UNIVERSITY OF LJUBLJANA
FACULTY OF ECONOMICS

MASTER'S THESIS

APPLICABILITY OF ACTIVITY-BASED COSTING AND RELATED MANAGEMENT TOOLS: THE CASE OF IPKO TELECOMMUNICATIONS LLC

Ljubljana, May 2013 SASO DAMJANOVSKI

AUTHORSHIP STATEMENT

The undersigned Saso Damjanovski, a student at the University of Ljubljana, Faculty of Economics, (hereafter: FELU), declare that I am the author of the master's thesis entitled "Applicability of Activity-Based Costing and Related Management Tools: The case of Ipko Telecommunications LLC", written under supervision of Prof. Metka Tekavčič Ph.D.

In accordance with the Copyright and Related Rights Act (Official Gazette of the Republic of Slovenia, Nr. 21/1995 with changes and amendments) I allow the text of my master's thesis to be published on the FELU website.

I further declare

- the text of my master's thesis to be based on the results of my own research;
- the text of my master's thesis to be language-edited and technically in adherence with the FELU's Technical Guidelines for Written Works which means that I
    - cited and / or quoted works and opinions of other authors in my master's thesis in accordance with the FELU's Technical Guidelines for Written Works and
    - obtained (and referred to in my master's thesis) all the necessary permits to use the works of other authors which are entirely (in written or graphical form) used in my text;
- to be aware of the fact that plagiarism (in written or graphical form) is a criminal offence and can be prosecuted in accordance with the Copyright and Related Rights Act (Official Gazette of the Republic of Slovenia, Nr. 21/1995 with changes and amendments);
- to be aware of the consequences a proven plagiarism charge based on the submitted master's thesis could have for my status at the FELU in accordance with the relevant FELU Rules on Master's Thesis.

Ljubljana, May 18th, 2013 Author's signature:

_____

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

Since its introduction in the late 80's of the last century, the *Activity-Based Costing* methodology has been subject of debates among the academics and business experts, and still, more than twenty years after, lives a lot of space for different, even contradictory findings on its value and especially on its practical applicability in the business entities. The value of Activity-Based Costing methodology is mainly anticipated in the fields of cost control and profitability analysis, as well as in the areas of process optimization and decision making, where it's assumed to be creating conditions for increased financial performance and the level of operational efficiency. This is especially valid when considering the increased necessity of more advanced and precise models for overhead costs' allocation in order to correctly calculate and investigate the profitability of specific products and customers. Namely, during the last few decades, the growing costs of sales and customer support, together with R&D expenses have caused the radical swap of ratios of overheads versus direct costs in the total costs of operations, especially in the service providing industries. In this sense, the increased portion of overheads could be considered as one of the main reasons leading to development of ABC. Still, besides its perceived theoretical superiority over traditional costing models, the ABC concept has not been accepted in the business society as it could be expected. There are numerous reasons for this phenomenon, mostly related to its complexity and poor effectiveness having the high costs following its implementation and maintenance. Furthermore, the basic ABC model is usually found to be quite static and difficult to update in line with the fast changing market environment. Ultimately, these pitfalls have created certain ambiguity and resistance among the business professionals and academics, and have led to development of simplified and probably more applicable and efficient methodology, the so called Time-Driven Activity-Based Costing. On the other side, although originally introduced as a costing methodology with basic purpose to provide more appropriate overhead costs' assignment to products and customers, the potential applicability of Activity–Based Costing appeared to be much wider. This refers primarily to the areas of process management, resource planning and decision-making, through Activity–Based Analysis (ABA), Activity-Based Management (ABM) and Activity-Based Budgeting (ABB) models, all developed on the basis of ABC concept.

Ipko Telecommunications llc. is a telecommunications service provider, based in Pristine, Kosovo, majority owned by Telekom Slovenije, the largest Slovenian telecommunication services' provider. Ipko was originally founded as internet service provider, but after acquisition by Telekom Slovenije, it extended its service portfolio by including mobile and fix telephony, as well as IP television. The Company acquired mobile telephony licence in 2007, and since then has experienced a remarkable growth in revenues, as well as in its assets and employees base. In the area of financial and procurement processes administration, Ipko has successfully implemented SAP R/3 ERP system in order to satisfy the existing and anticipated future needs related to planning, recording and analysing

resources and processes of the Company. Telecommunications sector in Kosovo is still in the growing phase, including only two mobile telephony operators, with total penetration rate in the mobile segment of around 60%. However, it could be predicted that, as the market approaches saturation levels, the strategy of competitors will turn to existing customers' retention, increasing processes' efficiency and profitability. This is especially valid if assumed that there is a space and expectations of new entrants in the market, which will definitely put additional pressure to pricing policies of the existing service providers.

Not intending to evaluate the different and controversial standpoints in regards to Activity-Based Costing, this study will try to assess the identified strengths and weaknesses of this costing methodology, and its applicability in a service providing company doing business in transitional business environment, as well as to investigate the potential benefits and drawbacks resulting from implementation of ABC/M. On the other side, the analysis will focus on the Company's existing approach in the area of cost controlling, pricing and decision making, aiming to discover feasible potentials for improvements and further utilization of its information systems, primarily SAP R/3 with its financial and controlling modules.

The purpose of this study is to investigate in general the potential threats and benefits from ABC/M implementation in Ipko Telecommunications LLC, and eventually to support the decision to initiate more detailed feasibility study on the project. Its focus will be on analyzing the company's existing costing systems, and potentials for added benefits from stepping to the activity based approach. Subject of interest will be as well the possibility to reach already proven strength standards of ABC/M in the area of cost allocation, product and customer profitability measurement, better understanding of activities and processes, and its potential support for operational, financial and strategic decisions. Possibilities for its integration with budgeting and planning process will also be in the scope of the study. Additionally, the intention is to address the issues generally related to major concerns of the management when implementing ABC/M methodology. This primarily refers to its complexity, i.e. the threat of high costs, time and resources associated with its implementation, accompanied by the risk that the expected positive effects will not be achieved. As an alternative, the study will assess the possibility for implementation of later, simplified variant, so called Time-Driven Activity-Based Costing Method, and the opportunities to solve the usual drawbacks of the original model, if implemented in the Company.

In these regards, the study will attempt to address the following research questions:

- How could the telecommunication service providers benefit from implementing ABC/ABM?
- Which are the technical, financial and organizational preconditions and concerns related to successful implementation of ABC/ABM?

- What are the limitations and risks related to implementation of ABC/M system?
- What adjustments in company's organization need to be done in order to support successful implementation of ABC/M?
- How can SAP CO-OM-ABC module support implementation and maintenance of the ABC/M?
- What long-term effects on costs' reduction, profitability, and processes optimization could be expected from implementation of ABC/ABM?

From the research objectives, and because of the confidential character of certain Company data, it is evident that the qualitative approach will prevail throughout the study. This, on the other hand will not exclude quantitative analysis, wherever applicable. The research will first comprise review of literature on ABC/M models and SAP solutions related to it. The literature review will be focused not only to the theoretical standpoints regarding the methodology but will attempt to compile the prior experience on the ABC/M systems implementation worldwide, with special attention put on the telecommunication industry and SAP software as a supporting tool. This analysis will be based primarily on the secondary data collected from various relevant literature sources, including books, articles, reviews, etc. The other part of research will be focused on analyzing the existing processes in Ipko Telecommunications LLC, especially in the areas related to financial controlling. Along with the secondary data sources, such as company web-site, public documents, financial reports, and controlling models and procedures, it will apply primary data collection as well. The primary data is planned to be collected in a part through direct observation of activities and processes in the company, and by conducting interviews with the relevant officers in all departments of interest. In order to investigate the correspondence with other entities' experience on ABC/M, and search for the patterns of successful factors in its implementation, comparative analysis will be included in the study, having the companies' size, industry sector, products diversity, volume of overhead costs, development stage, market environment, strategy, organization, etc. Due to a lack of available data directly from the companies that have already implemented ABC or are in some stage of implementation, the comparative analysis will be primarily based on surveys available in the literature and professional journals.

1 ACTIVITY-BASED COSTING / MANAGEMENT CONCEPT

Activity-Based Costing is a rather recent methodology, developed around the idea that the real consumers of costs are the operating activities, not the cost centers. As a concept, it was introduced in the late 1980's and since then, implemented with more or less success in a significant number of business organizations and state institutions in various industries. A lot of surveys related to its perceived value and issues experienced during the implementation and maintenance of the system have been performed during the last couple of decades. They have shown quite contradictory findings, revealing many different opinions and understandings in regards to the model, besides the fact that in the meantime

some additional applications of the concept have been anticipated by experts and academics, resulting in development of the Activity-Based Management and Activity-Based Budgeting models.

One global on-line survey conducted in 2005 (Better Management, 2005), suggests that 55% of the respondent companies have implemented or are in the pilot phase of implementation of ABC, while additional 32% consider it as a desirable option to use. Most of the companies that have it implemented are large enterprises. In regards to the industry sector, the survey shows that it is widely used in communications and financial services. Most of the manufacturing companies are also considering its implementation. These results should not be surprising as they illustrate direct relation between the size of the company, ratio of overhead costs, its processes' complexity and products diversity with the need for implementation of sophisticated analytical models as ABC is. Regarding the primary purpose of ABC within the company, most of the respondents consider it as an instrument for better costing and costs control, while much lower portion primarily uses it in the areas of process improvement, product profitability and customer profitability. Finally, according to this survey, the companies face the biggest difficulties in the process of designing and building the model, gathering data and updating / maintaining the model, referring to the challenges related not only to the initial implementation of the system, but to its future maintenance, as well.

The results of another survey (Stratton et al., 2009) confirm that besides the debates on the cost-benefits effects, ABC in general provides enough value to the organization to justify the efforts spent on its implementation. Vast majority of the respondents agree that ABC method enables more accurate measurement and tracing of costs across the value chain, which makes it much more effective cost and profit measurement system compared to the traditional ones. In addition, according to the survey, 87% of the respondents believe that an ideal cost allocation method would include some form of ABC. According to this, ABC remains one of the most desirable models for the business entities, which may drive to assumption that its adoption rate will be growing in the future.

However, this is obviously only a part of the whole picture as there are numerous cases of failure and completely opposite standpoints regarding the assumed benefits of the model, turning attention to some important drawbacks resulting from its implementation. The debate on the potential advantages and pitfalls of different costing models, including ABC, still continues.

1.1 Costing methods – General overview

Tekavcic (1997) explains that the categorization of costs on the basis of various criteria has involved several authors, with their classification schemes, differing in the number and selection of the classification criteria, and also naming of the cost groups within certain

criteria. However, all authors include several cost categories, which can be structured in regards to:

- Elements of the business process that are causing the costs
- Possibility to assign the costs to individual cost objects
- Their origin, in regards to the selected business unit
- Period of the cost occurrence
- Period of impact on business results
- Their behaviour in case of the changing sales volumes
- Valuation of individual sales components
- Concepts relevant to decision-making process

Costing contributes to an understanding of how profits and value are created, and how efficiently and effectively operational processes transform input into output. It can be applied to resource, process, product/service, customer, and channel-related information covering the organization and its value chain. Costing information can be used to provide feedback on past performance, and to motivate and change future performance. Costing is thus an essential tool in creating shareholder and stakeholder value. Given its importance and breadth of scope, it is unsurprising that many different costing methods exist, both in the literature and in practice (PAIBC, 2009).

Costing has become an increasingly important topic in recent times mainly due to the necessity for better understanding of the value creation and profitability, and its components and drivers, in order to determine the factors influencing the efficiency and effectiveness of the operational processes and to better support the decision making process in today's turbulent business environment. During the last century, several costing methodologies have been introduced by academics and accounting professionals and exercised in the business practice. Experience shows that applicability of specific costing model largely depends on certain external and internal factors such as the industry type, company size, proportion of overhead costs, internal organization, processes' complexity, products diversification, etc. There are number of cases where the same model works perfectly for one organization, while delivering poor outcomes in another. For almost a century, standard costing was the most commonly used approach, but during the last couple of decades several other managerial and cost accounting techniques have been also introduced. Although there are many costing concepts developed in theory and applied in the business practice during the past decades, only a few of the most important will be noted in this text. Some of the generally accepted approaches include target costing, cost-volume-profit analysis, lean accounting, life-cycle costing, job-order costing, process costing, throughput accounting, marginal costing, grenzplankostenrechnung, resource consumption accounting and activity-based costing methods.

Standard costing approach was the most popular cost accounting tool until the early 1980's. It is based on a simplified assumption that the major part of costs, including direct material and direct labour, has standard behaviour on per unit basis. The technique uses standard projected costs rates for direct costs and allocates overhead costs on the basis of standard overhead cost rates, resulting in reporting of differences between actual and predefined standard rates. Generally, this method used to be satisfying the needs of business entities as long as manufacturing industries were the dominant part of economy. This is so because of the fact that they have most of the costs directly related to outputs, and very little ratio of overhead expenses. With the growth of service providing businesses and increasing portion of overheads in the areas of sales, research and development, finance and inventory management, the standard costing has become an obsolete concept and could not provide any further the quality of information needed to support the decision-making process.

Throughput Accounting is principally related to the Goldratt's Theory of Constraints concept, as it seeks to recognize the factors that limit the organization in achieving its goals. In this sense, it is a managerial tool, having focus on providing better intelligence that will support the decision-making process and profit maximization of the organization. The method puts its emphasis at three key measures: throughput, investments and operating expenses. Throughput (Oliver, 2004) is defined as difference between the sales and totally variable costs (direct materials), while the investments include the money tied up in assets and liabilities. Logically, the goal is to maximize profits by focusing to actions which will result in maximizing throughput, while minimizing investments and operating expenses. Many academics and business professionals have discussed the advantages and limitations of this popular concept, as well as its correspondence to activity-based methodologies. Some experts consider Throughput Accounting as a technique that can provide better results on a short-run, while the ABC/M is perceived to be superior long-term approach. On the other side, there are opinions that these two concepts are complementary and can both exist in the organization at the same time. In these regards, Cokins (2001) comments that "it should be clear that these various approaches are not in conflict with but can complement each other. Management information systems can be configured that combine their strengths. The application of cycle-time, resource availability, and resource expense is based on restrictive conditions and dependent on only the following characteristics:

- Theory of Constraints (TOC) information can be used for improving utilization of capacity constrained resources via reducing cycle times, scheduling with buffer management, or adding resources; selecting which "high octane mix" of products to make and sell to optimize short-term profits; developing demand-pull production plans; and supporting TOC's differential profitability formula to test decisions of all types.

- Absorption costing (including ABC/M) and responsibility accounting information can provide a cost flow assignment network in which the information can be used for

learning and drawing insights. This information can be used for profitability analysis (assuming a longer-term orientation) and process improvement. Caution is needed when using this information for estimating costs because some conditions can be restrictive. However, ABB/P appears to provide very reasonable projections of expense.

The debate over absorption costing or TOC need not be "all or none" proposition. Absorption costing and TOC principles can be combined for synergy. All methods and tools like these provide only partial solutions. Combining them creates the synergy to lead to a more total solution. Understanding how TOC and absorption costing can be integrated will help lessen the existing communication and credibility gaps among marketing, sales, operations, and accounting functions."

Marginal costing is an approach that is primarily used for the purpose of short-term decision making. Its centre of attention is the contribution margin, i.e. the difference between revenues per product and variable costs per product. It does not insist on allocation of overheads, as its main interest is put on maximizing the contribution margin per unit of output. Accordingly, this technique could be considered to be more applicable in companies with higher degree of direct variable costs, which are rather constant per unit over time.

Grenzplankostenrechnung *(GPK)* is typically used as both a variable costing and an absorption costing system. Some GPK purists use it primarily as a variable costing system to support short-term decisions, for example a production decision (to accept or reject an additional order based on its contribution margin), or a pricing decision. GPK application varies in complexity depending on an organization history, culture, and requirements (which in turn are determined by the complexity of its products and processes). It has introduced the concept of value chain integration in costing, and pioneered the information technology solution for the concept. Research has revealed high levels of satisfaction by users of GPK information and unequaled levels of sustainability for the approach. GPK focuses heavily on how resources are consumed and the modeling of causal relationships. It does not have the ability to support activity analysis, and assigns resource costs using direct tracing of resource outputs. This practice is one of GPK's weaknesses, in that back office areas generally are not conducive to such direct charging, or only achievable at significant measurement cost (PAIBC, 2009). GPK was introduced in Germany during the 1950s, and as a methodology it is a typical representative of the German strong controlling corporate culture. Also, on the basis of GPK, some other costing models were developed later on.

Resource consumption accounting *(RCA)* is a costing approach that provides decision makers with optimization information by combining learning, proven application, and sound decision support principles. The approach was conceived around the year 2000,

primarily as an amalgamation of the best of GPK and US ABC practices. RCA then spent the next seven years in an incubator environment to validate and refine its principles, concepts, and methods through practical case studies and research. Causality is a first principle in RCA, i.e., reflecting cause-and-effect relationships to enable managers' forward-looking projections. RCA uses three core elements in operational modeling that allows it to lay a very different foundation for its cost model compared to traditional costing approaches:

- The view of resources – resources and their costs are considered in this approach as foundational to proper cost modeling and decision support. An organization's cost and revenues are all a function of the resources that produce them.
- Quantity-based modeling – the entire cost model is constructed using operational quantities. Operational data is the foundation of value creation, and the leading indicator of economic outcomes.
- Cost behavior – value is added as a veneer to the quantity-based model, and costs/dollars behavior is determined by the behavior of the underlying resource quantities as they are applied to value-creating operations within an organization (PAIBC, 2009).

1.2 Definition of ABC

Activity-Based Costing (ABC) is a two-step procedure for assigning the overhead costs to products and services produced. In the first stage, significant activities are identified, and overhead costs are assigned to activity cost pools in accordance with the way the resources are consumed by the activities. In the second stage, the overhead costs are allocated from each activity cost pool to each product line in proportion to the amount of the cost driver consumed by the product line (Hilton, 2005).

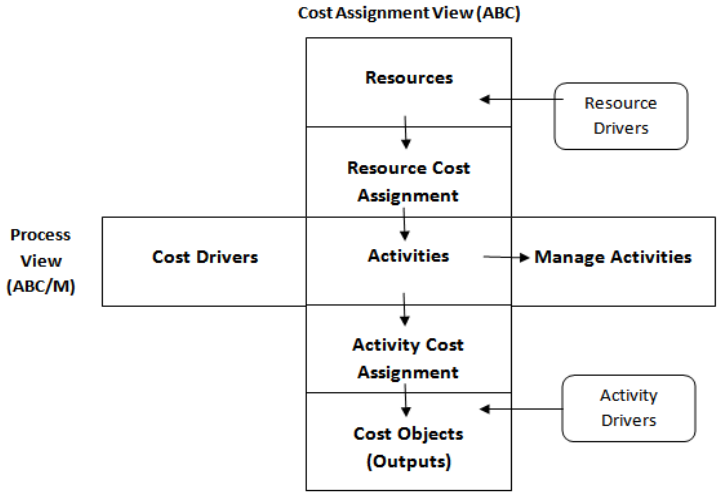
Activity-Based Costing is both a cost object (e.g., product, service-line, channel, customer) costing method, and a resource consumption method that can provide information useful in making strategic decisions about rationalizing products, services, and customers as well as operational process improvements. ABC addresses certain weaknesses of traditional absorption costing, and identifies the most appropriate way of tracing and assigning indirect and shared expenses (commonly referred to as overhead) to final cost objects by (a) identifying work activities performed to produce outputs, (b) assigning or mapping consumed resource expenses to the activities using resource drivers, (c) identifying outputs for which the activities are performed, and (d) assigning activity costs to the outputs. The sophistication of ABC systems varies between organizations. For example (PAIBC, 2009), greater sophistication can be associated with:

- A higher number of cost pools to better capture resource consumption by different products/services.
- A variety of cost drivers to more accurately measure resources consumed by cost objects.

- Directly assigning costs to cost pools or using a cause-and-effect resource driver.
- The extent to which transaction and duration drivers are used in the second stage allocation process (a transaction driver, like the number of setups, assumes the same quantity of resources is used every time when an activity is performed, whereas a duration driver, like setup hours, represents the amount of time to perform an activity).

Activity-Based Costing concept was introduced during the late 1980's, and has immediately got into focus of the academics and business experts. As the ratio of indirect in total costs of operations has been rising, the business entities were looking for a model that will better support the process of distribution and allocation of overheads to the final products or services. At higher volumes of indirect costs, the calculation of profitability on the basis of traditional costing methods provides somewhat distorted picture of the true profits realized from the customers or products sold. ABC model, with its embedded cause-effect logic, basically considers all costs as variable. It assigns the resource costs via activities to final cost objects. The rationale behind is that, actually activities are the real consumers of company resources, so the overheads have to be distributed to activities first, and after that to specific products, services or customers. Also, few years later, the activity-based costing method became a base for further development of the concept in the areas of process management and budgeting. Figure 1. shows the so-called ABC/M Cross, originally presented by the Consortium of Advanced Manufacturing – International (CAM-I) in 1990. The vertical line (Cost Assignment View) relates to activity-based costing, while the horizontal, Process View, relates to activity-based management.

Figure 1. Activity-Based Management Framework



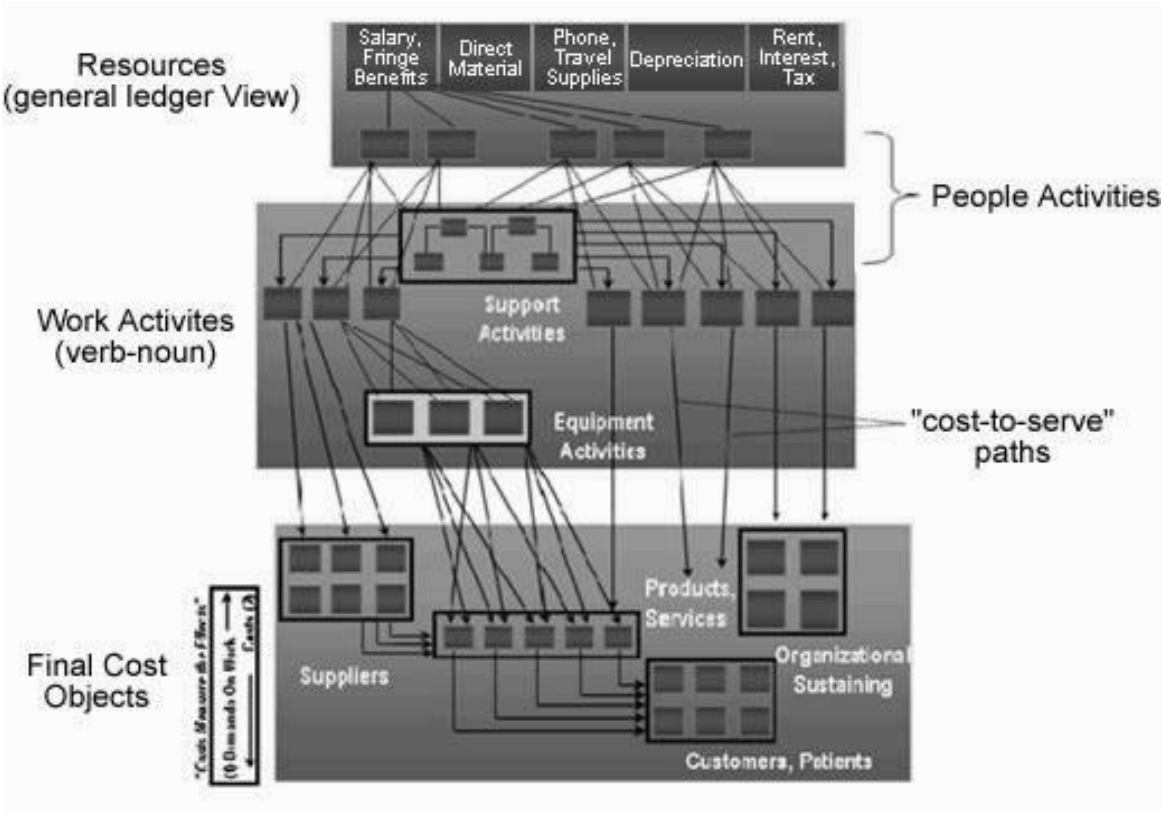
Source: G. Cokins, *Activity-based cost management: An executive's guide*, 2001, p. 15, Figure 1.6.

Cokins (2001), explains that cost assignment view represents the costs consumption chain, i.e. the work activities consume resources, while the cost objects (products and customers)

consume activities. In this sense, the vertical axis provides answers on the question ''what the things cost?''. On the other hand, the Process view axis gives answers on ''why the things have costs?''. Business process can be defined as a network of activities with a common purpose, where activity costs belong to the business processes. In this sense, ABC/M could provide the cost elements for process costing that are not available from the general ledger structure. Furthermore, the ABC technique uses drivers for costs assignment throughout the consumption chain: Resource drivers trace expenditures to work activities; Activity drivers trace activity costs to cost objects; Cost object drivers trace costs from one to another cost object(s). Additionally, the activity drivers could have their own, higher order cost drivers, which influence or cause the work activities.

Figure 2, presents the typical ABC Assignment Network diagram. The expenditures are traced from resources (cost centers/departments) to work activities, and then to products/services and customers (cost objects). Part of the costs of activities, which is not related to the outputs and/or customers (business sustaining costs) such as legal and administrative costs, is not assigned to final cost objects, in order to avoid distortion of the data and results regarding the products/customers profitability.

Figure 2. Cost Assignment Network



Source: G. Cokins, *Activity-based cost management: An executive's guide*, 2001, p. 145, Figure 2.9.

1.3 Activity-Based Management and Activity-Based Budgeting

Activity-Based Management (ABM) and Activity-Based Budgeting (ABB) are methods developed on the basis of Activity-Based concept, using the information produced by ABC.

Activity-Based Management could be defined as a tool for identifying, and evaluating activities within the business process, performing value chain analysis and process re-engineering on the basis of ABC, aiming to achieve a higher level of strategic and operational decision making process and increased profitability through costs optimization. Its focus is on better activities' management, in order to decrease costs and increase customer value. Kaplan and Cooper (1998) segregate ABM into operational and strategic: the operational ABM puts focus on identifying value adding activities and investigating the possibilities for cost cutting by elimination of non-value adding activities; while the strategic ABM relates to the product and customer profitability analysis with the purpose of supporting the decisions and increasing the overall profitability of the company. As the ABC basic standpoint is that the activities produce costs, ABM tends to increase profitability by eliminating all activities that do not produce value for customers, or they are not willing to pay for. The horizontal axis of ABC/M Cross (Figure 1.) represents the ABM perspective, i.e. the process view, with activities and their costs drivers and performance measures.

Cokins (2001), explains that the business process is a network of activities with common purpose, so the activity costs belong to processes. Business process based thinking is now the dominant managerial thinking, and ABC/M provides the cost elements for process costing which are not available from the general ledger structure and data. Cost drivers on the other hand are the trigger that causes the work activities to utilize resources in order to produce the outputs. They are drivers of a higher order than the activity drivers, and in contrast to activity drivers, do not need necessarily to be quantitatively measurable, but could also be described in words as a triggering event.

Activity-Based Budgeting is a technique built on ABC and ABM, and primarily refers to projecting and planning the required resources by using the data extracted from ABC calculation. This means that after the computation of cost, activity and resource drivers with ABC methodology, the projection of future costs could be done on the basis of targeted outputs or on the basis of different scenarios in regards to the sales volumes and structure. The projection of needed resources is actually done backwards in the ABC model, i.e. first the budget of the activities is being calculated by using the activity drivers, and then, by applying the predefined resource drivers, one can come to the required budget for the cost pools or departments.

Again, the rise of the necessity for more accurate planning of overhead expenses have been driven by the drastic increase of the ratio of indirect costs in the business organizations during the last couple of decades of the 20th century. In this regards, the Activity-Based Budgeting is considered to be much more in line with the real needs for resources for the given volumes and structure of cost objects because it applies the actual costs of activities and processes in the calculations during the planning process, and not using the arbitrarily projected costs of resources mainly based on the past periods, as it is usually the case with the traditional cost accounting and budgeting techniques.

1.4 Historical development and recent trends

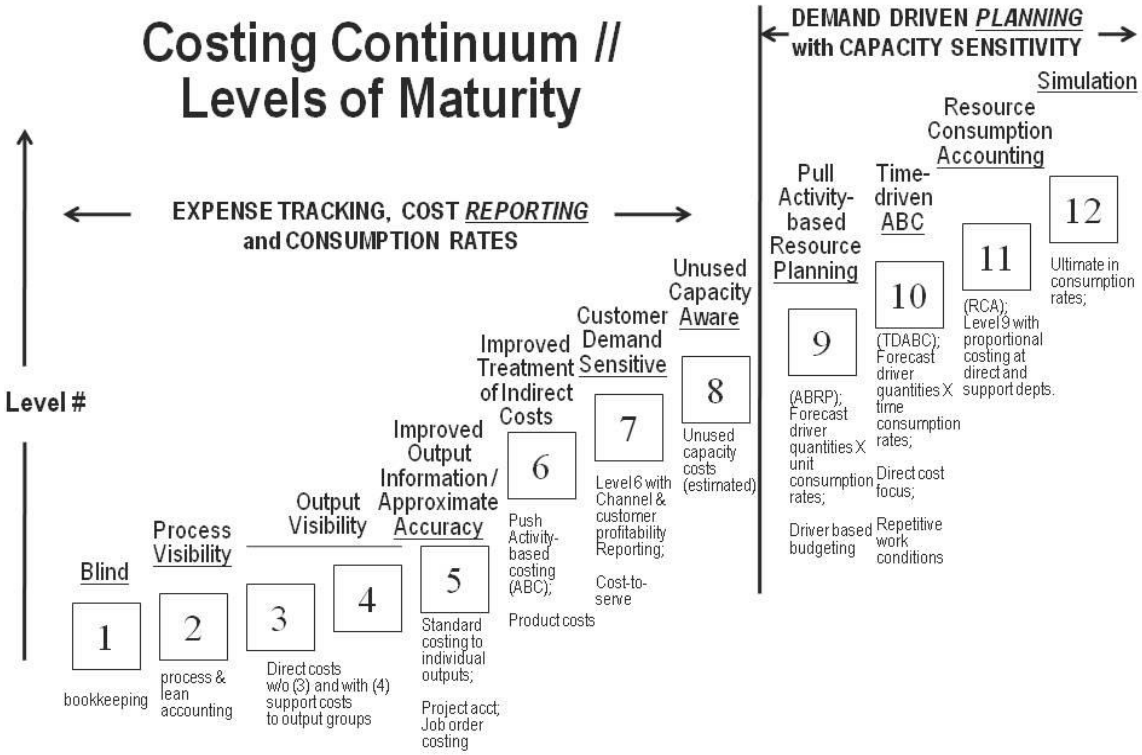
Since its introduction in the late 1980's (Kaplan, Bruns, 1987 and Johnson, Kaplan, 1987), the Activity Based Costing model has been widely accepted in theory as one of the most advanced cost and profit measurement methods and tool for overhead costs assignment to products, services, customers or other cost objects. In general, ABC has in large extent made obsolete the traditional cost management systems based on arbitrary overhead costs allocation, and enabled much higher level of accuracy in determination of actual costs of production as it seeks to identify the real cause-effect relationships in the process of indirect costs assignment. Moreover, it has become a base for development of new management and controlling approaches, such as Activity Based Management and Activity Based Budgeting. Finally, ABC/M is perceived as a model that could provide benefits not only in the area of cost control and product/customer profitability analysis, but maybe more importantly, in the area of processes' optimization and decision making as well, which could eventually lead to higher level of operational performance.

Activity analysis is undoubtedly one of the most common managerial tools today, since all modern concepts developed for the needs of improved effectiveness require understanding of the individual activities belonging to the business processes. This is also valid for the activity-based costing concept, since the activity analysis is closely associated with the life-cycle management and target costing concepts, which are besides ABC, among the most popular topics of the management accounting literature in recent times. Accordingly, Activity-Based Costing is not only an accounting model for accurate cost calculations, but is also an integral part of the comprehensive management system, developed on the basis of activity analysis (Tekavcic, 1997). According to Northrup (2004), the real value of lies in using it to achieve continuous improvement in conjunction with lean and Six Sigma programs, balanced scorecards and throughput accounting.

As a result of its obvious superiority, the assumptions on applicability of ABC were that it would gradually replace the traditional costing methods globally, especially in the manufacturing and service industries. However, after the initial enthusiasm during the late '80s and early '90s, the rate of diffusion of ABC has been lower than expected. Even Kaplan (1998) admitted that "ABC has stagnated over the last five to seven years". A lot of

controversy continues to follow ABC, due to contradictory standpoints in the academic society as well as the confusion regarding its practical applicability among the business professionals, which creates the so-called ABC paradox. The opponents' position is that the purpose of proper cost management system is to provide approximate but relevant cost data, rather than precise but irrelevant (Gosselin, 2007). On the other hand, the advocates of ABC believe that it will be back in vogue in times of economic down-turns, as it is excellent tool to distinguish the profitable customers from money-losers, i.e. for increasing profits without raising prices (Katz, 2002).

Figure 3. Costing Continuum / Levels of Maturity



Source: Professional Accountants in Business Committee – PAIBC, *Evaluating and improving costing in organizations*, 2009, p. 23.

The Professional Accountants in Business (PAIB) Committee of the International Federation of Accountants (IFAC) have published the International Good Practice Guidance (PAIBC, 2009) in attempt to systemize the already known costing methodologies and try to relate them with the stage of maturity of business organizations. PAIBC uses the Gary Cokins' table (Figure 3.) in order to illustrate the costing models continuum through different levels of the companies' maturity.

According to this document, an organization will evolve as it gains greater understanding, and as its complexity increases. This Costing Levels Maturity Model has 12 distinct levels of costing techniques along a continuum, where each level can provide greater accuracy, visibility, and insights. Broadly, in the early stages of development, an organization might have no, or very little and unstructured data usable for costing. Organizations can evolve from having a record only of financial transactions required for external reporting purposes, and therefore having costing data that is likely to be highly aggregated. At the simplest level, this is merely bookkeeping. The data is not structured in a format to transform departmental expenses into process costs, and then to further assign these costs into outputs and eventually to final cost objects, such as products or customers. Greater maturity allows the calculation of relevant product costs. Where cost data is used (without supporting operational data), the level of cost accuracy can be compromised by offsetting errors that are masked by overstated and understated product costs. A costing system that arbitrarily allocates the cost of resources to cost objects uniformly rather than proportionately, i.e. based on broad averages such as the number of units produced or direct labor input hours violates the causality principle. Consequently, that system would not reflect the underlying reality if the products consumed resources disproportionately compared to the non-causal broad averages, and could therefore give managers and employees misleading results. Such cost allocations are often a valid complaint of operational managers.

Applying Activity-Based Costing principles can represent the next step up, provided that it is correctly implemented to adhere to the causality principle. Activity-Based Costing substantially expands from having a traditional single cost pool and a single cost allocation factor. Activity-Based Costing provides traceability between intermediate cost objects, e.g. processing a standard versus special type of order and the final objects, including wider scope of an organization's resources and its processes to include channel-related and customer-related, i.e. costs-to-serve, costs. A sophisticated approach at the upper levels of the continuum of costing techniques provides ability to derive costs directly from operational resource data, or to isolate and measure unused capacity costs. For example, in the resource consumption accounting approach, resources and their costs are considered as foundational to robust cost modeling and managerial decision support, because an organization's costs and revenues are all a function of the resources and the individual capacities that produce them.

However, the cost models and supporting systems should reflect the underlying reality of the way the organization works, as far as affordability and materiality allow. The design, implementation and continuous improvement of costing models, data collection, and systems should be subject to a cost-benefit analysis. Such an analysis should consider how closely a costing system needs to depict the underlying reality to support good quality and valid decisions (PAIBC, 2009).

1.5 ABC Paradox and future prospects on ABC/M; Time-Driven ABC

Despite favorable context for the adoption and implementation of ABC and even though ABC has existed since 20 years, surveys have shown that the diffusion process for ABC has not been as intense as it may have been expected. This is the essence of what has been called the ABC paradox. If ABC has demonstrated so much benefits, why not more firms actually employ it? This ABC paradox still remains unexplained. Kaplan in 1986 suggested four explanations for the management accounting lag: the lack of adequate role models, the prevalence of computer-based accounting systems, the emphasis on financial accounting, and the fact that top management do not emphasize the improvement of the relevance of their management accounting systems. Almost 20 years after, these explanations are still relevant (Gosselin, 2007).

Besides its obvious theoretical superiority, ABC methodology has its drawbacks, especially perceived in implementation and maintenance areas. It has open huge debates among the academics and business experts, some related to the value of the concept itself, but most to the practical applicability of the methodology and questionable costs vs. benefits outcomes of its implementation. Even Robert Kaplan and Steven Anderson (2007) have acknowledged and categorized the main reasons for difficulties during the implementation and maintenance of the conventional ABC:

- the interviewing and surveying process is time-consuming and costly
- the data for the ABC model are subjective and difficult to validate
- the data are expensive to store, process, and report
- most ABC models are local and do not provide an integrated view of the enterprisewide profitability opportunities
- the ABC model could not be easily updated to accommodate changing circumstances
- the model is theoretically incorrect when it ignores the potential of unused capacity

In attempt to find a solution for these problems, they (Kaplan & Anderson, 2007) have promoted a simplified, so-called Time-Driven Activity Based Costing (TDABC) method, which could eventually eliminate the issues related to complexity and subjectivity of the conventional ABC models and suggests much easier and less expensive way to achieve the potential benefits of the ABC concept.

As Kaplan and Anderson (2007) further elaborate, the Time-Driven ABC should simplify the costing process by eliminating the need to interview and survey the employees for allocating the resource costs to activities before driving them down to cost objects. This model assigns resource costs to the cost objects using only two sets of easily obtainable estimates. First, it calculates the costs of supplying resource capacity, and second, it uses the capacity cost rate to drive departmental resource costs to cost objects by estimating the

demand for resource capacity (time) that each cost object requires. TDABC skips the activity-definition stage, and therefore the need to allocate the department's costs to the multiple activities the department performs. The time-driven approach avoids the costly, time-consuming and subjective activity-surveying task of conventional ABC. It uses time equations that directly and automatically assign resource costs to the activities performed and transactions processed. Only two parameters need to be estimated: the capacity cost rate for the department and the capacity usage by each transaction processed in the department.

It is evident that the TDABC model solves the issues of complexity and expensiveness of the conventional ABC, yet there might be certain concerns related to simplified process of activity mapping and threats for losing some quality and opportunities in the area of Activity-Based management. However, TDABC could be seriously considered as an option in all cases where there are constraints regarding the implementation and maintenance costs and processes' complexity.

1.6 Software support on ABC and SAP CO-OM-ABC module

Activity-Based Costing system in any organization should necessarily include some kind of software application which will process and store the large amount of data and perform complex analysis and calculations in a short period of time. According to Sedgley & Jackiw (2001) there are three possible solutions for ABC SW: custom developed system; stand-alone analytical ABC tool; and integrated enterprise resource planning system with embedded ABC functionality, such as SAP R/3. Since ABC is a costing philosophy for the entire organization, to be an integrated ABC system, the ABC philosophy must be supported in one system that represents the entire organization. The integrated systems (Sedgley & Jackiw, 2001) enable:

- One source of information for management reporting eliminating potentially conflicting data
- One system capturing actual information in real time for use in the ABC model. As transactions that impact the ABC model occur (e.g., process drivers being consumed or a G/L account posting), the ABC model is immediately updated with the data. Conversely, information calculated using the ABC model automatically updates throughout the system (e.g., inventory valuation with real-time updates to the financial ledger).
- One system for defining the organizational model used to support the ABM information produced. When new master data are added or the organizational environment shifts, the ABC model is simultaneously updated. For example, when a new customer is added, different pieces of information on that customer are entered into the master record. This new customer may be identified as a part of customer group 2. The integrated ABC model has cost-to-serve processes assigned to all customers in customer group 2 based on a driver. The ABC assignment is updated immediately by the addition of the new customer. Therefore, there is real-time

automatic update of the integrated ABC model whether due to changes in the master data or in the transactional data. Neither is stored in a different system.

The main advantages of integrated ABC with ERP software are: manual data entry is not necessary because data is transferred directly from the accounting software to the ABC module and automatic update of the accounting structure in the ABC model. Because of this, every cost/revenue metric in the accounting system is available for allocation decision purposes and assignment to ABC drivers. Since SAP uses real-time posting vs. batch posting, cost information based on the ABC model is available during and immediately after the accounting cycle. Most important, the system forces the accountant to assign a driver for cost allocation for a new cost element before the new setup can be saved. Thus, every element of cost is guaranteed to be distributed. There is one additional important advantage of the integration of ERP with ABC, the activity-based budgeting. Typically in the budget process, management decides on what goods and services it can sell for what price for the next period. Using the web of ABC drivers already set up in SAP and working backward from cost objects, the departmental costs can be accurately projected using a desired level of output. If this budget process turns up externalities such as overutilization of a resource, the tools in SAP can help management decide whether capacity should be expanded or part of production should be outsourced.

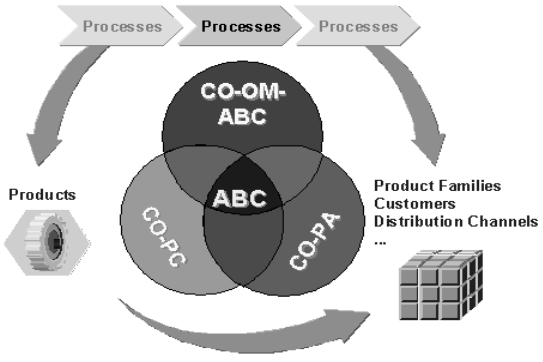
Activity-based costing has been an integral part of the SAP program since 1997, through Activity-Based Costing component (CO-OM-ABC) which provides a process-oriented, cross-functional view of overhead in addition to the traditional, location-oriented view provided by the Cost Center Accounting component (CO-OM-CCA). The Activity-Based Costing component thus enhances the Cost Center Accounting component. The Activity-Based Costing component allocates process quantities based on resource and process drivers, allowing the user to define cost allocation more exactly along the Value Added Chain than is possible with overhead rates. Activity-Based Costing likewise enhances product costing by assigning the sources of costs to their originating business processes. Cost center resources can allocate to business processes based on their true utilization of activities. By including ABC in profitability analysis, the organization can create more realistic views of its revenue position. The primary goal is not just improving individual aspects of processes, but rather optimization of entire process chains. Other goals of ABC include shortening lead times and improving quality.

As of SAP-R/3 System Release 4.0, one can use the Activity-Based Costing component parallel to the existing traditional cost accounting system, or can use it as an operational component integrated with product costing and profitability analysis in the Controlling component (CO). Parallel Activity-Based Costing (ABC) is used in order to provide strategic information for managerial decisions. In addition, the organization can define as many delta versions as desired with which the user can carry out alternative calculations. This allows displaying and analyzing a variety of what-if scenarios using ABC. The delta

version concept can be used in both plan and actual. Integrated Activity-Based Costing (ABC) fully integrates the Activity-Based Costing component (CO-OM-ABC) in the value flow of the Controlling component (CO), particularly the Product Cost Controlling component (CO-PC) and the Profitability Analysis component (CO-PA). Integrated ABC posts costs and quantities as real values, not statistical ones, to the participating objects.

Activity-Based Costing assigns overhead costs to products, customers, and other object in a way that is more correlated to cost drivers than traditional overhead allocation methods. The definition of cross-functional business processes in addition to the functional cost center standpoint opens a further dimension of overhead transparency in cost accounting. First, the resources consumed by Business Processes are assigned according to the true origins of the costs. The characteristic unit of measure for this assignment is known as the resource driver. In the second step, the business processes are assigned to the assorted receiver objects based on their actual utilization of resources. The assignment of business processes takes place via "process drivers", representing reasonable measurements of business process consumption. Receiver objects can be products, customers, sales channels, and other types of profitability segment ABC, in contrast with traditional cost accounting, allows a more realistic profitability analysis of different products and customers because the resources of overhead areas can also be taken into account via process consumption by market segments using the business processes. The primary costs in external accounting appear as primary cost element assignments to the responsible cost centers. In this way, the cost center structure offers a complete view of organizational overhead. The resources relevant to the business processes are provided in their entirety by the cost centers. This means that the user cannot make direct postings of primary costs from external accounting on business processes.

Figure 4. Activity-Based Costing in the SAP System



Source: SAP AG, *SAP Library*, 2011

In general, SAP distinguishes between two different techniques used for assigning cost center resources to business processes (via resource drivers) and allocating business processes on the corresponding receiver objects (via process drivers). Both techniques are

treated here as pure cost distribution (Push Approach) and as quantity tracing (Pull approach). Deciding for one of the two approaches has far-reaching consequences for the use of ABC as a management tool in the organization. The SAP System supports numerous allocation methods that allow the realization of both approaches to Activity-Based Costing (SAP AG, 2011).

1.7 Surveys on ABC/M concept and implementation practices

As the qualitative analysis prevails in this study, the data collection will be based primarily on review of the available and applicable literature and surveys on ABC/M implementation including associated IT and SAP solutions, as well as on analysis of related processes in Ipko Telecommunications LLC and questionnaires replayed by the key financial officers of the Company.

The research will firstly comprise review of literature on ABC/M models and SAP solutions related to it. The literature review will be focused not only on theoretical standpoints regarding the methodology but will attempt to compile the prior experience on the ABC/M systems implementation worldwide, with special attention put on the telecommunication industry and SAP software as a supporting tool. This analysis will be based primarily on the secondary data collected from various relevant literature sources, including books, articles, reviews etc.

The other part of research will be focused on analyzing the existing processes in Ipko Telecommunications LLC, especially in the areas related to financial controlling. Along with the secondary data sources, such as company web-site, public documents, financial reports, and controlling models and procedures, it will apply primary data collection as well. The primary data is collected, in part through direct observation of activities and processes in the company, and by conducting interviews and questionnaires with the relevant officers in financial department.

In order to investigate the correspondence with other entities' experience on ABC/M, and search for the patterns of success factors in its implementation, comparative analysis will be included in the study, having the companies' size, industry sector, products diversity, volume of overhead costs, development stage, market environment, strategy, organization into consideration, etc. Due to a limited availability of data directly from the companies that have already implemented ABC or are in some stage of implementation, the comparative analysis will be primarily based on surveys available in the literature and professional journals.

Since its introduction, there have been a significant number of various surveys on ABC implementation practices throughout the world in different industries. For the purpose of this study, the focus will be put on experiences in service industries, more specifically the

telecommunication sector, including also collection of relevant data in terms of company size and business specifics. As there is no considerable number of cases of model implementation in the surrounding region, the research will attempt to include comparable data from similar business environments. In addition, the data collection will cover experience on applied information support systems, such as SAP. The scope of the data collection from performed surveys includes characteristics of implementations, perceived positive and negative effects, lessons learned and impact on the companies' processes, strategy and business success.

1.7.1 Implementation practices

During the last twenty years, there have been numerous researches and surveys examining the topics and issues related to ABC implementation practices as well as the critical success factors influencing the implementation of ABC. However, almost all of the surveys have been carried out in advanced economies, while a very little number of completed studies are relevant for organizations in developing countries. Having these limitations, this study will compile some of the key findings of the available literature on the implementation practices and the most important success factors, related to it.

1.7.1.1 General

Today, Activity-Based Costing and Management is one of the most researched management accounting concepts in developed countries, while in the developing economies the research base is still limited. The scope of the studies usually include the diffusion rates of ABC/M in various countries and business segments, the reasons for its adoption as well as success and failure factors influencing its implementations. However, due to the fact that number and scope of researches on ABC adoption and implementations significantly varies among different economies and industries, the results could be often perceived as confusing and even contradictory. Yet, most of surveys show increasing trends in adoption of ABC, especially in the service sectors.

Gosselin (2007) has identified and classified 1477 articles and books published on ABC during the period 1988 – 2004, and concluded that, after the initial enthusiasm, their number and interest on ABC gradually declines after the mid-nineties of the last century. According to this, the early studies were concentrated on ABC implementations and their outcomes, while the latter researches have more in focus the factors influencing the implementation of ABC. In addition, he has reviewed the surveys on ABC adoption and implementation in several countries, during the period 1990-2005. The summarized results of this analysis are presented in Table 1. He notices that many have argued that the use of the survey method in management accounting does not enable to gather valid data and it is even difficult to evaluate to what extent ABC is really used within organizations. There are some factors that may lead us to the conclusion that implementation rates of ABC are

overestimated. First, in most survey studies on ABC, respondents were working in the management accounting area, their responses may not necessarily reflect the perception of other managers. Second, the concept of ABC is not clearly defined in most surveys. Thus, there may be some confusion about what ABC really is.

Table 1. Implementation of Activity-Based Costing

Survey	Country	Population	Response rate	Period	Implementation / Adoption rate
NAA (1991)	United States	CMAs of 2,500 firms	23%	Spring, 1991	11% had implemented ABC
Innes & Mitchell (1991)	United Kingdom	1990 survey of manufacturing and financial service firms	26%	September, 1990	6% began to implement ABC, 33% were considering, 52% had not considered ABC, 9% had rejected ABC
Ask & Ax (1992)	Sweden	Engineering industry	67.3%	January–April, 1991	2% are applying ABC, 23% are considering
Bright et al. (1992)	United Kingdom	Manufacturers	12%	Latter half of 1990	32% are re-applying ABC
Nicholls (1992)	United Kingdom	179 companies that attended an ABC seminar in May 1990	34.6%	January, 1991	10% had implemented ABC, 18% were piloting ABC techniques
IMA (1993)	United States	CMAs of 1,500 firms	27%	Spring, 1993	36% had implemented ABC
Armitage & Nicholson (1993)	Canada	Financial Post list of 700 largest companies in Canada	50%	Summer, 1992	14% are applying ABC, 15% are considering
Drury & Tayles (1994)	United Kingdom	Sample of 866 business units drawn from a population of 3,290 manufacturing firms	35%	1991	ABC has been introduced in 4% of the firms, 9% are planning the introduction, 37% are considering ABC, 44% had not considered, 5% rejected ABC
Innes & Mitchell (1995)	United Kingdom	Firms listed in TIME 1000	33.2%	Early 1994	21% currently use ABC, 29.6% are considering, 13.3% have assessed and rejected, and 36.1% have not considered
Lukka & Granlund (1996)	Finland	Manufacturing firms	43.7%	November 1992 to January 1993	25% were considering, 5% were implementing
Bjornenak (1997)	Norway	Manufacturing organizations	57%	1994	40% wanted to implement, were currently implementing, or had already implemented ABC
Gosselin (1997)	Canada	Manufacturing strategic business units	39.5%	October, 1994 to January, 1995	30.4% are implementing ABC
Groot (1999)	Netherlands and USA	Food industry	24% and 17%	1994–1995	17% (USA) and 24% (Netherlands) are implementing ABC
Clarke et al. (1999)	Ireland	Manufacturing firms in the Business & Finance listing of Ireland	41%	Not mentioned	11.8% currently use ABC, 20.6% are considering, 12.7% have assessed and rejected, and 54.9% have not considered
Innes et al. (2000)	United Kingdom	Firms listed in TIME 1000	22.8%	1999	17.5% currently use ABC, 20.3% are considering, 15.3% have assessed and rejected, and 46.9% have not considered

(table continues)

(continued) Survey	Country	Population	Response rate	Period	Implementation / Adoption rate
Bescos et al. (2002)	Canada and France	Financial Post 500 in Canada and members of the Association of Financial Directors and Management Accountants	21.2% in Canada and 4.7% in France	Spring and summer of 1999	23.1% of firms had adopted ABC in Canada and 23% in France. 9.3% were examining the possibility of adopting ABC in Canada and 22.9% in France
Cotton et al. (2003)	New Zealand	Corporate sector members of the Institute of Chartered Accountants of New Zealand (organizations with more than 100 employees)		September, 2001	20.3% currently use ABC, 11.1% are considering, 10.8 have assessed and rejected, and 57.8% have not considered
Kianni & Sangeladji (2003)	USA	500 Fortune largest industrial corporations	21.6%	Fall, 1999	40% recently started implementing, 11.8% are having ABC well established
Pierce (2004) and Pierce & Brown (2004)	Ireland	Top 500 companies and top 50 financial services companies from the 2001 Business and finance listings of top Irish firms	23.2%	June, 2002	27.9% currently use ABC
Cohen et al. (2005)	Greece	Leading Greek companies in the manufacturing, retail, and service sectors	31.1%	March to May 2003	40.9% of adopters, 31.9% of ABC deniers, 13.6% of supporters, and 13.6% of ABC unawares

Source: M. Gosselin, *Review of Activity-Based Costing: Technique, implementation and consequences*, 2007, p. 651- 654, Tables 3-5

1.7.1.2 Telecommunication industry

With expansion of service industries in recent decades, there is increasing interest on applying advanced management and costing methodologies such as ABC/M. The rationale behind is clear: proportion of indirect vs. direct costs has sharply shifted in favor of overheads, which requires employment of much more sophisticated methods and systems of indirect costs' assignment to cost objects, i.e. services, customers, customer groups, distribution channels etc.

Although the origins of ABC are in the manufacturing businesses, the concept has been proved to be even more applicable and beneficial for the service industries, more specifically in the public utilities segment, banking, health institutions, education, and telecommunication sector. Almost all of the costs in these areas are overheads and fix over period of time, in contrast to manufacturing where still, the major portion of costs are direct and variable to the volume of production and sales.

Cooper and Kaplan (cited in Szychta, 2010) state that in service companies, e.g. banks, many of the expenses are driven by products (services) – saving accounts, commercial loans, home mortgages, etc. but many expenses for service functions are caused by individual customers demands rather than by service demands. ABC systems in service entities have to take, first of all, the customer behavior into account, which is a feature distinguishing these systems from Activity-Based Costing as used in manufacturing enterprises.

Service companies typically offer a highly diverse set of services. Each service, with its characteristics, makes different demands on the organization's resources. Service enterprises must continually asses the economics of their service line variety, making decisions on pricing, quality, responsiveness and introduction as well as discontinuance of individual services. The cost and profitability of individual services, established on the basis of data from ABC system, are very important to such decisions. Beyond service-related decisions, service companies must focus on customer economics far more than manufacturing companies. In manufacturing firms only the cost of marketing, selling, order handling, delivery and service of the products might be customer-specific. For service companies, in contrast, even the basic operating costs of standard service are determined by customer behavior (Kaplan and Cooper, 1998).

The above statements are also valid for the telecommunication industry, which faces huge market and technological changes in terms of services diversification and convergence, and increased competition by the new alternative providers, on the other side. In addition, the telecommunication carriers experience have significantly increased requirements by the state regulators in the area of interconnect charging between operators, followed by the continuous pressure on optimization of costs that are subject to calculation of interconnect prices. Perceived areas where potential benefits of ABC/M implementation could be achieved are as follows:

- Cost controlling, i.e. more appropriate cost allocation / assignment to services and customers and reduction of costs on the basis of activity-based analysis
- Process optimization
- Decisions related to product / sales mix
- Decisions on pricing
- Budgeting and Business Planning
- Prevention of service / customers cross-subsidizing
- Supports proper calculation of interconnection tariffs between telecommunication operators
- Supports improvement initiatives and serves as a basis for implementation of advanced management methodologies, such as TQM, VBM, BSC, etc.

Activity-Based Costing has been discussed a lot among the industry experts, especially during the last decade, as an opportunity for improvement of existing costing systems. It is rather obvious that traditional costing methods could not provide accurate data for cost controlling and budgeting as well as quality information on profitability of the products and proper pricing decisions. Typical for the telecommunication industry is a dynamic technological and market environment, causing constant changing of cost structures and drivers.

The saturation of telecommunication markets and pressure on prices, profitability / profit margin per customer, becomes much more important than traditionally one of the key parameters, average revenue per user (ARPU). In addition, the service combinations, offered on the market as bundled products, have significantly increased the necessity of sophisticated profitability tools and models in order to understand and control the real profit drivers in the telecommunication business. Traditional cost methodologies cannot provide required level of accuracy to cope with the complex service and product combinations that have recently become typical and commonly offered on the market. The development of telecommunication technologies, which was the main precondition for bundling the products, also put the analysts and business experts in position where the key factor of success is determination of true costs of services / customers and finding the optimal and most profitable product / technology combinations which are to be offered to the increasingly demanding customers. In these regards, not all the customers have equal usage behavior, so employment of simple cost allocation methods will not provide clear picture of each customer or customer segment profitability. Applying the fixed pricing models per period (‘all you can eat’), where customers receive high-end handsets and certain amount of traffic included in monthly fee, it becomes of crucial importance to understand customer profitability, as not all of the customers use the same volume of service and resources provided by the operator. Moreover, the technology and marketing shift caused that telecom operators are pushed to provide third-party services such as television and internet content and applications, gaining squeezed profit margins after paying royalty fees and licenses to the content providers. These business offers also require more advanced analytical approach and tools in order to understand impact of these sales on customer or service profitability. Finally, operators are interested in identifying the true costs and profitability of the technical network they employ, which becomes increasingly difficult in recent times where various logical networks and protocols share the same transmission network, thus turning the traditionally directly attributable costs into indirect, which will have to be additionally allocated to specific services and customers.

Besides the causes related to telecommunication technology and market, there is one more important reason why the telecom operators with significant market power (SMPs) have to consider ABC as a costing methodology to apply: for the purpose of fair cost calculations and pricing between the providers of telecommunication services, the EU regulations require that those operators are in obligation to apply the principle of cost causation, i.e.

some sort of activity-based indirect costs allocation, which should be used in accounting and accounting separation.

The potential problems in implementing ABC/M in telecommunication sector are mainly related to complexity and continuous technological and market changes. However, there are also some subjective reasons, such as: inadequate communication among employees, lack of management commitment and vision accompanied by the employees' resistance on implementing system of detailed tracking of their day-by-day activities. Some of those issues could be solved by applying of the less complex Time-Driven Activity Based Costing method.

In regards to the benefits, it is obvious that successful implementation of ABC/M in telecom providers could result in much better understanding of profit drivers throughout the technical and commercial processes, but certainly the most important is that the company can gain significant long-run competitive advantage in the area of pricing and cost controlling, which are considered to be the key success factors in this continuously changing industry segment.

1.7.1.3 SAP CO-OM-ABC module

Implementation of ABC/M requires employment of sophisticated software application that will support tracking and analyzing of massive volume of data throughout the period, and will also provide planning functionalities and what-if simulations on the basis of activity-based concepts. Worldwide, there are several SW tools already established as a 'top of class' systems in this area: SAP, Oracle, Acorn Systems, QPR CostControl and SAS, which in 2002 acquired ABC Technologies, owner of then the best selling ABC software - OROS. In addition, there are some less prominent ABC software providers, such as MyABCM, Lead Software, Pilbara Group, FlexABM etc (PCS Consulting, 2011).

As an ultimate purpose of ABC implementation is to support and improve the decision-making process, it is of crucial importance that ABC/M system has to be in some way integrated in the overall performance management and measurement system of the company. This, on the other hand, means that the software has to be flexible and adaptable in order to follow frequent changes in business and organization of the enterprise. It is also important to notify that the standalone ABC SW applications, running in parallel to the existing ERP systems are losing share on the market. The clients are more interested in employing integrated solutions with the rest of their systems, i.e. prefer the built-in ABC functionalities in the ERP and EPM systems in use.

Additionally, according to Sedgley and Jackiw (2001), some ABC companies have independently built interfaces to various ERP packages. The maturation of ERP systems to include ABC functionality is an indication that the ABC costing philosophy is here to stay

and is now considered a common or standard method for costing and supporting management analysis. Within SAP, ABC is no longer used as just an analytical tool but is integrated as a part of the normal operational costing engine. The acceptance of the ABC costing philosophy into ERP systems raises several questions. For example, are ERP systems a replacement for stand-alone ABC applications? Are there benefits in utilizing both software products? Are there potential philosophical differences in how ABC is applied in each? Going beyond its CO-OM-ABC module, SAP AG in 2007 acquired Business Objects and its Profitability and Cost Management (PCM) system. PCM is originally a product of Armstrong Laing Group (ALG), acquired by Business Objects in 2006.

As PCM system (Madhav, 2010) has evolved outside SAP, it is different from SAP's typical products in many aspects. It has got better and intuitive user interface; offers the flexibility; and can be owned by business without much IT support. Some of the key PCM features are: inbuilt ABC engine; transactional costing; data integration with heterogeneous sources; data input, validation and correction; what-if simulations; native reporting tool; and driver analysis. It is however, still similar to other SAP products in the way that it provides best-in-class functionality for its offering area. SAP PCM provides significant business benefits, the most important ones are as follows:

- Insights for better management of cost and profitability
- Flexibility
- Supports decision making
- Aids in planning process
- Business owned system
- Reduced Total Costs of Ownership (TCO)

Evidently, SAP as a leading ERP system worldwide, is putting special focus on further development and integration of advanced management tools such as Activity Based Costing and Management in its performance management package. It is expected that this trend, not only in case of SAP, will continue in the following years, as the stand-alone ABC applications require significant additional efforts related to integration and data collection.

1.7.2 Benefits and pitfalls from ABC/M

During the last two decades, there has been an ongoing debate on the benefits and shortcomings of ABC model. Kaplan and Anderson (2007) state that: "Activity-based costing seemingly solved the inaccurate allocation of overhead from standard cost systems by tracing these indirect and support costs first to the activities performed by the organization's shared resources, and then assigning the activity costs down to orders, products and customers on the basis of the quantity of each organizational activity

consumed. Managers used the more accurate ABC and profitability information to make better decisions about process improvements, order acceptance and rejection, pricing, and customer relationships. The decisions led to near-term and sustainable improvements in product and customer profitability." Furthermore, in regards to the weaknesses of the concept, they note that: "People also questioned the accuracy of cost assignments based on individuals' subjective estimates of the percentages of their time spent on various activities. Apart from the measurement error introduced by employees' best attempts to recall their time allocations, the employees anticipating how the data would be used might bias or distort their responses. As a consequence, operations, sales, and marketing managers argued about the accuracy of the model's estimated costs and profitability rather than addressing how to improve the inefficient processes, transform unprofitable products and customers, and cope with the considerable excess capacity that the model had revealed." Hopper et al. (2007) summarizes three main criticisms related to ABC/M concept: First, it may be only a refinement of traditional management accounting rather than an original approach. Second, there are technical pitfalls and limitations and ABC/M is unable to compute accurately full product costs. Third, ABC/M is costly to implement and operate and often generate resistance and conflict. Kaplan and Anderson (2007) also noticed that one of the major weaknesses of the ABC applications is related to recording of unused capacity: "Few individuals record a significant percentage of their time as idle or unused. Therefore, almost all ABC systems calculate cost driver rates assuming that resources work at full capacity. But operations at practical capacity are more the exception than the rule. ABC cost driver rates should be calculated at practical capacity, not at actual utilization."

Cokins (2001) explains that: "Relative to project accounting, activity-based costing does not tolerate incurring the significant administrative effort to directly code every source-to-destination relationship for every transaction event at the cost-intersection. Instead, activity-based costing allows the costs for common activities to be reasonably estimated, regardless of who performs them. Then a distribution of all the events, referred to as activity drivers, is used as the basis to assign the source work activity costs (traditionally called "cost pools" by accountants) to the final cost objects. However, in activity-based costing the cost assignments are restricted to only the products or service lines (or projects or work orders) actually consuming the activities and the driver quantities are the totals for the period regardless of whether they occurred earlier or later in the time period. In this way, activity-based costing spares an organization from the tremendously greater effort to cost-link all the work activities at the individual transaction level. With activity-based costing the assignment path itself serves to ensure that there will be no charge to an undeserving (i.e., non-consuming) cost object. Hence, reasonable accuracy with minimal effort is attained".

Innes et al. (2000) present the results and their comparison of ABC surveys conducted in 1994 and 1999 in the UK largest companies. The outcomes related to the purpose of ABC implementation are listed in Table 2.

Table 2. Overall and Specific Success Rating Association

Purpose	1999 survey			1994 survey		
	Lin- by Lin	p-value	Rank	Lin- by Lin	p-value	Rank
Cost Reduction and Cost Management	10,45	0,001	3	8,87	0,003	3
Product or Service Pricing	5,77	0,016	6	0,36	0,546	9
Activity Performance Measurement and Improvement	8,15	0,004	5	6,94	0,008	4
Cost Modeling	10,01	0,002	4	9,65	0,002	2
Budgeting	0,08	0,782	9	12,83	0,000	1
Customer Profitability Analysis	13,00	0,000	2	4,15	0,042	7
Product or Service Output Decisions	5,27	0,022	7	1,63	0,202	8
New Product or Service Design	16,25	0,000	1	4,75	0,029	5
Stock Valuation	0,30	0,584	8	4,26	0,039	6

Source: Innes et al., *Activity-based costing in the U.K.'s largest companies: A comparison of 1994 and 1999 survey results*, 2000, p. 357, Table 8

The test statistic (Innes et al., 2000) focuses on the linear-by-linear aspect of the association and its use is broadly equivalent to, but more appropriate than, use of the correlation coefficient for ordinal data (which is the type of data obtained from the Likert scales employed in these questions). Large values of the test statistic indicate a high degree of association, as do small p-values. The rank column indicates the relative strength of association for each individual purpose (from 1 = highest to 9 = lowest), and helps to identify changes in the pattern of association from the 1994 to the 1999 survey. In the 1994 survey, respondents associated overall success very significantly (i.e. at the 1% level) with Budgeting, Cost Modelling, Cost Reduction and Cost Management, and Activity Performance Measurement and Improvement, and significantly (i.e. at the 5% level) with Customer Profitability, New Product or Service Design and Stock Valuation. In the 1999

survey, respondents associated overall success very significantly with New Product or Service Design, Customer Profitability Analysis, Cost Reduction and Cost Management, Cost Modelling, and Activity Performance Measurement and Improvement, and significantly with Product or Service Pricing and Product or Service Output Decisions. The high significance accorded to performance measurement and improvement in both surveys mirrors the importance attributed to this variable in the U.S.A. research. The majority of the purposes were therefore seen as significant aspects of overall success in both periods. The exceptions are: (1) Budgeting, which conspicuously declined in importance from a rank of 1 to a rank of 9, and from very significant to not statistically significant; (2) Stock Valuation, which decreased in importance from a rank of 6 to a rank of 8, and from statistically significant to not significant; (3) Product or Service Pricing, which increased in importance from a rank of 9 to a rank of 6, and achieved statistical significance; and (4) Product or Service Output Decisions, which also increased in importance from a rank of 8 to a rank of 7, and reached statistical significance.

Gosselin (2007) comments that: "ABC is considered one of the most important innovations in management accounting of the twentieth century. Although ABC is very attractive from a conceptual point of view and it has been included in all management accounting textbooks and most business school curriculum, surveys have shown that it has not been considered by the majority of organizations and that it has been abandoned by many organizations that had sometimes in the 1990s decided to adopt and implement it. Survey studies have also demonstrated that there is, in practice, some confusion about what exactly ABC is and that it is very difficult to investigate on the implementation of ABC without, at first, clarifying the definition of ABC with managers. This confusion is probably, with other methodological difficulties, the explanation for the decrease in the number of surveys on ABC since 2000. Several factors influence the adoption and the implementation of ABC. A number of studies have shown that factors such as size, strategy, environmental uncertainty, and product diversity affect the decision to implement ABC. More refined investigations, based on the innovation literature, have demonstrated that the impact of these factors is different according to the stages of implementation. Therefore, the need to understand at what stage an ABC project becomes essential to study the factors that influence the implementation of ABC and its success. Research on the impact of ABC on performance has also shown that the implementation of ABC does not clearly improve performance and firm value. Despite all these mixed results, most academics and practitioners will agree that ABC, since its emergence, had an important influence on the development and the renewal of management accounting and on the role of management accountants." Gosselin (1997) summarizes that "After all, the ABC paradox remains. Regardless of the inclusion of ABC in most management accounting textbooks, the large number of ABC seminars, the consulting activities, the ABC software, and the large number of articles published on ABC, why firms are not implementing ABC and furthermore why some that have adopted ABC, have decided to abandon it."

1.7.3 Success and failure factors

In order to discover the causes of ABC implementation success or failure, the researches have put the main focus on the factors determining the adoption and implementation of the concept. Most of the studies differentiate success factors as technical and behavioral & organizational. Technical factors include identification of key activities and cost drivers, data collection, etc. and are typical for the early researches. On the other hand, the organizational and behavioral success factors relate to management commitment, corporate culture, training programs, involvement of non-accounting staff etc.

The studies on the ABC success factors in the early years have been focused almost exclusively on the technical variables related to implementation of the model. However, it was soon realized that these factors did not provide enough ground for explanation of the main issues. Cooper and Kaplan (1992) argued that the key problem during ABC implementation stage is that companies only focus on technical factors. They suggested that to make ABC implementation more effective, non-technical factors such as involvement of non-accounting in ABC implementation process, top management championship, adequate training program to employees about the objectives and benefits of ABC should be emphasized, as well. Similar opinions were expressed by Shields (1995), who found no significant relationship between the technical factors and ABC success, and Shields and McEwen (1996), who highlighted that sole emphasis on the architectural and software design of ABC systems leads to the failure of ABC implementation. The conclusion was that new variables should be considered in order to investigate and identify the key factors influencing ABC success.

Krumwiede and Roth (1997) have stated that barriers of ABC implementation can be overlapped if firms put more importance to behavioral and organizational variables. They have also found out that the dominant factors that determine ABC success implementation vary at different stages of implementation. Krumwiede (1998) has completed a survey on U.S. manufacturing firms in order to examine how the contextual factors, such as the potential for cost distortion or size of firms; organizational factors, such as top management support, training or non-accounting ownership, affect each stage of ABC implementation process. His findings showed that there are different affecting factors in the various stages of implementation of ABC and the degree of importance of each factor varies depending on the implementation stage. Contextual factors, such as usefulness of cost information, IT existence, lower level of task uncertainty and large size of the organizations, were related to ABC adoption. Moreover, organizational factors, such as top management support, non-accounting ownership, and implementation training affect positively on the success of ABC implementation. He concluded that contextual factors may influence on the ABC adoption, while the implementation stage is more associated with organizational factors. He also suggested that once a firm arrives at implementation stage, it should pay more attention to organizational factors. In regards to the

organizational factors, Shields and Young (1989) have identified seven behavioral and organizational variables important to cost management practices:

- Top management support
- Linkage to competitive strategies
- Performance evaluation and compensation
- Non-accounting ownership
- Sufficient resources
- Training in designing, implementing and using cost management system
- Consensus about the clarity of the objectives of the cost management system

Gosselin (1997) examined the effect of organizational structure on ABC success and suggested that the effects of organizational culture and structure on ABC success should not be ignored. Colin and Mohammed (2007) used behavioral and organizational factors to investigate reasons influencing the adoption and degree of success of ABC systems as well as the determinants of that success. They found out that top management support, non-accounting ownership, adequate training provided to ABC determined the ABC success.

Anderson and Young (cited in Gosselin, 2007) have attempted to evaluate the impact of contextual and process factors on the success of ABC implementations in two manufacturing firms. The objective was to link empirical studies of correlates of ABC implementation with process theories of ABC implementation and to provide model stability across number of dimensions. The overall evaluation of ABC is influenced by the reward environment and quality of the existing information system. The accuracy of the ABC information is related to adequacy of resources devoted to the ABC project and if the respondent felt need for change. The use of ABC data is related to top management and local union support, adequacy of resources devoted to the project, respondent commitment to organization, if the respondent felt the need for change, likelihood of employee layoffs and rewards environment. The model was stable across firms and respondents, but was sensitive to the maturity of the ABC system, again confirming the need to distinguish between the stages in the implementation process.

Gosselin (2007) also notes that the studies on the impact of contextual factors on the success of ABC have provided empirical evidence that some factors are helping to improve the success of the ABC implementation process. Even though, the measurement of ABC implementation success is not trouble free. These studies have essentially relied on managers' perception.

Evidently, although the number of studies and surveys on this issue conducted in developed countries is significant, the results have not been persuasive. Yet, it is a common standpoint that technical variables are not sufficient in explaining ABC implementation results. The impact of organizational culture, organizational structure and

other behavioral & organizational factors has to be also considered and analyzed in order to better understand the true drivers of success and failure in implementation of ABC/M.

2 IPKO TELECOMMUNICATIONS LLC

2.1 Company profile and organization

IPKO Telecommunications LLC is the fastest growing provider of telecommunication services on the territory of Kosovo, majority owned by Telekom Slovenije Group, the largest Slovenian telecommunications operator. The Company operates with 539 employees (year-end 2009) from its headquarters in Pristina, while its direct sales network includes 17 points of sale in major towns in Kosovo.

Established in 1999, IPKO has grown from being the first Kosovo-wide Internet provider to becoming a modern enterprise offering full range of integrated services as well as content, in mobile communications, fix telephony, digital cable television, internet services as well as media. With its arrival to the Kosovo telecommunications market, IPKO introduced competition within mobile telephony in Kosovo. The prices have been cut down and the quality level of services has been raised to the highest possible level. Within one year of mobile operations IPKO managed to cover with the network more than 99.7 percent of the country's population. For less than one year IPKO achieved more than 35 per cent of market share in mobile telephony. IPKO continues to be the leading internet provider both in terms of number of costumers and network reach. Company is also the leader on digital cable TV services having the most qualitative content and the highest number of costumers. IPKO has the largest landline-fix network in Kosovo with 230.000 ports available, while the number of costumers in fix telephony is increasing constantly. In each segment - mobile, fix, internet and Digital Cable TV- IPKO has the latest, and the most qualitative network in the country (http://www.ipko.com).

2.2 Service portfolio and market position

Mobile Telephony

IPKO mobile telephony network is 2.75 G/EDGE, and offers the highest voice quality and the speed of data transfer. Voice services, SMS, MMS, GPRS/EDGE and roaming are enabled by the most qualitative network for mobile communication present in Kosovo. IPKO has built a network covering 99.7 percent of Kosovo population with mobile telephony signal, respectively 98.5 percent of the territory, becoming a transmitter with the biggest expansion of mobile telephony signal in Kosovo (http://www.ipko.com).

Fix Telephony

IPKO Telecommunication Company is licensed by Regulative Authority of Telecommunication to offer fix telephony services, since September of 2006. By offering fix telephony services, IPKO brought in the market a new and alternative form of payment of fix telephony services, since customers prepay their fix telephony services and have full control over their communication expenses (http://www.ipko.com).

Internet

IPKO is the first internet provider in the country, and is known as a leader of informative technology and internet in Kosovo. The company offers the fastest broadband internet in the market, by giving its consumer quality access and internet speed since 1999, as a result of offering backbone network for the first time in Kosovo. The internet service is now offered in all cities and towns of Kosovo, where IPKO has built over 230 hundred thousand ports, which enable connection of that many families to internet service, fix telephony and digital television. IPKO remains the first and biggest provider of internet services in the country (http://www.ipko.com).

Television

IPKO digital platform is a combination of the best television channels offered in the market including all channels of DigitAlb and SuperSport platform, informative channels, movies, news, local and regional channels, and well known international channels. Digital Cable Television offered by IPKO remains the most attractive offer in the market, as far as the picture, sound, channels, exclusive content, and quality of signal are concerned, as well as continuous innovations brought for the viewers.
From 15th of March 2009, IPKO Telecommunication Company initially offered digital cable platform promotional offers in the region of Pristina, while as of September, the most exclusive television package has been offered in other cities of Kosovo, as well. Digital cable television offer provided by IPKO, is cooperation between IPKO Company and DigitAlb, a company from Albania. The offer of digital cable television channels now includes Pay-Per-View (PPV) service and the quality of HD (High Definition) television signal (http://www.ipko.com).

Sales and Market Position

IPKO is an integral provider of telecommunications services in Kosovo. Sales and the number of mobile telephony, VoIP and television users are rising. The company has its own sale centers in Pristina and in all larger towns. It also works with agents, and thus has several hundred points of sale at its disposal to market its complete range of services. IPKO maintains a leading share of the market for internet services, offering its services through a modern hybrid-coaxial network, broadband wireless links and an optical network. In 2009 it increased its market share by 3 percentage points, despite the original operator embarking on a more aggressive approach to the broadband access market with ADSL technology and optical links. At the end of 2009, two years following its entry on

the mobile telephony market, the company's high-quality network covered 99% of the population, and included nearly 532,000 active, mostly prepaid users, which translates into a market share of about 35%. IPKO began offering VoIP services in September 2008, and by the end of 2009 it had achieved an estimated 9% market share, with nearly 8,000 connections. IPKO's fixed telephony is attractive primarily for international calls, which are less expensive than those offered by its main competitor. In March 2009 IPKO began offering digital cable television (DVB-C), and began the gradual withdrawal of programming delivered via analogue cable television. By the end of the year it had nearly 43,000 digital cable TV connections and a 55% market share (http://www.telekom.si).

Operating results

In 2009 IPKO generated operating revenues of EUR 62.5 million, and nearly doubled the operating revenues generated in 2008. Its EBITDA was EUR 26.3 million. The company also generated a positive operating income (EBIT) of EUR 9.5 million. Despite additional finance expenses for borrowings, the company generated a net profit of EUR 79 thousand, after just two years of operations (since the launch of mobile operations). In 2007 IPKO used a loan from Telekom Slovenije, to pay for the license to provide mobile telephony services, which cost EUR 75 million (http://www.telekom.si).

2.3 SAP R/3 implementation in IPKO

SAP R/3 ERP software went live in IPKO at the beginning of 2008, with implementation of its basic Financial Accounting (FI), Controlling (CO), Enterprise Controlling (EC) and Material Management (MM) modules. The initial application component has included the following sub-components:

Financial Accounting

- General Ledger (FI-GL)
- Accounts Payable (FI-AP)
- Accounts Receivable (FI-AR)
- Asset Accounting (FI-AA)

Controlling

- Cost Element Accounting (CO-OM-CEL)
- Cost Center Accounting (CO-OM-CCA)
- Internal Orders (CO-OM-OPA)

Enterprise Controlling

- Profit Center Accounting (EC-PCA)

Material Management

- Purchasing (MM-PUR)

- Inventory Management (MM-IM)
- Logistics Invoice Verification (MM-IV)

In the later stage, additional functionalities in the areas of Treasury (Cash Management, Liquidity Forecast) and Workflow (Requisition for Procurement and Purchase Order approval) have been added to the system. The latest upgrades have included Investment Management (IM) and Project System (PS) implementation.

Regarding the Information System, in addition to the standard reports, a number of customized reports have been defined initially and in the later stages, including all required details from GL, fixed assets, inventories, purchasing, tax and cost/profit centres' records.

3 COMPANY BUSINESS PRACTICES

Since there are not many cases of ABC implementation in the region, the applicability of ABC/M in Ipko will be considered in regards to its existing cost systems, industry, company size, service portfolio and software employed. Furthermore, the analysis will include potentials, options and focus areas for implementation, as well as benchmarks to comparable organizations that have already adopted the concept of ABC/M.

3.1 Costing systems and controlling procedures

The existing costing systems and controlling process in Ipko have obviously delivered the required results so far, as the Company continues to report positive financial trends and growing year-over-year profits over the past period (Table 3.). This indicates that the Company has rather balanced cost controlling processes, optimized in regards to the overall size of organization and resources employed in the finance and controlling area. As it is the case with most of the leading organizations in the surrounding region, during the early years of the business operations there was a need for trade-off between the size of finance department and complexity of the adopted costing methodology. So far, it seems that Ipko keeps the right balance, by utilizing the competence and strong commitment of its personnel and, on the other hand, by implementation of sophisticated supporting software applications, including SAP. Expertise provided by the mother company of Telekom Slovenije, have also played important role in this case.

However, it is clear that future will bring new challenges in regards to the financial performance and market position. With financial crises continued and indications of new entrants in the Kosovo telecommunication market as well as with the increased service portfolio and its complexity by converging the services provided and combining the technologies engaged, it could be assumed that expectations and requirements from the finance professionals will continuously rise, especially in terms of higher accuracy and details on the profit drivers.

Table 3. Ipko's Financial Performance in the Period 2007-2011

Amounts in EUR mil.	**2007**	**2008**	**2009**	**2010***	**2011**
Revenues	6,5	42,0	62,5	65,8	70,4
EBITDA	-2,7	14,8	26,3	6,1	27,4
EBITDA margin	-	35%	42%	9%	39%
Operating Profit	-9,0	0,2	9,5	-13,4	10,0
Operating Profit margin	-	0%	15%	-	14%

*Note. * Impairment of assets applied*

Source: *Telekom Slovenije d.d. – Company portal*, 2012.

It is a common practice in the region that costing systems are based on traditional methodologies and this fact could be perceived as an opportunity for Ipko to gain competitive advantage in case of utilizing more sophisticated models for overhead costs distribution and activity management. This is especially valid for providers of telecommunication service, as the major part of their commercial and technology related costs are indirect. Furthermore, this fact indicates that by employing advanced costing methods, the Company will be in position to gain better insight into its products and services profitability, and take more appropriate decisions on processes optimization, pricing, customer service levels, investments in technology and sales network as well as to find potential hidden opportunities for profits increase. In these regards, having the SAP implemented may be also considered as a precondition for successful and easier transition to ABC/M concept. In regards to organization size, Ipko is among the larger companies in Kosovo, employing more than 500 employees.

3.2 Profitability analysis context

Profitability analysis process should be viewed in terms of the industry standards, ratio of indirect costs as well as the service/products offers complexity and convergence. Evidently, Ipko aims to become first in class provider of all single services it offers, and yet to defend its image of the leading provider of converging telecommunication services on the Kosovo market. Although the market position of the Company has its anchor in the mobile telephony segment, which brings the major part of revenues and presumably most of the company profits, this 'economy of scope' strategy realized by applying high level of diversification of service offers, technology employed, customer segments and sales channels, usually suggests a necessity of applying the activity-based profitability models, as there are assumed hidden opportunities for profits increase through process optimizations, price adjustments and customer segmentation. However, this requires accurate information on costs that are related to the specific operations, customers and services. In theory, ABC/M is more applicable in cases of economy of scope strategies,

because of the high overhead costs ratio. As it is the case with most of the telecommunication operators, ratio of indirect in total operating costs of the Company is assumed to exceed 70%.

In regards to the service and customer diversification, Ipko offers more than 30 different solo and bundled tariff models and packages for residential and business customer segments, including four basic types of services (mobile and fix telephony, internet and TV), provided via own mobile and optical telecommunication network infrastructure or through revenue sharing arrangements. The key revenue sources also include roaming and wholesale telephony revenues. Summary of the Company offers is presented in the table below.

Table 4. shows the multiple dimensions in regards to the profitability, as well as the potential scope of profitability analysis. This structure is pretty much typical for the telecom operators in recent times, where, still, the customer and product (service) segmentation is in the focus of profitability analysis.

In regards to the organization, Ipko is characterized with high level of horizontal, process based cooperation and coordination between departments and professionals. This is mainly driven by a dynamics typical for the telecom industry sector, which requires rather frequent changes related to customer and service portfolios.

Table 4. Ipko Telecommunication Service Offers

Customer Segments	**Service Segments**	**Network Infrastructure**	**Service provided through**	**Sales Channels**
Prepaid/Postpaid	Mobile telephony	Wireless / GSM	Own network	Own Sales Network
Residential/Business	Fix telephony	Cable / Optical	Revenue sharing	Indirect Sales Network
Wholesales	Internet			
	TV			
	Bundles			

Source: *Ipko Telecommunications LLC – Company portal*, 2012.

3.3 Decision-making process

As it is the case with most of the telecom providers in the region, the dynamics typical for this industry sector and the fierce, usually price driven competition, does not allow enough space for long term focused, conceptual decision making process. However, Ipko has proven that its basic principles of fast acquisition of strong and loyal customer base as well as providing and continuously developing a wide range of telecommunication services, could promote the Company as a leader in the Kosovo overall telecommunication market. Of course, it could be expected that this position will be under increasing pressure by the competitors in each of the telecommunication market segments. Therefore, having that one of the key objectives is to defend the existing market position, certain more sophisticated information systems and methods for profitability analysis could be considered for implementation in order to also improve the decision making process, especially in the areas of pricing, investments, distribution and customer retention and acquisition related costs.

3.4 Critical activities / processes

Identification of most important activities and related costs that would be subject to allocation to products or customers is not a simple task for the telecommunication service providers, and usually requires engagement of experienced consultants. These activities belong to several key areas such as:

- **Sales**
    - own points of sales (shops)
    - indirect / dealers' sales network
    - key accounts unit
    - order management
    - wholesales
    - interconnection and roaming sales related activities, etc.

- **Marketing**
    - market research, planning and analysis
    - products definition
    - pricing and products subsidizing
    - customer segments definition
    - marketing campaigns and advertising, etc.

- **Network technology and IT**
    - planning implementation, operation and maintenance of telecommunication network infrastructure

- optimization of network capacity
- incidents handling
- research activities
- IT HW and SW corporate and service infrastructure implementation and maintenance, etc.

- **Customer support**
  - info centre
  - customer service
  - complaints handling
  - service and repair, etc.

- **Billing and Collection**
  - invoice generation, printing and distribution
  - collection and debt management
  - accounts receivable administration
  - revenue assurance, etc.

- **Supply chain and stocks management**
  - procurement
  - accounts payable administration
  - warehouse management
  - stocks optimization, etc.

- **Finance area**
  - accounting
  - financing and cash management
  - reporting and controlling
  - planning and budgeting, etc.

In regards to their distribution, all the activities listed above are subject to allocation under ABC concept and can be divided into: general functions; customer/service related functions; and network functions, and where first the general functions, then related functions, and finally the network functions are to be allocated to previously defined and structured services or customers segments.

3.5 Advantages and limitations of the existing organization / procedures

Ipko is a young and dynamic organization, which could be perceived as its strength and advantage in relation to potential implementation of advanced methodology such as ABC. Behavioural factors are considered to be one of the key factors for successful application of ABC, and in this regards the top management support and employees' commitment will

represent a clear advantage in case of implementation of such project. Additionally, already implemented and adopted SAP ERP system with its embedded process-wise logic and sophisticated IT solutions in regards to the data collection, is another precondition for initiation of the ABC/M project.

In regards to the limitations, generally the telecommunication industry is characterized with so frequent technology and market changes, which makes such systems difficult to maintain. This would be also a case with Ipko, since its organization does not employ excessive human resources that could be engaged in those areas. Also, lack of internal experience in this field as well as assumed usual difficulties in identifying the activities and resource consumption rates in the areas of overhead costs should be the key restricting factors.

3.6 Strategic focus

The key strategic issues in the forthcoming years will be related to the market position and competitiveness of the Company. In order to realize long-term goals, it is necessary to consider all options to achieve higher levels of cost optimizations, appropriate pricing and decision making in general. As activity-based costing and management can provide opportunities for more appropriate assignment of overhead costs and thus more accurate costing of specific products and customers, it may serve as a tool to protect and improve the Company's market position on a long-run. In addition, as the regulation of the telecommunication sector and interconnection pricing in Kosovo continue to develop towards EU standards, it is going to become mandatory to implement certain level of activity-based costing methodology for allocation of indirect costs. Furthermore, it is of crucial importance that the applied cost drivers should precisely represent the relationship between activities and cost objects, in order to avoid inaccurate computation of costs and profits. Activity-based costing model is so detailed and complex, that its adoption could be justified only in case that the benefits exceed the resources spent for its implementation. Therefore, the decision for implementation of ABC/M methodology should be based on the matter if the model provides better information on profit drivers than the existing costing systems.

Process optimization and increased efficiency have also emerged in the focus of the management of telecommunications service providers, especially in recent crisis years. The alternative technologies and market saturation as well as the increasing pressure by state regulators, have created conditions of dramatic drop of retail tariffs and necessity of heavy products subsidizing in order to reach customer acquisition targets and protect the market position. As the average revenue per subscriber (ARPU) continues to decline, other options for maintaining the profit margins have to be considered and explored. In these regards, activity-based analysis and management can provide sufficient basis for optimization of

fixed costs and to certain extent compensate for the losses in the areas of contribution margin and subscribers profitability.

4 ANALYSIS

The analysis includes the narrative and comparative section as well as generalization of the results. It will primarily attempt to provide answers to the research questions, and also try to present the basis for conclusions in relation to the managerial implications in case of ABC/M implementation in Ipko Telecommunications LLC. The questions in the focus of this research are the following:

- How could the telecommunication service providers benefit from implementing ABC/ABM?
- Which are the technical, financial and organizational preconditions and concerns related to successful implementation of ABC/ABM?
- What are the limitations and risks related to implementation of ABC/M system?
- What adjustments in Company's organization need to be done in order to support successful implementation of ABC/M?
- How can SAP CO-OM-ABC module support implementation and maintenance of the ABC/M?
- What long-term effects on costs' reduction, profitability, and processes' optimization could be expected from implementation of ABC/ABM?

Due to the nature of research questions and because of the confidential character of certain Company data, the qualitative approach prevails throughout this analysis.

4.1 Narrative analysis

Based on its size and the industry sector where it operates, it could be assumed that Ipko might need to adopt ABC/M methodology, at least up to certain degree. Although the dynamics and frequent changes typical for the telecommunication business segment create some difficulties in implementation of complex system such as ABC, the Company data shows that its cost structure and diversified service portfolio, as well as the ratio of overhead in total costs of the operations, imply that Ipko will have to consider some more advanced methodology for the purpose of profitability analysis and determination of the true profit drivers of the business. On the other hand, the continuous fall of prices of the telecommunication services during the past years require permanent optimization of internal processes of the service providers. In order to achieve that, application of the activity-based management should also be seriously considered in the future period.

In order to obtain internal opinions on the issues and research questions in scope of this study, a questionnaire was prepared and submitted to the key financial professionals employed in Ipko, including the Chief Financial Officer of the Company as well as the Accounting Manager, Controlling Manager and Accounting Team Leader. The choice to have limited number of competent employees to be interviewed is based on the assumption that the ABC/M concept and most of the SAP system customized solutions in the Company is best known in Finance Area, i.e. accounting and financial controlling departments. The questionnaire consists of 36 questions related to the research questions in the scope of this study. Following is the summarized viewpoint on the basis of provided answers to the questionnaire.

In relation to the first research question: *"How could the telecommunication service providers benefit from implementing ABC/ABM?"*, all of the interviewed officers have answered that some more sophisticated costing methodology will be considered in the future, and that in this regards ABC/M is an advanced methodology which could bring competitive advantage to the Company, and generally could bring added value to any telecom service provider. Furthermore, in their opinion ABC or Time-Driven ABC is preferred costing technique. Areas where ABC could bring major benefits are: pricing, decision making and budgeting. In regards to the profitability analysis, all agree that by using ABC/M, the main improvements can be expected in the areas of customer and product profitability, and in effect the higher degree of customer loyalty could be achieved.

Regarding the second issue: *"Which are the technical, financial and organizational preconditions and concerns related to successful implementation of ABC/ABM?"*, the major concerns of the finance staff are potentially high costs of the project, complexity of the model and perceived difficulties in its maintenance as well as insufficient internal expertise on the matter. On the other hand, the key success factors are considered to be the competent and committed staff, financial strength of the Company and its IT infrastructure in place. Also, the specific training programs for employees are perceived to be necessary for successful adoption of ABC, and involvement of external consultants would be important for implementation. In regards to the costs of implementation, the interviewed personnel believe that it would not be beyond the financial capacities of the Company, and that the scope of the project would determine more precisely the financial resources needed. Finally, some simplified models, such as the Time-Driven ABC are considered to be more applicable for organization like Ipko.

The third question: *"What are the limitations and risks related to implementation of ABC/M system?"* is related to the anticipated constraints in case of ABC implementation, where as the biggest limitations have been pointed the difficulties following the implementation and maintenance of the system and the major risks are related to financing of the project. The finance area personnel also believe that the existing IT systems and Company's practices could support implementation of ABC, with some additional

customizations and adjustments. Finally, the level of willingness by commercial and technical areas and management commitment to implement such methodology in Ipko is evaluated by finance professionals as unknown at this point.

Fourth issue: *"What adjustments in Company's organization need to be done in order to support successful implementation of ABC/M?"* has in focus the necessary organizational adjustments within the Company in order to make easier the implementation of ABC. The opinion of the interviewed personnel is that the existing processes would need certain adjustments in case of implementation of ABC, and that a process reengineering would be needed in some areas. They believe that implementation of the model would not require any essential organizational and cultural changes within the Company, and locate the crucial organizational issues in the area of processes' alignment. In regards to the project ownership, they see the ABC implementation as an interdepartmental assignment which should be led by the Finance department, and cannot assume if any obstacles are to be expected by other organizational areas.

Answers related to the fifth question: *"How can SAP CO-OM-ABC module support implementation and maintenance of the ABC/M?"* suggest that the finance officers are to some extent familiar with this module and consider it as an appropriate IT solution in case of ABC implementation in Ipko, also confirming not to be familiar with any other specialized ABC software solution. Furthermore, they think that the Company possesses enough IT system bases to support implementation of SAP CO-OM-ABC module, and that the staff could adopt it with some additional education. Finally, their opinion is that the competences of TS Group, to some degree, could support implementation of ABC, and that the potential benefits of the project would probably justify the costs of implementation.

Finally, the topic: "*What long-term effects on costs' reduction, profitability, and processes' optimization could be expected from implementation of ABC/ABM?"* includes the finance staff opinion on the potential gains that could be achieved by adoption of the methodology in Ipko. They believe that implementation of ABC/M could strengthen the competitive position on the market through improved operational efficiency and pricing decisions, as it is assumed to provide better inputs on value generators as well as higher quality of profitability analysis process. Furthermore, the common opinion is that activity-based management techniques could support process optimization in general and better identifying the value-adding activities in the organization, which could eventually create basis for implementation of Balanced Score Card or some other TQM model. ABC methodology is also perceived to be able to improve the planning and budgeting process of the Company. In general, ABC/M is considered as a methodology that will probably be needed in order to protect and improve IPKO's long-term competitive position on the telecommunication market in Kosovo.

Going back to the literature on ABC/M implementation and adoption, according to Cokins (2001), "there are four primary forces that influence the organizations to adopt ABC/M:

- Increasing heterogeneity and diversity of outputs, products, standard services, channels, and customers. This in turn leads to disproportionate consumption of different elements of the indirect and overhead costs.
- Increasing complexity in the support overhead and core business processes, which results in inter-organizational activity-to-activity cost relationships that are a step or more removed from the final cost objects.
- Substantial indirect and overhead costs.
- Increasing need to understand how the marketing, selling, distribution, general, and administrative period costs are caused and traced relative to their channels and customers."

Analyzing the above conditions and criteria, it seems that all of them are completely valid for Ipko organization and processes. As described in sections 3.1. and 3.2., there is a high degree of diversification of services offered, distribution channels and customers in the Company's portfolio, with noticeable tendency of further increasing ranges of those parameters. In regards to the number and complexity of the support, back-office and core sales and technology related processes, as mentioned in section 3.4., the entire telecommunication market segment is characterized during the last decade with strong trends of converging the service offers and complicated sales combinations, which requires dynamic, process based, horizontal and inter-departmental organization. This unquestionably leads to rising complexity of overhead business processes and belonging activities. Section 3.2., also discusses the volume of overhead costs and its ratio in total operating costs, which is very high and regularly above 70% for the telecommunications service providers. As such, it could be concluded that this condition is met, too. Finally, Ipko, as any other operator in the region, does need better understanding of relations between the activities costs and final products' and customers' profitability, in order to maintain and further improve the quality of market related decisions, especially in the area of pricing.

Cokins (2001), further elaborates the critical success areas and factors for implementing ABC/M: "In summary, the key to successful implementation and sustained use of the ABC/M data is to balance the four critical success factors:

- Model design and architecture: **Combine art, craft, and science in constructing your ABC/M model.**
    - Level of complexity
    - Level of detail
    - Cot drivers
    - Accuracy requirements

    - Activity definitions
    - Process linkages

- Implementation and integration: **It is important to select promising sites and to involve individuals with modest, not highly sophisticated skills in information technology.**
    - Scope and boundaries
    - Pilot site choice and phasing
    - Data interfaces
    - Data collection approaches
    - Single vs. dual systems
    - Validation of the data

- Getting buy-in: **Get the support of an executive sponsor and create widespread interest in and ownership of the information and its uses.**
    - Executive sponsorship
    - Project champion
    - Overcoming resistance
    - Credibility of outputs
    - Not accounting-driven
    - Creating ownership

- Application of data: **Be sure there are end-users with strong needs for the ABC/M data. Remember to work backwards with the ends in mind.**
    - Profitability analysis
    - Focus for improvements
    - Process value analysis
    - Target costing
    - Unused capacity management
    - Benchmarking
    - Predictive planning
        - Price quotations
        - Investment justification
        - Budgeting
        - Process changes
        - Strategy changes

Putting too much emphasis on any one of these factors or, worse yet, neglecting any one of them will jeopardize ABC/M implementation. Finding the right balance of emphasis will be unique to each organization."

As mentioned above, not only the technical factors should be in scope in case of ABC/M implementation at Ipko; organizational and behavioural factors appear to be even more critical in such kind of project. In these regards, getting by-in of the ABC/M model looks like a real challenge in any of the similar business entity in the region. Resistance on such advanced concept could be expected, especially during the adoption phase because of the various cultural and behavioural reasons, so it might be necessary to put special attention on these factors. However, it will still be of key importance to balance the priorities as well as to focus on each of the specific areas listed above.

In regards to the IT systems in place, it could be understood that the already implemented SAP and other integrated software solutions, could provide enough bases for further customizations and additional SW development for the purposes of ABC application in the Company. Ipko has already developed SAP related know-how and expertise among its personnel, so it will require only incremental efforts and specific trainings in that area. Nevertheless, special attention on development of a specific ABC/M related knowledge will definitely be required, as it will be of crucial importance that the internal resources and project owners have clear picture on the areas of application, factors influencing on the success, typical risks and problems as well as enhancing awareness on the potential goals and benefits that could be gained in case of successful outcome of such project.

4.2 Comparative analysis

Due to the lack of activity-based practice in the region, as well as limited availability of data in the scope of this research, it is not really feasible to provide reliable benchmarking analysis on ABC/M implementation results and success factors. Limited availability of data is primarily based on the business policies of the telecom operators, which include high degree of confidentiality in association with the internal business processes and profit drivers. This is also valid for the telecommunication service providers in the surrounding region. Because of these circumstances, the comparative analysis will be restricted to the available information published by the companies and to the presented level of details.

Table 5. presents information on ABC application in some of the largest telecom operators in Kosovo and the surrounding countries. Also, it shows the size of these companies in terms of total sales, number of employees and profitability. Noticeably, telecommunication service providers owned by Deutsche Telekom in Macedonia, Montenegro and Croatia have already implemented activity-based costing methodology, although the details and extent of the models have not been published, besides the known fact that those companies use SAP as a core ERP IT system. On the other hand, there is no information that other telecoms in the neighbouring countries employ some sort of activity-based models, which is not surprising, having their size in mind or background of operations in an unstable political environment. Also, it is important to emphasize that the above table includes mainly the incumbents, formerly state owned telecom providers, who have a long history

of operations and have dominant market position in the countries of their operations. Apparently, Ipko still has a room to improve in terms of sales volume and profitability levels, and ABC/M can serve as a technique to support that.

Table 5. Selected Data of Telecom Providers from the Surrounding Region

Telecom Operator	Country	Services	No. of Employees	Revenues (mEUR)	EBIT (mEUR)	EBIT %	ABC
PTK	Kosovo	Postal/Mobile/Fix/Internet/TV	3384	152	36	23%	**No**
ONE	Macedonia	Mobile/Fix/Internet/TV	556	73	-22	-	**No**
Makedonski Telekom	Macedonia	Mobile/Fix/Internet/TV	2000	280	95	34%	**Yes**
Telekom Srbija	Serbia	Mobile/Fix/Internet/TV	9468	885	183	21%	**No**
Crnogorski Telekom	Montenegro	Mobile/Fix/Internet/TV	843	119	19	16%	**Yes**
Hrvatski Telekom	Croatia	Mobile/Fix/Internet/TV	6322	1148	308	27%	**Yes**

*Note. * Data for year 2010*

Source: *PTK J.S.C. – company portal,* 2012; *Telekom Slovenije d.d. – company portal,* 2012; *Makedonski Telekom AD. – company portal,* 2012; *Telekom Srbija a.d. – company portal,* 2012; *Crnogorski Telekom a.d. – company portal,* 2012; *Hrvatski Telekom d.d. – company portal,* 2012;

The size of Ipko, measured by the number of employees and total revenues, probably does not provide enough arguments for justification of positive decision on launching an ABC implementation project. Size of the company is relevant because larger companies have more complex processes and higher number of activities, thus bigger needs for sophisticated models that will enable more accurate tracking and control of costs, while on the other hand, they can assign more financial and human resources to such kind of development project. Both points could hardly be valid for Ipko organization.

The importance of information that could be provided through ABC model should also be a decisive criterion when considering application of the methodology in the Company. Higher diversification in regards to the service and customers portfolio regularly leads to higher probability for cost distortion in the process of profitability analysis. If the model can support decreasing of the level of deformation of costs related information, it will increase the quality of the decision making process. Of course, this should be viewed from perspective of the local competitive environment and market position of the company. At the moment, such needs are not evaluated as crucial, which does not mean that in the next period it will continue to be the case.

In regards to the corporate culture, Ipko is perceived to be an innovative, competitive and results oriented organization compared to other service providers in the market, which are some of the key preconditions for adopting newer management techniques and complex concepts, such as ABC/M. These qualities of the organization were noticed during the implementation of SAP ERP software. On the other hand, Ipko is practising moderately-

tight cost controlling procedures, which is somewhat typical for the growing markets. Tight activity and cost controlling organizations, usually operating in saturated markets, have higher demand on detailed and structured costs and activities information, which can be provided by the ABC models. However, it could be assumed that with the market and competition development, the requirements for higher quality information, by the management of Ipko, will be increasing.

4.3 Generalization of results

Summarizing the above discussions, there are several points in favour of conclusion that Ipko could seriously consider implementation of ABC/M. First, the opinion of its key finance staff is that such methodology could be adopted in the organization in terms of the personnel competences and willingness to enter in such venture. It also includes high degree of self-confidence that the Company can provide enough resources to successfully complete the project, of course, with sufficient support by the TS Group and external consultants, where needed. Second, the Company has already have several years of experience with SAP ERP system and its strict process-based standards of operations, which has created certain discipline and routine in performing the regular, day-by-day activities. Also, the commitment by the management is not questioned.

In regards to the industry sector, scope of services and ratio of overhead costs, there is no doubt that Ipko, as a provider of combined telecommunication services, satisfies the criteria for implementing more sophisticated costing methodology. Analysis on the size of the Company, however, could result in different, even opposite standpoints. According to the number of employees, it seems that it will be difficult to dedicate enough human resources to such kind of assignment, especially if the extent of adoption is targeted to be moderate or large. On the other hand, sales volumes, number of customers and profitability levels do provide some basis and reasons why the ABC/M should be considered for implementation.

The key issues and limitations are related to usual concerns following the decisions on such complex projects: high and difficult to predict costs of project, uncertain benefits, lack of experience in the country and surrounding region, extensive personnel engagement, requirements for specific knowledge and competences, needs for additional IT HW & SW infrastructure, difficulties following the maintenance of such kind of complex models, etc. Yet, all of those matters should be separately addressed and analyzed in order to deliver reliable conclusions.

Another perspective is to what extent should be considered to start an ABC project in case of decision and which model is to be preferred. In theory there are several options elaborated, each of them having its advantages and weak points.

Implementation of full scope ABC model will certainly require extensive financial, technical and human resources, with uncertain outcomes of the project. This is because the more robust, wide-ranged and detail is the model, the more difficult and expensive will be to maintain and update the system, which is hardly acceptable in such dynamic and fast changing environment as the telecommunication market is. Because of the complexity of the system and reasons related to high costs for regular processing and updating of data, the conventional ABC concept has suffered a lot of critics among the business society, emphasizing that the benefits do not cover the efforts for its implementation. This is, as explained by some of the adopters, among the main motives to abandon using of the ABC methodology.

Cokins (2001) suggests the so-called "rapid prototyping" implementation model, as "a much faster way to get phased-learning, buy-in, and results compared to the traditional approach of designing an ABC/M system. Traditional ABC/M system implementations are usually accomplished through intensive interviewing of many employees. Similar to an immersion approach to learning a foreign language, with ABC/M Rapid Prototyping only a few employees who are knowledgeable about the majority of what the organization does are brought together. They construct the first ABC/M model in just a couple of days with a trained facilitator and an ABC/M software specialist. The objective is less achieving accuracy or results and more learning and getting a vision." Furthermore, he elaborates that "the intent of ABC/M Rapid Prototyping is to make your mistakes quickly, up-front, and early when it is easier to change the ABC/M model, not later when it is difficult to change. Through ABC/M Rapid Prototyping organizations can build a working and useful ABC/M model in days as opposed to trying to build a Rolls Royce ABC/M model in months. With this speed-up approach, the benefits from improvements gleaned from the ABC/M data can be reaped almost immediately. The initial ABC/M models can then graduate into a repeatable, reliable ABC/M system. This implementation approach is more practical and sensible relative to ABC/M pilots than one-shot big bang ABC/M implementations where the implementers cross their fingers and pray at the end that it will all work."

Kaplan and Anderson (2007) have presented the "Time-Driven Activity Based Costing (TDABC)" concept, with intention to eliminate the well-known disadvantages of traditional ABC model. They explain that TDABC simplifies the costing process by eliminating the need to interview and survey employees for allocating resource costs to activities before driving them down to cost objects like orders, products and customers. The new model assigns resource costs directly to the cost objects using an elegant framework requiring only two sets of estimates, none of which is difficult to obtain: the capacity cost rate for the department and the capacity usage (time) by each transaction processed in the department.

There are also other solutions in regards to the definition of ABC model scope, extent and level of details. What is important is that this decision could essentially affect the final

outcomes of the project, so it has to be thoroughly analyzed, taking all specifics of the Company and its organization into consideration.

5 MANAGEMENT IMPLICATIONS

5.1 General discussion

Above analysis has highlighted some of the issues and factors related to activity based costing in general, while this chapter will further discuss the management implications in case of employment of activity-based costing and management tools in the Company, and try to elaborate in more details the steps towards ABC/M in more details, risks and threats following the implementation as well as the benefits in different areas of the organization. It will also reassess applicability of the simplified Time-Driven ABC model in Ipko.

First, we will try to advice on the steps and phases of the implementation process, having the specifics and characteristics of the Company in mind. This is one of the important points in preparation of the project, as the success will heavily depend on the chosen implementation strategy which, on the other hand, should take the specific organization and corporate culture into consideration. It is especially important if we have the lack of tradition and related practice in the regional business environment in mind.

Second, the typical risks and threats for ABC/M, specifically linked to Ipko organization are subject to evaluation in this section. Not all of the usual ABC/M limitations are applicable to the Company, so we try to locate those that could be relevant and important in this particular case.

Furthermore, the implementation of most popular alternative ABC model, the Time-Driven ABC is in the scope of this chapter, as there are concerns that Ipko's organization is maybe too small in financial and human resources to implement the full-scope traditional ABC model. The simplified TDABC seems to be appropriate substitute, taking the Company size into consideration.

Finally, evaluation of the potential benefits from successful ABC/M project completion takes place. The benefits are being assessed for some of the Company's key finance and business aspects: cost controlling and budgeting, profitability analysis process, optimization of key processes in the Company as well as its impact on the decision making process.

5.2 Steps towards activity based approach

In regards to the decision on implementation of new, Activity-Based Costing system in the organization, according to Tekavcic (1997), there are three fundamental questions that have to be considered prior the initiation of the project: First, whether to implement new independent system in parallel with the existing one of the company, which will be designed for external users' requirements only, or to upgrade the existing system in order to improve the quality of information for the needs of the management of the company. Second question is whether the new costing system will be developed on the activity-based concept, or, having the identified deficiencies of the existing system, will be designed just to eliminate those errors of the traditional costing models. The third fundamental question is how to justify the project on implementation of activity-based costing system, having the concerns that are usually being raised with its adoption.

According to Gosselin (cited in Gosselin, 2007) there are four levels of complexity in the ABC implementation process: Activity Analysis (AA), Activity Cost Analysis (ACA), Pilot ABC and Full ABC. AA consists of reviewing the activities and the procedures carried out to convert material, labour, and other resources into outputs. Activities that do not contribute to the value of those outputs are identified in AA in order that they may be replaced, diminished or removed. ACA or CDA (Cost Driver Analysis) is the next level in the AM hierarchy. It consists of analyzing the factors that affect the cost of an activity. ACA and CDA focus on cost minimization by identifying the cost drivers and their associated activities and by tracing the interactions between cost drivers and activities. ACA and CDA enable management to identify the costs of each activity and the factors that cause them to vary. Identifying the cost drivers of an activity may enable managers to better understand how they perform a task and may help them find new procedures, activities and processes to reduce costs. Furthermore, Gosselin divides the use of ABC into two levels: pilot ABC and full ABC. Pilot ABC is usually the first level in an ABC implementation process but may be an end in itself. It consists of designing and installing an ABC system for only one aspect of an organization such as a department or a product line. Most of the firms, if not all, that have implemented ABC have limited themselves to this level. The purpose of a pilot ABC system may depend on the organization in which it is implemented. Full ABC is the ultimate level in the implementation of an ABC system. It consists of a cost accounting system in which all products and services are valued on the basis of the output of the ABC system.

Anderson (cited in Gosselin 2007) on the basis of earlier Cooper's & Zmud's four stages model of implementation of ABC (initiation, adoption, adaptation and acceptance), has suggested that at the initiation stage, factors such as competition, heterogeneity of demands, environmental uncertainty, disposition toward change, functional specialization, training, complexity for users, compatibility with existing systems, relative improvements over existing system, and worker responsibility have a positive influence at the initiation

stage of ABC. Centralization and worker responsibility would have a negative influence. At the adoption stage, environmental uncertainty, disposition toward change, process knowledge, role involvement, training, complexity for users, relative improvements over existing system, relevance to managers' decisions and compatibility with firm strategy have a positive influence on adoption. Three variables have a negative influence: internal communications, uncertainty, and lack of goal clarity and worker autonomy. The number of variables that have some influence at more advanced stages of the implementation process is much lower. The third stage, the adaptation, is influenced positively by competition, disposition toward change, centralization, internal communications, training, and compatibility with existing systems. Only internal communications, training, and variety would have an influence at the acceptance stage.

In regards to the project steps, Garrison & Noreen (2000) identify six main steps towards ABC implementation:

- Activity Identification
- Activity Analysis
- Costs Assignment
- Activity Rates Calculation
- Assignment of Costs to Cost Objects
- Preparation and Distribution of Management Reports

First, activities must be identified and grouped together in activity pools. These pools may include fractionally assigned costs of supporting activities to individual products as appropriate during the second step. Definition of activities has to be carefully performed in order to avoid unnecessary complexity of the model and huge number of activity related data that will be subject of tracking and allocation. Consultants often recommend thorough selection of the key activities, where only those that have high impact on value creation and fairly represent company's operations will be included in the scope of the model. This will make much easier and simpler the initial set-up and future maintenance of the ABC model. Activities that have low impact on final cost objects and profitability might be ignored.

ABC continues with activity analysis, clearly identifying the processes which support a product and avoiding some of the systemic inaccuracies of traditional costing. This activity analysis identifies indirect cost relationships and allows assignment of some percentage of that activity to an end product directly. Activity analysis may also provide valuable inputs relevant for the activity based management in case of adoption. By investigating and better understanding the nature of critical activities and processes as well as the relations and links between them, the management comes into position to improve in the area of process optimization. Ultimately, by optimizing processes and consequently cost reductions, the Company is able to increase the level of customer satisfaction and loyalty through applying

more competitive pricing models. In addition, the appropriate identification of key activities and related costs will provide vital information for the budgeting process and what-if simulations, through utilization of the activity-based budgeting model, which enables forecasting the changes in resource demands from projected process efficiencies and changes in the volume and mix of sales and other transactions.

Identification and definition of cost drivers is also one of the biggest challenges in the process of designing the ABC/M model for telecommunication operator. In the ABC/M vertical cost assignment view (Cokins, 2001) there are three types of drivers, and all of them are required to be quantitative:

- Resource drivers
- Activity drivers
- Cost object drivers

Resource drivers trace the expenditures of cost pools or centres to activities, while the activity drivers are used to assign activity costs to cost objects. Cost object drivers trace the costs from one cost object to another. One of the main issues in adopting ABC system in telecommunication industry is the frequent change of technology, which influences on the model definition and causes significant difficulties in its future maintenance. In regards to Ipko, the above section 3.4. highlights the key activities from different areas and processes in the organization. The importance of each of those activities is to be evaluated in terms of their significance and impact on the final cost objects, considering also the importance of each receiving cost object, i.e. service or customer segment.

Based on the findings of steps 1 and 2, costs are assigned to an activity pool. For example, human resources costs could be assigned to indirect administrative or to indirect management costs. These pools will each have some contribution to object cost. This mapping of costs to specific activity pools and activities is the base for further assignment of activity costs to costs objects, i.e. products, services, customers or customers segments in the final stage of the costs assignment process. The problems can appear if the activities are roughly defined and due to the fact that the time for activity is usually subjectively determined. The personnel regularly do not take records on duration of their activities or are not often willing to precisely or fairly disclose the realistic time they spend on some activity. This causes additional deficiencies of the designed model and consequently inaccurate results in calculation and assignment of overheads to final cost objects.

Initial analysis may include direct labor hours or indirect support labor. All weightings must be added at this step. For instance, production labor hours should be in terms of a weighted labor rate including benefit costs. The cost rates usually refers to the time spent or number of events, and are expressed in hours, full-time equivalents, kilograms, square meters, number of events, etc.

As the activity costs, pools and rates are identified and clearly defined, the next step is to assign them to cost objects. Objects are generally defined as products or services offered to a customer. In case of Ipko, there are several dimensions and levels of cost objects that can be defined from various service segments (e.g. mobile, fix, TV, internet, wholesales), tariff models and customer groups or segments (e.g. prepaid, postpaid). This step should also identify the so-called "business sustaining" costs or cost pools, i.e. the overheads for activities that cannot be related to any customer served or service offered, although they are unavoidable in any business organization.

Finally, when the ABC costing analysis is complete, that related data should be placed in a concise and coherent manner and presented to the managers, cost object and process owners. This communication of the costing analysis is critical to justify the cost of the analysis. The reports derived from ABC model should provide appropriately structured, meaningful, accurate and on-time information on the profitability of specific services sold and customers as well as to enable better understanding on the selected key activities within the organization, their related costs and effects.

In case of Ipko, the pilot phase of ABC model implementation would certainly be a recommendable exercise. It should run in a single area or department, which will be selected on the basis of certain important criteria. If it is not too risky, a good choice may be the sales areas which have issues with profitability of their business operations. The pilot ABC model aims to provide relevant information on applicability of the concept in the entire organization, and, in case of positive outcomes to provide data on potentials for improvements of the company's operations in general as well as the potential benefits that could be gained in case of full-scope model implementation. If the results are negative, it is most likely that the pilot model has not been properly implemented or it does not suit for the company as a whole. Additionally, a clear commitment of the senior management is a precondition for launching such project. Implementation of ABC/M methodology is a long-term venture and cannot provide short-term benefits. Thus, the leadership of the Company has to be aware of the challenges following the process and dedicated to the ultimate goals. If the decision makers are not fully aware of the big picture in regards to the potential benefits and long-term value of the model, it can result in inappropriate model definition, or even abandoning the project entirely. Furthermore, it is of crucial importance that the top management delegates the tasks to a competent inter-departmental team, which will consist of motivated and responsible professionals from different areas of the Company, possibly supported by external consultants in specific areas.

Regarding the total costs of implementation in Ipko, it is not possible to make accurate assumption prior to the definition of project scope and without thorough analysis on the human resources that will be involved, the needs for external consultants and the exact software upgrade requirements if the project is to be initiated. This analysis as well as the

complete business case on the project should be prepared by the finance professionals in the Company.

5.3 Risks and threats

Generally, the well known pitfalls associated with ABC/M system relate to the high volume of cash outlays on consultants, internal resources and information technology systems as well as to the extensive use of company's resources for its implementation and maintenance. In order to avoid or minimize those risks, the organization will have to prepare detailed and conservative business case on the project, including all the constraints and assumptions related to risks. This case should also precisely estimate the potential financial benefits of the model utilization and provide enough arguments for this important decision. Furthermore, it is not uncommon situation that the companies attempt to develop a model which include too many details and miss the focus on important, value-adding activities and drivers. This naturally creates dissatisfaction with activity-based costing system in general and a sense that the benefits do not match the efforts and resources engaged in its adoption. In order to avoid such outcomes, the project team has to take care of the right balance between the efforts and targeted benefits of the implementation during the model designing phase. It is important to stress that sometimes there is a lack of action on the basis of feedback and data submitted by the ABC model. Failure to link the information to action can also contribute to increasing disappointment with the implemented solution.

Besides the financial constraints, some of the major concerns refer to the impacts on the internal organization and adoption by the managers and employees of the company. It is not unusual that the personnel react unenthusiastically or even opportunistically on such kind of projects, especially when their daily job is subject to analysis and change management. Since the employees feel that their work and efficiency is exposed to ABC/M data, there is a threat that they will not be keen to disclose realistic information which is needed for the activities' definition and measurements during the model designing phase. That is why the clear communication on the background of the project and the benefits it should provide is regularly considered as one of the key tasks of the project leadership. As ABC/M has such a significant change management and behavioural aspect, it must include communications in the project plan. Often, the ABC/M implementation plan focuses mechanically on what data should be collected and its sources, missing the interest in finding ways to involve employees who could positively influence on the eventual outcomes of the assignment. As Cokins (2001) emphasizes, "the researches has shown that in practice, many initial ABC/M cost assignment model structures are poorly designed. These ABC/M systems reveal a lack of understanding of ABC/M, which puts the project at risk. The poor ABC/M model design at best slows progress for an organization to make better decisions, and at worst jeopardizes the adoption of ABC/M altogether."

Having the open-minded corporate culture and behavioural characteristics of the Company in mind, Ipko will not have any significant risks related to the change management effects. However, the right dimensioning of the model will certainly be of crucial value for the eventual project outcomes, as the organization cannot afford ineffective spending of any resources in situation where the telecommunication markets suffer from continuous drop of prices and consequently, from consistent profit margins decrease. In this sense, the project definition has to prove that the incremental benefits will exceed the incremental costs for its realization and from its utilization. Additionally, further development of specific, ABC/M related competencies of the involved professionals will be necessary, since there is not sufficient practical experience on activity-based concepts in the surrounding business environments. Finally, comprehensive analysis and evaluation of the existing and potential functionalities of its IT applications, including the local customization of SAP ERP system, has to be performed prior the initiation of such project. This is supposed to eliminate the risk of inappropriate design of IT databases and to decrease the risk of any unnecessary developments or acquisition of additional features.

5.4 Alternative: Time-Driven Activity-Based Costing

In attempt to solve the problems and eliminate the drawbacks regularly linked to implementation of the original ABC concept, Robert Kaplan and Steven Anderson have tried to simplify the method by suggesting the time equation in the process of allocation of resource costs to cost objects. This concept is briefly elaborated in the section 1.5. above, therefore the analysis on the effects and advantages relevant and applicable to Ipko organization takes place in this chapter. Kaplan and Anderson (2007) disclose some of the limitations of conventional ABC model, specifically emphasizing the issue of miscalculation of unused capacity. As they explain, "almost all ABC systems calculate cost driver rates assuming that resources work at full capacity. But operations at practical capacity are more the exception than the rule. ABC cost driver rates should be calculated at practical capacity, not at actual utilization." Following are some of the issues addressed to conventional ABC method and their impact particularly on the organization of Ipko:

Interviewing and surveying process is time-consuming and costly. With its financial power and available headcount, Ipko can hardly afford any complex or comprehensive and wide-range analysis on processes, activities and their relations to final cost objects, i.e. services and customers. Having that the Company's size and staffing are already set at some optimal balance, it is not assumable that there can be discovered any excessive internal resources that will take care of this critical assignment. That would mean that Ipko will have to turn to engagement of additional personnel, which might not be readily accepted by the management. Furthermore, as there is a little expertise and specific knowledge on the subject developed within the organization, there might be a need for significant number of men/days to be delivered by, specialized in this area, external consultants, which is not going to be inexpensive. This point is, without much doubt,

relevant for Ipko, especially in regards to the risks of taking too much of the resources and efforts for compliance of the project.

Data for the ABC model are subjective and difficult to validate. Quality of the ABC model inputs is one of the key arguments of the critics of the ABC concept. It is clearly one of the weakest points of entire methodology, as the collection of critical information and data on activities' importance and duration, capacity, and relations between activities, departmental spending and final products and customers, is in big part collected through interviews with the involved key employees. This practice regularly causes subjective basic inputs, which are hard to confirm by observation, examination, testing or other kind of objective measurements. Subjectivity can cause serious misjudgments in essential areas of the model, making it practically unreliable and even unusable for any crucial decision making. Incorrect estimates are not due only to behavioral reasons, like is the usual unwillingness of employees to fairly disclose details and statistics on the activities they perform, but could also result from lack of relevant competences or broader understanding of the processes and level of significance of certain activities.

Data are expensive to store, process, and report. Because of enormous amount of activities' and drivers' related data, the full-scope ABC model requires extensive data processing and storage hardware and software capacities. The more comprehensive the model is, the more complex become the calculations and volume of information to be dispensed. Difficulties associated to the maintenance of the ABC models are also highlighted as some of the main reasons for relatively low utilization of the ABC concept, as well as one of the motives to abandon the already implemented system. In case of its application in Ipko, it is evident that such model would require more of IT resources, besides the fact that the Company has already employed SAP ERP system, where still, some additional customizing and integration with the other core systems would be considered necessary. This is further contributing to potentially higher costs for the ABC project initiation and maintenance.

ABC model could not be easily updated to accommodate changing circumstances. Changing circumstances and extremely dynamic business environment is a typical feature of today's telecommunication industry, due to several factors: changing technology, service converging trends, prices decline, alternative providers on the market, substitution of traditional services, etc. Ipko's position in this regard is not much different, even more the volatility is especially evident and typical for the growing markets, as the Kosovo telecommunication sector is. Issues related to the regular model maintenance, becomes increasingly relevant and influencing in the fast growing and unstable market sectors and industries. There is no simple way to regularly adjust the business operations to all those alterations of the market conditions, and it is an additional challenge to adapt the robust internal administrative systems to those external influences. This is obviously valid for any

of the conventional types of ABC model, which is usually not recognized as flexible and easily adaptable.

The model is theoretically incorrect when it ignores the potential of unused capacity. The original ABC model contains an important embedded weakness: data and calculations do not include idle capacity of the resources spent for realization of activities. As it is based on subjective data collected through interviewing process, where employees are not much willing to disclosed information on missed capacity, the results usually include these costs in the total costs of activities. Kaplan and Anderson (2007) claim that this fault can be corrected by using Time-Driven ABC methodology. Anyhow, this weakness of the conventional model is not supposed to have a significant impact on equations in case of its application in Ipko, since the Company do not suffer of considerable over-sizing or idle working time of the network equipment. Although there are variations in regard to the traffic based utilization of specific switches and base stations in the telecommunication network, this is a normal situation for all of the mobile telecommunication providers, and should not be considered as an unused capacity in these regards. Similar is valid for the headcount of the Company and its idle working time, which is, apparently, about the optimal level.

Most ABC models are local and do not provide an integrated view of the enterprise-wide profitability opportunities. This argument refers to the issues experienced due to complexity of traditional model of activity-based costing and difficulties to utilize it in a more universal manner. Again, the fact that Ipko is not huge in size and complex organization implies the conclusion that this condition will not significantly influence on the eventual outcomes of the project in case of its initiation in the Company.

Summarizing, Kaplan and Anderson (2007) list the following advantages of Time-Driven Activity-Based Costing method:

- Easier and faster to build an accurate model
- Integrates well with data now available from ERP and customer relationship management systems (this makes the system more dynamic and less people-intensive)
- Drives costs to transactions and orders using specific characteristics of particular orders, processes, suppliers, and customers
- Can be run monthly to capture the economics of the most recent operations
- Provides visibility to process efficiencies and capacity utilization
- Forecasts resource demands, allowing companies to budget for resource capacity on the basis of predicted order quantities and complexity
- Is easily scalable to enterprise-wide models via enterprise-scalable applications software and database technologies
- Enables fast and inexpensive model maintenance

- Supplies granular information to assist users with identifying the root cause of problems
- Can be used in any industry or company with complexity in customers, products, channels, segments, and processes and large number of employees and amount of capital expenditures

The above assumptions suggest that it would be a wise decision to seriously examine and evaluate the TDABC methodology as an option for application in Ipko. Any excessive complexity of the model will not help the implementation and may endanger the targeted outcomes of the projects. Based on the above considerations, it appears that simpler concept as Time-Driven ABC is, would be much better than the original, more complicated and expensive ABC model fit the organization and processes of Ipko.

5.5 Potential benefits of ABC/M implementation

As elaborated in section 1.7.2., most important and evident benefits, emphasized by the proponents of activity based concept, lay in the areas of costs reduction, profitability analysis, process optimization and decision making process. The following discussion will try to clarify the potentials and feasibility for achievement of certain typical gains particularly in the Ipko organization, taking the company specifics and conditions on the local telecommunication market into account.

5.5.1 Cost controlling and budgeting

In case of application of ABC/M, the controlling and reporting process attains some additional perspectives. One of the conceptual characteristics is that it attempts to convert the usually fixed, overhead costs into variable, and in that way to provide different, enhanced outlook on these costs and their behaviour in case of changing volume of sales or activities. This logic is a base for one of the key opportunities not only in the process of analyzing the historical or actual costs, but also for the budgeting process, including the what-if scenarios and simulations.

Controlling and reporting process in Ipko, as the case with most of the regional telecommunication operators is, includes profit contribution structure and as such does not provide sufficient insight in the cause-effect relationships between the costs and specific revenues. The reason is that the contribution structure does not account for the operational specifics of the internal processes, but deals mainly with the types and sources of the costs and revenues. Although, this profit and loss structure provides realistic and useful information on the segment of direct costs, the overheads and the reasons for their volumes remain obscure and unexplained. ABC model provides somewhat different P&L structure, highlighting the costs of specific activities versus the sources of revenues and their volumes. Cokins (2001) explains that “as managers and employee teams benefit from

ongoing access to the cost data of their work activities and the units of work outputs, they begin understanding not only what things cost but what causes their costs to fluctuate: their cost drivers. Understanding cost drivers is central to understanding an organization's cost structure and cost behaviour. Through self-discovery and asking lots of new questions resulting from the ABC/M data, these ABC/M-proficient companies have begun to understand why their internal cost structure exists as it does. In effect, ABC/M covers the complete enterprise, inside the firm's four walls. ABC/M assures visibility for full cost recovery (and hopefully profit) from revenues."

An example of departmental costs presented in Table 6. illustrates the differences of the traditional and ABC costs structures, reported by using data from both models. As evident, the activity-based view enables straight-forward tracking and mapping of the structured costs to the final cost objects, i.e. the products or services and customers or customer segments. This is not possible if using the Chart of Accounts view, where costs are structured on the basis of cost types as extracted from the General Ledger and its sub-ledgers.

Table 6. Departmental Costs: Chart of Accounts and ABC Perspective

Chart of Accounts view	**USD**	**Activity-Based view**	**USD**
Salaries	621.400	Key/scan claims	31.500
Equipment	161.200	Analyze claims	121.000
Travel expenses	58.000	Suspend claims	32.500
Supplies	43.900	Receive provider inquiries	101.500
Use and occupancy	30.000	Resolve member problems	83.400
		Process batches	45.000
		Determine eligibility	119.000
		Make copies	145.500
		Write correspondence	77.100
		Attend training	158.000
TOTAL	**914.500**	**TOTAL**	**914.500**

Source: G. Cokins, *Implementing Activity-Based Costing*, 2006, p. 10, Exhibit 3.

Another area of controlling operations where ABC can provide different and improved analytics is the planning and budgeting process. By defining and understanding the true drivers of the overhead costs, the responsible department of Ipko is in position to project those costs upfront and also to provide various simulations and scenarios on the bases of changing volumes of specific activities. This exercise should enable much more realistic view on the costs in the future, as they are based on the true cost drivers, and not to

somewhat subjective management assumptions and targets defined by using the top-down budgeting methods.

Kaplan and Anderson (2007) suggest a six steps procedure for activity-based budgeting, which is based on Time-Driven ABC concept and simple to implement in the business practices of the company:

- Build a Time-Driven ABC model based on most recent experience
- Calculate product, service, and customer profitability
- Make managerial decisions on process improvements, pricing, product and customer mix, product design, and customer relationships
- Forecast next period's process capabilities and the volume and mix of sales and production on the basis of the decisions taken to improve profitability
- Calculate the next period's demand for resource capacities to meet the sales and production forecasts
- Authorize spending (either increases or decreases from current period's levels) to supply the desired resource capacities in future periods

In regard to application of the ABC model in the process of different scenario simulations, they further explain that: "what-if analysis assesses the impact of incremental changes to operations and sales. It studies these effects when one or a few parameters vary at a time. The most extensive analysis occurs when the company makes comprehensive plans for changes in product mix, processes, and customer relationships. Such comprehensive planning occurs at least annually when the company conducts strategic planning and translates the updated strategy into detailed sales and operating plans for the upcoming year. Some companies now forecast and plan even more frequently as they migrate from an annual planning exercise to quarterly rolling forecasts, looking ahead five or six periods into the future."

Although Ipko, as most of other telecommunication operators, regularly does adjustments of the strategic annual plans in a form of rolling forecasts, this is actually a process of modifying the next period on the basis of actual data from the past months. It usually does not include changes in activities and overhead costs due to changed volumes of sales and other business operations. This is because, without the ABC model it is not possible to harmonize the adjustments of the fixed costs with the short-term changes of the sales volumes and products / customers sales mix.

5.5.2 Service / customer profitability

Potential improvements of profitability analysis process are among the crucial advantages enabled by the activity-based methodologies. ABC logics basically does not recognize fixed costs and these specific objectives of ABC model to convert the traditionally fixed

costs into variable aims to provide a different view on the changes in profitability with changes in operations and sales. In that way the activities represent a link between the resources costs and cost pools to the costs and profits of the cost objects, i.e. the services sold and customers. Traditional costing methodologies, on the other hand, do not offer visibility on the true customer or product profitability, simply because of the fact that the allocation of costs to final cost objects is done by using allocation keys that are determined on the basis of subjective assumptions by the controlling officers or management of the company. As Cokins (2006) explains: "In the ABC cost assignment network, each product incurs its own activity costs with a cause-and-effect relationship, not with an arbitrary indirect cost allocation. This then creates layers of costs that produce many profit margin layers."

Total customer or service profits comprise of each unit profit and it is a common case that it is a combination of profitable, less-profitable and loss-making services or customers. The real challenge is to accurately identify the true profit margins of each service or customer segments or even of the unique services provided and customers served. In order to move the customers into the profitable area, there are several actions that the Company can take:

- Process improvements in order to decrease costs to serve the low-profitable customers
- Decrease the level of post-sales service for the less-profitable customers
- Increase the prices to most-demanding customers
- Exclude certain services from the les-profitable customers' portfolio
- Offer more profitable product mix to less-profitable customers
- Try to eliminate the loss-making customers from the customer portfolio, etc.

Still, knowing where the customers are located in the profitability area and making the appropriate changes requires valid and accurate data from ABC model. Our focus on customer profitability is due to the fact that for service providers, such as Ipko, it is much more crucial to manage and control the customer and customer segments profitability than product or service profitability. This phenomenon is a result of specifics in the service industries, where usually, the sales include also post-acquisition activities, such as customer service or support, which is not often the case with the manufacturing businesses. In other words, the customer profitability for service companies depends heavily on the behaviour of each specific customer. Although many of the customers have bought the very same service package, the profit generated by every single customer is not the same, as a result of their different behaviour and demands for support by the service provider. Therefore, the telecommunication service providers need to identify the difference in profitability of individual subscribers, even those using standard service packages. Unlike to the conditions valid for a manufacturing company, customer is the one who, to a large extent, determines the volume of demands for the providers operating activities, and consequently the costs of these activities in the service industries.

Many service companies, such as financial institutions and telecommunication companies, offer a full line of products or services to customers. Often an entry product operates at breakeven or loss levels. The product and its pricing are justified as a strategic product, since the product enables the institution to leverage the customer relationship by selling products and services that are more profitable. But many companies lack the ability to track all the services used by individual customers. To manage the complete customer relationship, the company must know the profitability of each product or service used by an individual customer and the total profitability of the relationship, which is the sum of the profits or losses on each product used by the customer. Suppliers who are the first ones to exploit the opportunities for activity-based pricing, gain clear short-term advantages. They recover costs that their competitors are absorbing and change customers' behaviour to lower the cost of serving them. Moreover, they can gain additional market share by offering lower prices to customers who wish just the basic level of services, and shed customers who are not willing to change their behaviour to allow a minimum level of supplier profitability (Kaplan & Anderson, 2007).

5.5.3 Process optimization

Process optimization is more related to the activity-based management than to activity-based costing concept. Elimination of the waste from organization's processes is also one of the major goals of the management, but what it is needed is a comprehensive picture of the key processes and activities of the company. Optimization of processes is an action that requires detailed analysis on identified key activities and which cannot be supported by the traditional costing systems. Besides the definition of activities, those analyses should include evaluation and costing of the activities in scope in order to acquire the necessary statistical and financial information for identifying and realization of potential improvements of the company's profitability. Horizontal axes of the ABC/M cross (chapter 1.2; figure 1.) indicating the process view, relate to the activity-based management, as it presents the critical processes and activities within the organization, which can be included in the scope of process optimization related objectives. Companies that have not applied an ABC/M concept in their costing methodologies regularly do not have such process based structure and view but use simpler and less efficient across-the-board cost-cutting methods, when it comes to cost savings.

Yet, to be able to provide long-term savings, that can either have impact on the profits increase or will support the retail prices decrease in order to gain competitive advantage on the market, Ipko has to reach deeper knowledge and understanding of its internal processes and belonging activities. In that way, the Company can set the bases for further optimizations of activities or even elimination of some that are recognized as non-value adding, especially from customer perspective. It is important to notify that, regularly, the telecommunication subscribers are not willing to pay for certain activities which, in their

opinion, do not improve the quality of service they use or do not influence the decrease of prices of services they are charged for.

The positive effects and improvements of profitability by optimization of processes can be achieved in several ways and areas:

- Lower process costs can enable additional decline of selling prices without decreasing the profit margins
- More efficient processes usually means shorter process time and consequently higher level of customer satisfaction and loyalty
- Lower process costs can enable higher profit margins by keeping the selling prices unchanged
- Eliminating some of the activities identified as a non or low-value adding, can significantly contribute to optimization of the overall organization and its processes, and discover substantial profit potentials
- Improved process efficiency usually leads to improvements in the overall effectiveness of the company and better delivery standards

Cokins (2001), has written that “as organizations have begun to adopt "process-based" thinking, they are recognizing the greater importance of managing their outputs, in contrast to just managing their hierarchical, stove-piped functions. Business processes create and deliver customer value as the work outputs traverse organizational boundaries. Process-based organizations view themselves less as a stand-alone business and more as a link in a value chain that, in its entirety, might possibly extend from the source dirt and minerals all the way through to the consumer hand-picking a product from a retailer's shelf. Each link effectively matches the organization's individual customers with its resources. Ideally, value is added at every step along the way. Unfortunately, at some steps costs are added but not much value. Continuously improving planning software tools assist in this process that matches customers with resources. ABC/M mirrors these execution systems with excellent cost data visibility. Some of the ABC/M data are applied within the ERP and planning tools for optimizing schedules and delivery routes.”

To summarize, Ipko management can extract from ABC model useful information about the costs of different activities in order to improve processes and reduce costs of the different activities. By setting a targeted reduction costs of activities (e.g. order processing, complaints resolution, etc.) and eliminating certain activities with the belonging costs, which in perception of the customers do not add value, the Company may achieve significant level of process optimization. Furthermore, the management can identify and evaluate new designs to improve performance by analyzing how product and process designs affect activities and costs. By utilizing the ABC system and cost information, it can also plan and manage activities and to determine which activities should be performed during certain periods and what cost of activities can be considered as acceptable. Detailed

information on processes and activities can improve the understanding how the different aspects of cost influence on the total costs. Managers can also understand the drivers of different cost categories and use this information for pricing and product-mix decisions, cost reduction and process-improvement decisions, design decisions and to plan and manage activities. The cost reductions can be realized by making process improvements that reduce the activities or by reducing the costs of doing the activities.

5.5.4 Decision-making support

The information derived from ABC system can be used by the management not only to track the costs of operations, but more importantly to support the strategic decision-making process. These decisions refer to pricing, investments in technology, definition of value-added services, increasing the level of customer satisfaction and loyalty, control of the service and customer profitability, optimization of distribution channels, process redesign, etc. The key focus of the managers today is on finding profit opportunities, not only on the market, but within the organization, as well. This means identifying all profit increasing opportunities by using sophisticated management-information systems that can be supported profitability management tools, such as ABC model. Traditional costing methodologies often provides misleading information on profitability of customers, services or distribution channels due to the usage of subjective indirect costs allocation methods, where overheads are being added to final products or customers by using allocation keys determined on the bases of categories like revenues, number of customers, number of transactions, etc., and which are not in direct relation with the final cost objects. Activity-based concept, on the other hand, offers another perspective on this issue due to its embedded cause-effect logic, which imply assignment of overheads via reasonable cost drivers based on consumption of resources and activities by the services and customers. "ABM enables management to make informed decisions about lines of business, product mix, process and product design, what services should be offered, capital investments, and pricing" (CIMA, 2001).

In regard to the relations between ABC/M and Value-Based Management, Cokins (2001) elaborates that "eventually management has to examine how all the effort and deployment of the organization's resources (i.e., its physical and capital costs) relate to what customers will buy (where profit is the derivative) and translate this into how investor and owner wealth (VBM) is created. Regardless of titles, the ABC/M data will ultimately become recognized as the necessary ingredient for managers and employees to distinguish which work and how much of it connects the organization's actions with its wealth creation-and to consequently make better, value-creating decisions. With VBM data driven down into the organization via ABC/M, managers and employee teams can increase shareholder wealth by:

- Focusing on profitable customers, channels, and products

- Addressing value-destroying customer, channels, products, and processes
- Increasing revenue-related activities while holding invested funds constant
- Reducing assets while holding revenue-related activities constant
- Investing in assets whose return is higher than the firm's cost of capital

Without ABC/M data, there is considerable guesswork in the actions taken by managers and employee teams. Shareholder wealth may be decreased." On the other hand, Smith (2005) argue that ABC is still essentially a historic cost system, and as such it should be regarded as a starting point for future cost information, rather than as a direct input into the decision-making process.

There are several different business areas where Ipko management can benefit and obtain valuable inputs for improving the decision making process, by adopting ABC/M concept:

- Pricing and bundling of services on the basis of product profitability analysis
- Customer segmentation and retention on the basis of customer profitability data
- Sales and distribution channels on the basis of profitability analysis
- Value-Based management by identifying value-adding processes and activities
- Investments in technology via business cases that include data from ABC model
- Headcount optimization through process re-design
- Supply chain management, etc.

Mainly, focus of the telecommunication operators in the last years is on the decisions that support profitability growth, i.e. those related to product / service / customer profitability and process optimizations. In this regard, data supporting appropriate decisions on profitable pricing and service combinations as well as on retention of the profit-making customers comes on the top of the most important potential benefits and competitive advantages that could be gained from application of ABC/M methodology by the Company.

5.6 Summary: findings and recommendations

Several aspects of the costing methodologies, related management tools and also the factors influencing on potential implementation of Activity-Based Costing and Management concept in Ipko Telecommunications LLC have been placed in the focus of the above discussion. Yet, having the enormous number of studies, researches, surveys and theories in this area during the last few decades, there are issues that could not be elaborated in sufficient details.

In summary, the following table includes the key issues examined throughout this work as well as related findings and recommendations.

Table 7. Key Problems, Findings and Suggestions

Key Problems Discussed	Findings	Suggested Solutions
Applicability of ABC concept in telecommunication industry	High ratio of overheads in total costs of service providers and certain regulatory requirements drive the necessity for sophisticated costing methodology	For the purpose of appropriate assignment of overhead costs to products offered or customers acquired, it is useful for the large telecom providers to apply some form of ABC model
Common benefits from implementation of ABC/M in telecommunication providers	Improved service/customer profitability analysis, pricing policy, budgeting, processes' optimization, decision-making process	All areas where ABC/M could bring benefits can create important competitive advantages in the telecommunication industry, so Activity-Based Costing, Management and Budgeting concept should be considered for implementation
Can SAP system adequately support the implementation and maintenance of the ABC model	SAP-CO-OM-ABC module and Profitability and Cost Management (PCM) system can support design and maintenance of the ABC /M model	Having already implemented SAP ERP system, Ipko should consider its upgrade with the additional modules and functionalities in order to utilize the ABC related features of the system
Applicability of ABC/M in Ipko Telecommunications llc.	In order to improve profitability and maintain its market position, employment of more sophisticated costing methods may be considered by the management of the Company	Comprehensive feasibility study will be needed prior taking decision on implementation of the model, as well as on the specifics of such project in regards to its scope, size and complexity
Major risks and limitations from implementation and maintenance of ABC/M model in Ipko Telecommunications llc.	Potentially high volume of financial, IT and human resources required for implementation and maintenance of the system; Needs for additional trainings and know-how transfer	In order to avoid pitfalls and risks that usually follow such projects, the management will have to address each potential risk specifically, prior taking any decision on launching such project
Most appropriate size of ABC/M model which is to be considered for implementation in Ipko Telecommunications llc.	Existing IT systems, complexity of internal processes, behavioral characteristics of the organization, competences of internal resources, availability of financial resources should be considered in order to take decision on the specific model	Performing comprehensive analysis prior taking decision on the specific ABC model, taking into consideration long-term benefits and efforts needed for maintenance is of key importance in order to avoid failure of the project
Applicability of Time-Driven ABC model in Ipko Telecommunications llc.	TDABC is designed to better serve smaller organizations and eliminate drawbacks of conventional ABC resulting from its complexity and high costs for implementation and maintenance	TDABC appears to better fit the processes and organization of Ipko considering its size, availability of financial resources and complexity of internal processes

The limitations and constraints in performing this study are primarily related to the difficulties in accessing the internal data of telecommunication service providers. It is a common practice of telecom companies that the details related to internal systems and processes, statistics on business results and internal analysis are considered to be highly confidential, and as such cannot be frequently found in their published reports, documents

or web pages. Also, the lack of published evidence on practical experiences in utilization of certain advanced costing techniques in similar organizations doing business in the surrounding region restricts the possibility to perform comparative analysis on the samples of larger scale.

Future research on this subject may include more detailed, in-depth analysis on Ipko's internal processes, behavioural and cultural characteristics of the organization as well as on the business specifics relevant for decision on implementation of a specific ABC/M model in the Company.

CONCLUSIONS

In regards to the issues raised throughout this work, there are certain important conclusions that could drive some future actions on the subject. Several research questions were analyzed and on some of them it appears to be rather difficult to get to an unambiguous standpoint.

It is relatively obvious that telecommunication operators, like most of providers doing business in the service industries, can gain substantial advantages by adopting the ABC concept. Most of those companies have exceptionally high ratio of overheads in total costs, which suggest that there is a need of sophisticated cost assignment methodology in order to obtain reasonable information on the profitability of its services and customers. Furthermore, there is a substantial volume of the industry specific, sales and post-sales activities, for whose control and optimizing, the activity-based management technique could be most appropriate.

Still, the experience shows that there are serious concerns related to financial, technical and behavioural aspects of the ABC/M implementation. The method proved to be difficult to implement in smaller-size companies, primarily due to its complexity and high volume of financial, IT and human resources required for its implementation and maintenance. Also, the issues related to corporate culture and employees' unwillingness to provide realistic inputs for the activity-based system design, usually produce additional problems with its adoption. In general, the most frequently stated risks and limitations of the system refer to high costs of the implementation and uncertain benefits from its adoption. It is of crucial importance to minimize these risks by the right choices on the scope and complexity of the model which is to be designed as well as to set precisely defined and achievable objectives which are to be realized by the project.

On the subject of applicability of Activity-Based Costing and Management concept in Ipko, several points are to be highlighted and taken into consideration:

First, Ipko organization will presumably need some more sophisticated costing methodology in the near future. As the Kosovo telecommunication market approaches saturation phase, the competition between operators is going to be fiercer. That will require additional efforts in the areas of profitability analysis and process optimizing in order to protect and improve the market position by keeping the existing customer base and acquisition of additional subscribers as well as improving the profit margins at the same time. Having the recent industry and economy trends, this will not be easy assignment to complete, therefore, a better understanding of internal processes and activities as well as their impact on profitability of customers and services offered, will be an unavoidable task for all of the business entities on the market.

Second, the already implemented SAP R/3 system in Ipko is an advantage if the decision on implementing ABC would be taken. Although there will be a need for additional customizing and process re-design as well as for additional know-how transfer and related trainings for existing users, the currently used ERP set-up and the routine in its practising by the financial officers of the Company, provides enough ground for development and upgrades towards more advanced utilization of the system.

Third, the most important benefits from ABC/M implementation in Ipko could be expected in improvement of the cost controlling, profit analyzing, process optimization and decision-making process. Pricing policies will continue to be under pressure by competitors, so the decisions related to tariff models definition, customer retention, customer segmentation and sales / distribution channels, clearly come in focus of the telecom operators' management. By employing such advanced costing models, the Company can obtain better insight in profitability of specific customers and services sold, which can enable the management to take more appropriate decisions on what service combinations and customer segments are to be promoted or terminated. On the other hand, activity-based management techniques can strongly support elimination of non-value adding activities, shortening of the existing processes, and in that way, create opportunities for additional cost savings within the organization.

Finally, based on the analysis of the Company size and specifics of its internal processes, it would be recommendable to consider the simplified Time-Driven ABC model for implementation in Ipko. The conventional ABC probably hides too many risks related to project outcomes especially in relation to its complexity and financing. Also, it proved to be less flexible for further maintenance and upgrading, which may be a critical issue for organizations doing business in the fast changing telecommunication sector. Time-Driven ABC, on the other hand, may offer the required simplicity, flexibility and efficiency of the system, which fits better with the limited resources that the Company can dedicate to the project.

However, in order to take the right decision if such project is to be initiated, the management of Ipko will have to build a comprehensive feasibility study, including evaluation of all the crucial aspects such as financing, scope, complexity level, availability of internal human and technical resources, risks and expected long-term benefits of the system.

REFERENCES

1. Better Management (2005 September). *Activity Based Costing: How ABC is used in the organization.* Retrieved February 12, 2013 from http://www.silicon.com/white-papers/it-budgeting/2008/01/08/activity-based-costing-how-abc-is-used-in-the-organization-60243878
2. The Chartered Institute of Management Accountants – CIMA (2001, April). *Technical briefing: Activity-Based Management – An overview.* Retrieved February 12, 2013, from http://www.cimaglobal.com/Documents/ImportedDocuments/ABM_techrpt_0401.pdf
3. Cokins, G. (2001). *Activity-Based Cost Management: An executive's guide*. New York, NY: John Wiley & Sons, Inc.
4. Cokins, G. (2006). *Implementing Activity-Based Costing*. Montvale, NY: Institute of Management Accountants.
5. Colin, D. & Mohammed, A.O. (2007). Organizational and behavioural factors influencing the adoption and success of ABC in the UK. *Cost Management, Volume 21*. USA: Warren, Gorham & Lamont Inc.
6. Cooper, R., & Kaplan, R. (1992). Activity-Based Systems: Measuring the costs of resource usage. *Accounting Horizons / September 1992*. USA: American Accounting Association.
7. *Crnogorski Telekom a.d. – Company portal*. Retrieved September 18, 2012, from http://www.telekom.me
8. Garrison, R., & Noreen, E. (2000). *Managerial accounting.* Boston Massachusetts: McGraw-Hill/Irwin.
9. Gosselin, M. (1997). The effect of strategy and organizational structure on the adoption and implementation of Activity-Based Costing. *Accounting, Organizations and Society, Volume 22,* Issue 2. Oxford, UK: Elsevier Ltd.
10. Gosselin, M. (2007). *Review of Activity-Based Costing: Technique, implementation and consequences*. In C. Chapman, A. Hopwood & M. Shields, *Handbook of management accounting research.* Volume 2 (pp. 641-671). Oxford, UK: Elsevier Ltd.
11. Hilton, R. (2005). *Managerial accounting: Creating value in a dynamic business environment.* New York, NY: McGraw-Hill
12. Hopper, T., Scapens, R., & Northcott, D. (2007). *Issues in management accounting* (3rd ed.). UK: Pearson Education Limited
13. *Hrvatski Telekom d.d. – Company portal*. Retrieved September 12, 2012, from http://www.t.ht.hr
14. Innes, J., Mitchell, F., & Sinclair, D. (2000). Activity-Based Costing in the U.K.'s largest companies: A comparison of 1994 and 1999 survey results. *Management Accounting Research, Volume 11,* Issue 3. Oxford, UK: Elsevier Ltd.

15. *Ipko Telecommunications LLC – Company portal.* Retrieved September 20, 2012, from http://www.ipko.com
16. Johnson, T. & Kaplan, R. (1987). *Relevance lost: The rise and fall of management accounting*. Boston Massachusetts: Harvard Business School Press.
17. Kaplan, R., & Anderson, S. (2007). *Time-Driven Activity-Based Costing: A simpler and more powerful path to higher profits*. Boston Massachusetts: Harvard Business School Press.
18. Kaplan, R. & Bruns, W. (1987). *Accounting and management: A field study perspective.* Boston, Massachusetts: Harvard Business School Press.
19. Kaplan, R., & Cooper, R. (1998). *Cost & effect: Using integrated cost systems to drive profitability and performance*. Boston Massachusetts: Harvard Business School Press.
20. Katz, D. (2002). *Activity-Based Costing (ABC),* Retrieved December 18, 2011, from http://cfo.com/article.cfm/3007694?f=search
21. Krumwiede, K., & Roth, H. (1997). Implementing information technology innovations: The Activity-Based Costing example. *SAM Advanced Management Journal, Volume 62,* No.4. USA: Society for the Advancement of Management.
22. Krumwiede, K., R. (1998). The implementation stages of Activity-Based Costing and the impact of contextual and organizational factors. *Journal of Management Accounting Research, Volume 10*. USA: American Accounting Association.
23. Lyn Northrup, C. (2004). *Dynamics of profit-focused accounting: Attaining sustained value and bottom-line improvement*. USA: J. Ross Publishing.
24. Madhav, V. (2010). *Cost and profitability management: Gaps in traditional costing systems and how they can be overcome*. Retrieved December 11, 2011, from http://www.infosys.com/SAP/thought-leadership/Documents/SAP-cost-profitability-management.pdf
25. *Makedonski Telekom AD – Company portal*. Retrieved September 16, 2012, from http://www.t-home.mk
26. Oliver, L. (2004). *Designing strategic cost systems: How to unleash the power of cost information.* Hoboken, New Jersey: John Wiley & Sons, Inc.
27. Professional Accountants in Business Committee - PAIBC (2009). *Evaluating and improving costing in organizations.* New York, NY: International Federation of Accountants (IFAC).
28. *PCS Consulting – Web portal*. Retrieved October 15, 2011, from http://www.pcsconsulting.com/index.php/services/software/abcvendors
29. *PTK J.S.C. – Company portal*. Retrieved September 24, 2012, from http://www.ptkonline.com
30. SAP AG (2011). *SAP Library,* Retrieved September 24, 2011, from http://help.sap.com/saphelp_erp60_sp/helpdata/en/e1/8e51341a06084de10000009b38f83b/frameset.htm
31. Smith, M. (2005). *Performance measurement and management: a strategic approach to management accounting*. s.l. Sage Publications Ltd.

32. Sedgley, D., & Jackiw, C. (2001). *The 123s of ABC in SAP: Using SAP R/3 to support Activity-Based Costing*. s.l. John Wiley & Sons, Inc.
33. Shields, M. & Young, M. (1989). A behavioral model for implementing cost management systems. *Journal of Cost Management* (winter 1989). USA: Warren, Gorham & Lamont Inc.
34. Shields, M. (1995). An empirical analysis of firms' implementation experiences with Activity-Based Costing. *Journal of Management Accounting Research, Volume 7*. USA: American Accounting Association.
35. Shields, M. & McEwen, M. (1996). Implementing Activity Based Costing systems successfully. *Journal of Cost Management* (winter 1996). USA: Warren, Gorham & Lamont Inc.
36. Stratton, W., Desroches, D., Lawson, R., and Hatch, T. (2009). Activity Based Costing: Is it still relevant? s.l. *Management Accounting Quarterly*, *Vol. 10*, No. 3. Retrieved August 20, 2012, from http://bragstudies.com/pdf/MAQspring2009.pdf
37. Szychta, A. (2010). Time - Driven Activity - Based Costing in service industries. *Social Sciences / Socialiniai Mokslai. 2010.* Nr.1 *(67).* Retrieved August 20, 2012, from http://info.smf.ktu.lt/Edukin/zurnalas/archive/pdf/2010%201%20(67)/5%20Szychta.pdf
38. Tekavcic, M. (1997). *Obvladovanje stroskov.* Ljubljana: Gospodarski Vestnik.
39. *Telekom Slovenije d.d. – Ccompany portal*. Retrieved September 12, 2012, from http://www.telekom.si
40. *Telekom Srbija a.d. – Ccompany portal*. Retrieved September 12, 2012, from http://www.telekom.rs