information [9, 78]

Strategic	Operational
Profitability analysis at different levels	Capacity analysis
Strategic benchmarking	Order optimization
Cost to serve	Cost reduction
KPIs	Inventory reduction
Balanced Scorecard	Internal controls

TDABC can successfully respond to information requirements of management at all levels [5]. Bearing in mind that creating a TDABC system begins at the lowest, operational, levels, it can measure performance at both higher and lower hierarchical levels. While higher levels of management can monitor the level of profitability and capacity utilization at the level of different business segments, departments, and wider, the management at the departmental level monitors the profitability of individual

products, orders, and/or customers, and monitors the level of capacity utilization at the level of departments.

TDABC significantly affects the change of performance measurement and performance management in enterprises [4]. It also provides strong support for translating the strategy into performance measures, and provides adequate performance measures for BSC. The most common performance measures are: customer and product profitability, market share, customer loyalty, efficiency of inventory management, procurement and sales efficiency, and others. In fact, TDABC essentially supports the design and implementation of the BSC.

In the context of the presented six-stage model, TDABC can successfully create a link between sales forecasts, planned efforts toward operational improvements, and the necessary volume and structure of resources to fulfill the plans set. After obtaining information on the volume and mix of resources needed for the future period, it is possible to easily determine the financial implications (financial plan) and operating and capital budgets (Operational and capital budget, as an outstanding management innovation, appeared in General Motors in 1920. Their role was reflected in decentralization of management through the centralization of control. The use of the budget was, in fact, aimed at coordination and control of diversified business units.). This is the third component of the operational plan. Its essence is reflected in the realization of operating expense budget (OPEX) and capital expenditure budget (CAPEX) [8].

The third step, i.e. direct application of TDABC, plays a key role in the process of integration of strategic and operational planning. One of the key benefits of the use of TDABC is its ability to efficiently and rapidly forecast the required resource capacities for the implementation of business processes. To make this possible, first, it is necessary to modify the costing model, to reflect the expected improvement of business processes in the next period, for which the forecast is made. This allows for the connection between activities of quality and business process improvements and budgeting processes, i.e. activities of continuous improvement are built into the budgeting process. After that, it is necessary to fill the model with the data arising from sales and operational plans. The result is information on the volume of each type of resource that should be provided in the future, which is essential for the implementation of the plans. In addition, based on the TDABC model, capacity cost rate is determined. Multiplying the capacity cost rate with the required volume of that resource results in the forecasted (budgeted) costs for the forecasted period. In view of this, TDABC allows predicting, modifying, and managing the future of the enterprise.

The described process shows that TDABC is a powerful management tool that provides a comprehensive and synthesized framework for integrating strategic planning with resource allocation, budget forecasting, and dynamic budgeting. The framework comprises five steps [8]:

- Sales forecasting for shorter time periods (usually quarterly),
- Translating the high-level sales forecasts into a detailed sales and operational plan, whose one of the basic functions is determining the necessary resources for their implementation,
- Inclusion of the sales and operational plan, as well as the projected effectiveness of the process, into the TDABC model, for the purposes of forecasting demands for resources or necessary resource capacities,

- Dynamic budgeting for operating expenses (OPEX) and capital expenditure (CAPEX) (In this regard, operating expenses include costs of labour, maintenance, and equipment, while investment in resource capacities or some strategic initiatives fall within capital expenditure),
- Assessment of financial profitability at various levels (products, customers, sales channels, etc.).

Finally, TDABC is a system of exceptional reporting performance, which allows full insight into the historical and future performance, efficient and effective short-term and long-term decision-making, and assessment of effectiveness of resource, operational, and business process management [6], [9], [22]. Not only that TDABC can be used for each of the individually listed strategic and operational purposes, but the previous analysis has pointed to its outstanding performance in the field of integration of strategic and operational management.

4. CASE STUDY OF TDABC SYSTEM APPLICATION

The relevant literature includes a number of different studies dealing with the application of TDABC. The existing studies point to the examples of TDABC implementation in different fields of economy, namely: financial sector (USA and Canada, 2004), university library (USA, 2007, Belgium, 2009), trade and distribution (USA, 2008, Belgium, 2010), hospital (Great Britain, 2009), hotel (Turkey, 2010), a production company (USA, Belgium, Turkey, 2010), and university restaurant (Belgium, 2012). There is an interesting example of the application of TDABC in the Kemps production enterprise in the United States. The study showed that TDABC gives strong support to the implementation of enterprise strategy, and to operational improvements.

Kemps is one of the famous American producers of dairy products, namely: milk, yogurt, sour cream, cheese, and ice cream. Economic trends during the 1990s caused the reduction in the number of customers, i.e. their consolidation, and the emergence of giants in the field of distribution and wholesale. At the same time, the demands of customers, in terms of product packaging, distribution, storage, and delivery “just in time”, became more pronounced. The reduced capacity for product storage on the part of the customers resulted in a further increase in producers’ responsibility regarding product storage. In order to respond to the changed business conditions and the growing needs of customers, this enterprise had to develop a complex production process for a wide variety of products, and a well-organized transport system. Furthermore, Kemps is known for installing a very expensive production line for the production of yogurt in a tube, worth 2.5 million dollars.

The complexity of production processes, a wide range of products, and striving for maximum satisfaction of various customer demands at the end of the 1990s made successful management of this enterprise very difficult. It became necessary to change the business philosophy, objectives, and strategy of the enterprise. Orientation to cost reduction, i.e. achievement of cost leadership and brand building, became its primary focus and the only option of survival and further development. However, the implementation of a new business culture and philosophy demanded the complete, accurate, and precise knowledge of costs, revenues, and profitability of products and

customers. The former system of cost accounting, based on standard costs, could not meet the management information needs. Although this system provided excellent data on the costs of materials and operating costs at the departmental level (overhead costs were allocated according to the percentage, compared to direct production costs), it did not reflect the effects of the size of the series, as well as the starting time of the machines (for production series) or their stopping and outages. The unit costs of a product were, for example, the same, regardless of whether the production launch took ten minutes or an hour. This and similar problems gave rise to the need for a new costing system, which could, by providing more reliable and more accurate information, more effectively respond to management information needs.

In early 2001, the company started a pilot project of introducing TDABC. By mid-2001, a full TDABC model was built and implemented, which included all products and all customers, and an analysis of their profitability. The results of TDABC application were impressive. The operational improvement, i.e. process improvement, through reduction of the number of production series, eliminating waste and overtime, had a direct impact on cost reduction. Profitability analysis, based on TDABC information, allowed for the detection of non-profitable products and pointed to the necessary reduction of the production mix. Based on analysis of customer profitability and identification of less profitable and unprofitable customers, the company management brought significant business decisions, which resulted in significant revenue growth of the company. Important implications of these decisions were the improvement of relations with customers and establishing long-term cooperation with mutual benefit [9, 160].

CONCLUSION

For the purposes of integrating strategic and operational management, different concepts, techniques, and tools have been developed. In this paper, the focus is on Kaplan and Norton's six-stage model of building an integrated management system, which places an emphasis on TDABC. This modern system of cost accounting has been engaging attention of scientists and experts in the past twenty years. Theoretical views, confirmed in empirical research focusing on TDABC, support its high performance. The analysis in this paper aimed at answering the question of whether and why TDABC should be used, as a management tool for integrating strategic and operational management. The arguments in favor are as follows:

- It has the potential to measure performance at both higher and lower hierarchical levels, and provides adequate information support to the management at operational and strategic levels,
- It has the ability to efficiently forecast capacity (time-related), required for the implementation of business processes, and therefore, allows for the translation of high-level sales forecasts into detailed sales and operational plans,
- It successfully creates a link between sales forecasts, planned activities, aimed at the implementation of operational improvements, and the necessary volume and structure of resources to fulfill the plans set,
- It enables dynamic budgeting for operating expenses and capital expenditure,
- It provides support to translating strategy into performance measures, and provides effective performance measures for BSC, i.e. affects the change in performance measurement and performance management system in the enterprise.

Final solutions can hardly exist, so that the challenges of time and changes will confirm the high performance of TDABC, or reject it as inadequate. What is quite certain is that the theory and practice in Serbia should follow, with a critical approach, contemporary achievements of developed economies.

REFERENCES

1. Abernethy, M. A., Brownell, P. (1999), The role of budgets in organizations facing strategic change: an exploratory study, *Accounting, Organizations and Society*, 24(3):189-204.
2. Adizes, I. (2010), On Effectiveness and Efficiency and Their Repercussions, <http://www.ichakadizes.com/on-effectiveness-and-efficiency-and-their-repercussions/> (14.07.2015.).
3. Bititci, U., Carrie, A., McDevitt, L. (1997), Integrated performance measurement systems: a development guide, *International Journal of Operations & Production Management*, 17(6):522-534.
4. Bruggeman, W. (2007), Integrated Corporate Performance Management: linking Time-Driven ABC, the Balanced Scorecard and Budgeting to manage strategy as a continuous process, http://www.speedofchange.be/sap_worldtour/landing/media/04.16_BMConsulting.pdf. (20.06.2012.).
5. Denjega, O. (2011), Method Time Driven Activity Based Costing – literature review, *Journal of Applied Economic Sciences*, 6(1):7-15.
6. Everaert, P., Bruggeman, W. (2007), Time-Driven Activity-Based Costing: Exploring the Underlying model, *Cost Management*, 21(2):16-20.
7. Hansen, A., Mouritsen, J. (2005), Strategies and organizational problems: Constructing corporate value and coherence in balanced scorecard processes. In C. S. Chapman (Ed.), *Controlling strategy: Management, accounting, and performance measurement* (pp. 125–150). Oxford: Oxford University Press.
8. Kaplan, R., Norton, D. (2008), *The Execution Premium, Linking Strategy to Operations form Competitive Advantage*, Harvard Business Press.
9. Kaplan, R., Anderson, S. (2007), *Time – Driven Activity Based Costing, A Simpler and more Powerful path to higher profits*, Harvard Business School Publishing Corporation.
10. Kaplan, R., Norton, D. (1996), *The Balanced Scorecard*, Harvard Business School Press, Cambridge, MA.
11. Lambert, D. M., Burduroglu, R. (2000), Measuring and selling the value of logistics, *International Journal of Logistics Research*, 11(1):1-17.
12. Lockamy, A., Spencer, M.S. (1998), Performance measurement in a theory of constraints environment, *International Journal of Production Research*, 36(8):2045-2060.
13. Malinić, S., Todorović, M. (2011), Konceptualne osnove obračuna i upravljanja troškovima po aktivnostima baziranom na vremenu, *Ekonomika preduzeća*, 3-4:206-213.
14. Melnyk, S. A., Stewart, D. M., Swink, M. (2004), Metrics and performance measurement in operations management: dealing with the metrics maze, *Journal of Operations Management*, 22:209-217.
15. Moran P, Ghoshal S. (1999), Markets, firms and the process of economic development, *Academy Management Review*, 24(3):390–412.
16. Mouzas, S. (2006), Efficiency versus effectiveness in business networks, *Journal of Business Research*, 59: 1124–1132.
17. Novičević, B. (2014), Upravljačko računovodstvo i efektivnost i efikasnost upravljanja preduzećem, Zbornik radova: Računovodstvo i menadžment privatnog i javnog sektora (ur. Stojanović, R.), Beograd: SRRS, 178-190.
18. Novičević, B. (2009), Konvergencija informacionih zahteva računovodstva i operativnog menadžmenta, Zbornik radova: Računovodstvo i poslovne finansije u savremenim uslovima poslovanja (ur. Čanak, J.), Beograd: SRRS, 229-246.
19. Novičević, B. (2005), Upravljačko računovodstvo – budžetska kontrola, *Ekonomski fakultet u Nišu*.
20. Skaerbeak, P., Tryggestad, K. (2010), The role of accounting devices in performing corporate strategy, *Accounting, Organizations and Society*, 35(1):108-124.
21. Porter, M. (1996), What is Strategy, *Harvard Business Review*, 74(60):61-78.
22. Todorović, M. (2014), Ključni aspekti kreiranja i primene jednačina vremena u obračunu troškova, *Ekonomski horizonti*, 16(3):253-264.

TDABC KAO INSTRUMENT IZGRADNJE INTEGRISANOG SISTEMA UPRAVLJANJA

Realizacija definisanih strategija i postizanje operativne izvrsnosti neraskidivo su povezani i podjednako važni za postizanje vrhunskih performansi preduzeća. Postizanje uspeha u okviru oba ova vitalna upravljačka procesa, strategijskom i operativnom, i upravljanje preduzećem generalno, zahteva izgradnju i primenu integrisanog pristupa, a u vezi sa čim su u teoriji i praksi razvijeni različiti pristupi. Cilj ovog rada je sagledavanje mogućnosti za primenu obračuna troškova po aktivnostima zasnovanog na vremenu (Time Driven Activity Based Costing - TDABC) u funkciji povezivanja strategijskog i operativnog upravljanja. Analiza je pokazala da TDABC poseduje izuzetne performanse za primenu, kako u sferi strategijskog i operativnog upravljanja pojedinačno, tako i još značajnije, u domenu njihovog integrisanja.

Ključne reči: strategijsko i operativno upravljanje, merenje performansi, računovodstvo troškova, obračun troškova po aktivnostima zasnovan na vremenu (TDABC).