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Implementation of Activity-Based Costing Systems by the Macedonian Insurance Segment: The Influence of Organizational Factors on the Adoption Rate

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Abstract

Numerous studies unveil the benefits of using activity-based costing systems (ABC) in the service industry in order to improve service quality while keeping costs under control. But, is ABC perceived as a strategic tool to improve competitive positioning and how should insurance businesses implement ABC to achieve this costing system benefits. Research on activity-based costing practices in developing countries is of limited scope. Joining knowledge obtained from literature review and previous research, this paper analyses the degree of ABC application in the Macedonian insurance industry and the related obstacles by performing a field study. The results indicate that certain organizational characteristics influence the decisions to adopt ABC methods, such as company size and product diversity. Other organization variables, such as ABC knowledge and cost structure, appear to be insignificantly related to the adoption. Furthermore, the study indicated that ABC adopters experience benefits in product pricing and cost control decisions, whereas non-adopters are discouraged due to system and behavioral issues.

Keywords: Activity-based costing, Adoption barriers, Macedonian insurance industry, Technical and behavioral hurdles, Systems issues

1. Introduction

Stringent competition forces are driving companies towards strategy reformation in order to achieve positioning success in the market. Hence, cost control, quality and operations efficiency are a must. Decision making and planning processes are enabled with the use of a

costing system that provides accurate cost data on various cost objects such as customers, products and services. In this regard, there is a prevailing shift in focus from conventional costing systems towards modern costing systems such as activity-based costing. In traditional cost allocation systems, overhead costs are spread over cost objects on volume basis, without identifying core activities and use of resources in proportion to the consumption of cost drivers adequate for various actives. Activity-based costing is directed towards accumulating an entity's overhead costs, mapping process activity flows, and assigning activity costs via cost drivers to cost objects, such as customers, products, services, or departments. Cost drivers help devise the relationship between activities and their related cost objects. ABC systems can help reclassify numerous indirect overhead costs into direct costs that can be linked to specific cost objects.

Given this feature of ABC accounting systems, employees and managers across organizations rely to a great extent on the product/service cost reported by these systems. The initial application of this system was amongst manufacturing companies. Nonetheless, service sector entities are increasingly interested in the adoption and implementation of ABC to be able to ease their decision-making processes (Kock, 1995).

Like in other countries, the Macedonian economy is by and large dependent on the service sector performance. The insurance industry is one major service sector component. As competition intensifies, insurance firms experience financial constraints due to poor cost information. Thus, they rely on the availability of timely and quality information for decision-making and the ability to keep operating costs under control. Consequently, insurance businesses adopt ABC driven by their cost accuracy needs, i.e. strive to know their true costs and profitability behind products and services offered. This strategic tool helps attain cost clarification objectives by transforming traditional overhead or indirect costs into direct costs.

Although activity-based accounting systems are expensive and complex to implement, organizations across the world switch to ABC for a number of reasons (Bhimani *et al.*, 2015):

- Short product life-cycles due to speedy technological advancement
- Intense market competition that has exited national borders
- Reduced cost system expenditure due to technology progress and growing ability to track activities and transactions across organizational units
- Increasing business complexity leading to diversified product portfolios
- Deciding on pricing, product line(s), process improvement, and outsourcing versus insourcing
- Greater needs to distinguish between value-added and non-value-added costs of activities as entities strive to remove all costs that do not add value to the customer through production process redesign.

Given these market and company complexities, the focus of cost management should be on cost management techniques that enable management to make better economic decisions (Horngren, 1995). But, these systems are costly to enforce and necessitate the engagement of time and expertise. In spite of the obstacles, field studies reveal that more and more companies switch to activity-based costing system in order to obtain cost information with better quality than traditional cost management systems (Adams,1996; Innes and Mitchell, 1997; Brignall, 1997).

It can be argued that ABC system adoption and success will depend upon specific factors such as firm size, ABC knowledge, cost structure, and product diversity. This study has the intention to examine which organizational variables have a significant relationship with ABC adoption and the reasons why the ABC take up rate in the Macedonian insurance sector is low. The survey respondents are classified into adopters and non-adopters, and the adoption difficulties are established separately for each group. The findings unveiled that the most important motive for implementing or considering ABC is that it provides information about resource consumption which helps in product pricing and cost control. Accurate information for product profitability is also found to be an important ABC driver. Furthermore, the study found that systems aspects behind ABC were the most prominent difficulties facing ABC non-adopters. Finally, the results indicated that satisfaction with the existing volume-based costing system was the most important reason why many Macedonian insurance businesses have not yet considered ABC.

This paper consists of five sections. Section two provides a review of literature and previous research related to activity-based costing systems. The research hypotheses and research methodology complemented with a discussion on limitations encountered are presented in sections three and four consecutively. The fifth section discusses the findings of the field research. The last section, section six, concludes the study and provides guidelines for future research.

2. Literature Review

Most businesses rely on a single costing system for multiple purposes such as cost control, pricing/product decisions, planning, and external reporting (Brignall, 1997). Before the set-up of activity-based costing systems, companies relied on traditional costing techniques known as volume-based costing systems, where cost drivers were based on volumes such as machine or direct-labor hours. Traditional costing systems advocate for sub-classification of costs into product and period costs while failing to indicate which costs of activities add value to production (Kaplan and Johnson,1987; Innes and Mitchell, 1997). The problems associated with this allocation method were highlighted in the late 1980s by Johnson and Kaplan who indicated that the traditional cost and management accounting approach relied on inappropriate overhead cost allocation methods thus spurring cost distortion. As a result, managers could not make the right strategic decisions for their businesses. Consequently, overheads should not be allocated to cost objects on the basis of volumes, but rather on the basis of activities responsible for generating overheads (Cooper and Kaplan, 1987, cited in Adams, 1996). Innes and Mitchell (1997) concluded that activity-based overheads facilitate

the targeting of wasteful resource consumption. Activity-based costing is a costing technique that analyzes the costs of activities required to generate a company's product or service (Baird *et al.*, 2004). ABC therefore provides accurate cost information feed for making strategic decisions within organizations.

Numerous research studies have provided empirical support as to the benefits of adopting ABC (Anderson, 1995; Foster and Swenson,1997; McGowan and Klammer, 1997). ABC is claimed to facilitate the decision-making process as to pricing, product mix and resource allocation (Spicer, 1993). Nowadays, activity-based cost systems step out of the manufacturing environment to enter the service sector. Studies discuss ABC benefits upon service sector adoption, such as telecommunications, transportation companies, financial institutions, hotels, and health institutions (Kock, 1995; Adams, 1996; Cagwin and Bouwman, 2002; Innes and Mitchell, 1997). Customers request services that often drive costs up without a corresponding increase in income. Hence, entities that are better equipped to quantify these costs are in a more favorable position to establish cost control (Kock, 1995). In fact, the ultimate goal is to avoid activities that do not add value to the product or service which will, in its turn, reduce costs without compromising the essential, value-adding, product features offered to customers. Consequently, one may confidently argue that service organizations increasingly turn their focus away from traditional volume-based costing systems and towards the activity-based cost management system.

The literature overview indicates two principal types of ABC research. The first type focuses on theoretical introduction to ABC, discussing activity-based cost systems upsides in comparison to conventional cost management systems. These studies also discuss the steps required to adopt ABC in organizations (Johnson, 1988; Shank and Govindarajan, 1988; Cooper, 1990; Kaplan and Atkinson, 1989; Glad, 1993). The second type encompasses case studies and focuses on actual ABC practices and implementation in companies. As the second type of research is of greater relevance for this paper, this paper will proceed with an overview of the available results.

In spite of intense ABC consideration by companies world-wide, implementation rates remain low. In a study conducted by Armitage and Nicholson, 14 percent of the surveyed 352 companies were using or in the process of implementing ABC in Canada (1993). In a related study encompassing UK manufacturing companies, 13 percent of 303 entities subject to research had or were implementing ABC (Drury *et al.*, 1993). Clarke (1992) presented slightly worse results (i.e. 10 percent) for Ireland, whereas Clarke, Hill, and Stevens (1999) found that 12 percent out of 204 respondents (Irish manufacturing firms) had implemented ABC. In their 1999 field research, Innes, Mitchell and Sinclair reported that 17.5 percent out of 177 responding UK firms were activity-based costing technique users, whereby the ratio for non-manufacturing firms of 12.1 percent was lower than the common average, and considerably lagging behind the manufacturing sector adoption rate (at 14.3 percent) and finance sector rate at 40.7 percent (2000).Nonetheless, difficulties were reported in relation to the ABC adoption process. Namely, defining activities, choosing cost drivers, and concept acceptance by employees company-wide were most evident upon ABC implementation in Canada (Armitage and Nicholson, 1993). Irish companies contemplating or adopting ABC

cite technical barriers as the primary reason for rejection (Abusalama, 2008). Abusalama finds that two sets of variables impact the adoption of ABC: contingent variables, such as company segment, competition, cost structure and size, which make ABC useful to have, and the company's keenness to address problems arising upon ABC adoption. Another study executed in the UK emphasizes the following implementation difficulties: other project priorities, inadequate staffing, lack of computer resources, amount of work, and choosing adequate cost drivers (Cobb *et al.*, 1992). Other organizations choose not to implement ABC in spite of awareness about its benefits. Cost of change, insufficient skills and lack of adequate system support were cited as the most outstanding difficulties in deciding not to adopt ABC across the company (Bright *et al.*,1992). Anderson (1995), Krumwiede and Roth (1997) and Krumwiede (1998) indicate that the success of ABC is associated more with behavioral and organizational variables than with technical variables whereas Abusalama (2008) concludes conversely. A research conducted by Spaseska *et al*. (2014) amongst 76 companies from the manufacturing and service sectors in the Republic of Macedonia indicates that the low adoption rate of ABC systems (i.e. 16 percent) is driven by a lack of ABC benefit awareness, inadequate top management support for accounting-driven ABC initiatives, and deficient cooperation between researchers and enterprises.

3. Research Hypotheses

Considering the deficient field work on activity-based costing system implementation in the Republic of Macedonia, the aim of this research is to study the adoption of ABC in the Macedonian insurance industry. Given the intense competition and customer pressure on price and quality, the set-up of an adequate costing system is indispensable in order to perform proper product profitability analyses and to reduce costs. Therefore, the principal research objectives can be stated as follows:

1. To determine the relationship between company and environment characteristics and the decision to implement ABC.
2. To identify and highlight ABC implementation benefits and hurdles encountered by Macedonian insurance businesses.

Following the overview of literature and research objectives this paper proceeds with a set-up of the research hypotheses.

3.1 Enterprise Size

Company size is often considered an important factor for ABC adoption as larger enterprises operate under greater complexity and have more sophisticated accounting needs. Hence, the interrelationship between company size and company ABC adoption represents a topic of foremost ABC research interest. Elhamma (2012) executed an empirical investigation on ABC adoption and diffusion in Morocco finding that although the overall adoption rate was 12.9 percent, the result was considerably higher (i.e. 21.87 percent) in large entities. Innes *et al*. (2000), Clarke *et al*. (1999), Pierce and Brown (2004), and Dahlgren *et al*. (2001) concluded that big companies tend to have higher ABC implementation rates by studying the relationship between company size and the implementation of ABC by Swedish

manufacturing firms. Using a survey research, Akinyomi detected a significant relationship between firm size and ABC adoption in the manufacturing sector of Nigeria (2014). However, authors like Cinquini *et al*.(1999) and Baird *et al*. (2004) are under the opinion that size does not have an influence on this cost management system's implementation decision. This literature evidence is used as basis for testing our first hypothesis:

Hypothesis one: Bigger insurance companies are more likely to adopt ABC than smaller insurance companies.

3.2 ABC Knowledge

Askarany and Yazdifar's investigation of the ABC adoption rates in Australia, New Zealand and the UK (2011) suggests that insufficient understanding of the system influences the reported adoption rates, whereby a considerable proportion of adopters erroneously classify themselves as traditional accounting system users. Users may refuse to accept activity-based costing techniques if they are not knowledgeable enough to use the generated data packages (Khozein, 2009). Abdel-Maksoud *et al*. (2007) conducted a field survey in Italy inquiring about the use of non-financial performance measurement and implementation of modern management accounting methods. Their survey indicated that ABC is the third most preferred technique, with customer profitability analysis and benchmarking of performance taking the lead within a research sample of 129 companies. 44.2 percent of the respondent entities do not apply ABC due to lack of understanding by Italian managers. Al-Khadash and Nassar (2010) tested the relationship between ABC awareness and adoption level by surveying 65 Jordanian industrial shareholding companies listed on the Amman Stock Exchange in 2009. The authors found that high ABC awareness amongst financial managers is associated with a real practice of this management costing system given the impact that financial managers have on the actions of key decision makers. O'Dea and Clarke (1994) consider lack of knowledge to be one of the key drivers behind low ABC adoption rates. This research evidence is used as a starting point to test our second hypothesis:

Hypothesis two: There is a positive correlation between level of knowledge about ABC and adoption of ABC.

3.3 Cost Structure

Numerous field studies analyze the impact of cost structure on ABC adoption attitude. Using semi-structured interviews to study multinationals in Ireland, O'Dea and Clarke (1994) found that organizations that dismiss the idea of ABC implementation choose to do so due to low overheads to total costs ratio. Also, Björnenak's questionnaire (1997) on the diffusion of ABC in Norway indicates that cost structure is one of the variables that have impact on the system's adoption. Innes *et al*. (2000) report on top 1000 UK companies found that companies rejecting ABC after assessment name several reasons, low overhead costs being one of them. Pavlatos (2011) finds a positive association between firm cost structure and ABC acceptance by performing a study on Greek hotels. On the other hand, authors like Cinquini *et al*. (1999) insist that there is no association between ABC implementation and the company overhead ratio. Nguyen and Brooks (1997) conducted a survey in the State of

Victoria in Australia and noticed an absence of positive relationship between overhead costs ratio to overall manufacturing costs and ABC adoption. This research will therefore test the influence of cost structure on ABC system adoption by posing the following hypothesis:

Hypothesis three: Companies with higher overhead to total cost ratio are more likely to adopt ABC systems than companies with low overhead percentage.

3.4 Product Diversity

ABC researchers claim that product cost reporting under this cost management technique provides better accuracy than conventional accounting systems. Namely, companies offering diverse products and/or services report distorted costs of products when relying on conventional volume-based systems due to over-costing of high-volume and under-costing of low-volume items (Cooper, 1988). Numerous researches examine the positive impact of product diversity on ABC adoption (Björnenak, 1997; Clarke *et al*., 1999; Nguyen and Brooks, 1997). Conversely, some studies indicate that there is no association between product diversity and the adoption of ABC systems (Dahlgren *et al*., 2001; Groot, 1999). This research will test the impact of product diversity on ABC system adoption by posing the fourth hypothesis:

Hypothesis four: Companies with higher product/service diversity are more prone to adopt ABC than firms with limited product diversity.

The relationship of questionnaire items to the paper hypotheses is depicted in the following table.

Table 1. Questions and hypotheses relationship

Hypothesis	Questions related to the paper hypotheses
H1	Q 10 (ABC adoption) Q 2+3 (Company size)
H2	Q 10 (ABC adoption) Q 8 (ABC knowledge)
H3	Q 10 (ABC adoption) Q 7 (Cost structure)
H4	Q 10 (ABC adoption) Q 4 (Size of product portfolio)

Note: Data extracted from the survey.

4. Research Methodology

A two-part questionnaire comprised of 20 questions was assembled to collect research information. The questions are modeled upon the study of Al-Basteki and Ramadan (1998) focused on identifying ABC practices in Bahraini manufacturing firms and Abusalama's survey (2008) conducted amongst the top 1000 Irish companies. The first section examines company characteristics by asking general information such as type of insurance products handled by the entity, entity size, size of product portfolio, cost management techniques

currently employed, and cost structure. The purpose of the first section enquiries is to establish a correlation between company-specific factors and the predisposition to ABC adoption.

The second section focuses on ABC adoption status amongst the respondents. This section relates to knowledge of ABC, status of ABC adoption, involvement in the implementation of ABC, reasons for adopting ABC, the level of ABC success and importance, difficulties in the course of ABC implementation, reasons for not adopting, future plans regarding this system's adoption. The survey avoided questions that may have been considered sensitive by the target group.

During spring and summer of 2017, a total of 60 questionnaires were sent via electronic mail or delivered by hand to targeted respondents from the 15 insurance companies (11 non-life and 4 life), 33 insurance brokerage companies, and 12 insurance agencies doing business on the territory of the Republic of Macedonia. The survey respondents are accounting professionals and managerial staff actively involved in decision making. In order to avoid misinterpretation of questionnaire items by target respondents, the questionnaire was pilot tested on a small sample of subjects/qualified employees from the target service segment. The feedback obtained from the field pilot test was used to refine the questionnaire.

The questionnaire survey consists of a wide range of questions but is concise and relevant. There were two types of questions:

- Multiple-choice questions with survey respondents making their choice based on a list of preset responses. This study required specific information requiring an answer from several selections available. However, not listed answers could be added in a blank space provided in response to certain questions.
- Likert-type questions, applied in social science research to designate the degree of agreement or disagreement. This research makes use of a 5-point Likert-type scale.

The response rate was 34 questionnaires, which represents an overall response rate of 56.7 percent. No incomplete questionnaires were returned. Hence, the usable and the overall response rates are identical.

In order to test for non-response bias, the first and the last 20 percent of questionnaires answered were subjected to comparison. T-tests were applied to determine significance levels for both. The result contained no considerable differences, thus indicating an absence of a non-response bias.

As to analytics procedures, SPSS program was applied for quantitative data processing. The SPSS analysis generated suitable descriptive statistical evidence, including means, frequencies, standard deviations, and Fisher's exact test given the size of the sample. Non-parametric testing was considered appropriate for this study because the Likert-type scale employed has rank meaning and the dependent variable is of nominal nature.

In regards to the limitations, the survey results may not be representative of the population subject to our interest because of several limitations. To start with, in spite of survey clarity

pre-testing, one cannot exclude the existence of differences in the respondents' and author's interpretation of the questions. Moreover, some respondents might not have taken the questionnaire seriously due to lack of personal incentive for them. Given the number of businesses that comprise the Macedonian insurance segment (total of 60 as of spring 2017), the usable sample size (34) was compatible with samples of entities used by studies such as Al-Basteki and Ramadan (1998), Saaydah and Khatatneh (2014), Dekker and Smidt (2003), and Akinyomi (2014). However, the choice of a particular industrial segment as target segment for this study may impose limitations as to the generalisability of the research findings. Namely, we might have reached different conclusions if we opted for a larger sample size by including multiple service sectors. Moreover, despite the high response rate (i.e. 56.7 percent), the number of entities using ABC systems is rather low: 6 companies. Hence, the statistical tests may not be meaningful due to obvious size limitations.

5. Research Results

The findings uncover several aspects as regards to ABC adoption by Macedonian insurance businesses.

5.1 Organizational Characteristics

Respondents were asked to indicate the insurance industry sub-segment in which they operate. The results show that most of the survey participants are part of the non-life insurance segment.

Table 2. Insurance industry sub-segment

	Frequency	Percent
Life	3	8.8%
Life/Non-life	4	11.8%
Non-life	27	79.4%
Total	**34**	**100.0%**

Note: Data extracted from question 1 of the survey.

As presented in the Table 2, 9 percent operate in the life insurance sub-segment. 12 percent of entities operate with both, life and non-life insurance sales, whereas 79 percent are part of the non-life insurance industry. These results fit to a large extent the structure of the Macedonian insurance businesses whereby 11 out of 15 insurance companies form the non-life segment, insurance agencies follow the sales portfolio of the insurance company they represent, while insurance brokerage companies are entitled to sell the portfolios of all insurance companies with headquarters on the territory of the country.

Table 3 summarizes the findings as regards to degree of importance of various objectives when it comes to allocating overhead costs by the 34 firms examined in this research. The

table indicates that most companies place the largest emphasis on the importance of performance evaluation and its accuracy in relation to the allocation of overheads (mean = 4.382; total score = 149.0). With a mean value of 4.059, the second place is occupied by product cost control activities, given the improved precision of cost distribution following proper allocation to cost activities and cost objects. Product planning, product price and external reporting have mean values higher than 3 and are also perceived to be important in cost allocation.

Table 3. Degree of importance in allocating overhead costs

	Product cost control	Product price	External reporting	Product planning	Performance evaluation
N	34	34	34	34	34
Mean	4.059	3.265	3.206	3.471	4.382
Std. Deviation	0.343	0.790	0.808	0.896	0.888
Range	2.0	3.0	2.0	3.0	3.0
Minimum	3.0	2.0	2.0	2.0	2.0
Maximum	5.0	5.0	4.0	5.0	5.0
Sum	138.0	111.0	109.0	118.0	149.0

Note: Data extracted from question 6 of the survey.

In spite of the high degree of importance companies place on overhead allocation, Table 4 shows that the majority of respondents (18 of the 34 entities, or 53 percent) apply only one overhead cost allocation basis. The dominant factor is number of insurance policies, followed by number of employees. The remaining 47 percent prefer to apply more than one allocation factor given the complexity of the insurance business and the various operations drivers behind it. The focus on selecting a single allocation factor, which allows for simplicity, seems to be consistent with the research of Al-Basteki and Ramadan (1998) who found that the majority, or 61 percent, of their respondents from the Bahraini manufacturing segment prefer to use only one overheads allocation driver. On the other hand, research evidence from Turkey disclosed that 59 percent of respondents apply two or more bases for allocating manufacturing overheads (Öker, 2002).

Table 4. Bases used for allocating overhead costs to products

	Frequency	Percent
Single overheads allocation basis	18	52.9%
Single overheads allocation bases	16	47.1%
Total	**34**	**100.0%**

Note: Data extracted from question 19 of the survey.

In relation to the allocation bases used, the questionnaire asked the respondents to state whether they are satisfied with their current overhead cost allocation practices. According to the findings, the degree of satisfaction is exactly split between two groups, as half of the respondents expressed their satisfaction with the current practices, while the other half stated that improvements are needed.

5.2 ABC Adoption

The following table presents data on the adoption of ABC by the Macedonian insurance industry by categorizing the 34 responses into adopters and non-adopters.

Table 5. ABC Diffusion in Macedonian insurance industry

	Frequency	Percent
Non-adopters	28	82.4%
Adopters	6	17.6%
Total	**34**	**100.0%**

Note: Data extracted from question 10 of the survey.

According to the table, the vast majority of entities belong to the group of non-adopters. Namely, only 18 percent or 6 companies have adopted this cost management system, as opposed to 82 percent of non-adopters. This outcome is comparable to numerous other studies conducted world-wide. Dahlgren *et al.*(2001), stated that ABC diffusion among Swedish manufacturing companies was 16 percent, complemented by additional 5 percent that have reached the decision to introduce this system. The results for Macedonia are also somewhat higher than the results obtained by Innes *et al.* (2000) whereby 12.1 percent of UK non-manufacturing firms were users of ABC. Furthermore, the level of ABC usage across the surveyed Macedonian organizations indicates to 17 percent of adopters using activity-based costing techniques across the entire organization, versus 83 percent adopting this system partially due to selective integration with the existing systems and practices. This result is

very close to the result obtained by Abusalama in his research of the Irish top 1000 companies (2008) where 82 percent of ABC users introduced the system only in particular areas, and Dahlgren *et al.* (2001) who found that 56 percent have a partial ABC system and cost integration.

When asked whether they plan to introduce ABC methods in the near future, 39 percent of the current non-adopters (i.e. 28 companies) provided a positive answer, while 50 percent chose no for an answer. The remaining respondents said that they have no concrete information about this topic. So, the interest in activity-based costing systems by the Macedonian insurance segment is moderate, which can be explained with their satisfaction with the currently used allocation approach given that half of the survey respondents stated that they are satisfied with their existing allocation methodology.

Respondents were asked to state which cost management techniques they use. As can be inferred from Table 6, no survey participant selected cost-volume-profit analysis (CVP) and job costing. Balanced Scorecard was the third least preferred technique. However, the findings indicate that most entities apply more than one cost management tool (32 or 94 percent), whereby budgeting and standard costing were the favorite practices. ABC was in use in companies applying five or more cost management techniques, indicating that the method is preferred by organizations with sophisticated cost and management accounting systems.

Table 6. Cost management techniques applied

	Overall	Standard costing	Job costing	Process costing	Budgeting	Target cost planning	BSC	NPV	ROI	Payback period	CVP	ABC
Single technique	2	2	-	-	-	-	-	-	-	-	-	-
Multiple techniques	32		-	-	-	-	-	-	-	-	-	-
Two techniques	-	12	-	-	14	2	-	-	-	-	-	-
Three techniques	-	5	-	-	5	5	-	2	2	2	-	-
Four techniques	-	4	-	1	4	4	1	2	2	2	-	-
Five or more techniques	=	5	-	5	5	5	2	4	1	1	-	6

Note: Data extracted from question 5 of the survey.

5.3 ABC Implementation: Involved Parties, Implementation Factors, Success Areas, Difficulties

Regarding the initiation, 83 percent of ABC adopters stated that their finance managers initiated the implementation process. Only one entity indicated that activity-based costing was initiated by their Board of directors. Table 7 summarizes the findings as regards to involvement in the ABC implementation process of various departments and participants.

Table 7. Involvement in ABC implementation

	Finance	IT department	External consultants	Underwriting	Sales & Marketing	Procurement	Legal and compliance	Claims department	Board of directors
N	6	6	6	6	6	6	6	6	6
Mean	5.000	4.667	3.167	4.000	2.833	4.167	4.167	4.333	4.833
Std. Deviation	0.000	0.516	0.983	0.894	0.983	0.753	0.753	0.516	0.408
Range	0.0	1.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
Minimum	5.0	4.0	2.0	3.0	2.0	3.0	3.0	4.0	4.0
Maximum	5.0	5.0	4.0	5.0	4.0	5.0	5.0	5.0	5.0
Sum	30.0	28.0	19.0	24.0	17.0	25.0	25.0	26.0	29.0

Note: Data extracted from question 13 of the survey. Low = 1, high = 5.

With a mean value of 5.0 and score sum of 30.0, the table indicates that in-house accountants and finance staff are the most engaged experts in ABC implementation. They are closely followed by the Board of directors (mean = 4.833; total score = 29.0), and the IT department (mean = 4.667; total score = 28.0). Accountants and senior management were also indicated as the most engaged parties in ABC adoption by Irish companies (Abusalama, 2008).

Given the mean of 4.833 and score total of 29.0, most Macedonian insurance industry adopters indicate that the lack of adequacy in their existing cost allocation methods stimulated their decision to adopt activity-based costing methodology. The second driver was the intensifying market competition (mean = 4.333; total score = 26.0), followed by increasing overheads (mean = 4.167; total score = 25.0). Legal and compliance requirements, along with expanding portfolios were also deemed to be important by score, in spite of their bottom positioning.

Table 8. Importance of factors in the decision to adopt ABC

	Increasing overheads	Increasing No. insurance classes	Inadequate allocation method	Legal/compliance requirements	Intensifying competition
N	6	6	6	6	6
Mean	4.167	3.833	4.833	4.000	4.333
Std. Deviation	0.753	0.753	0.408	0.894	0.516
Range	2.0	2.0	1.0	2.0	1.0
Minimum	3.0	3.0	4.0	3.0	4.0
Maximum	5.0	5.0	5.0	5.0	5.0
Sum	25.0	23.0	29.0	24.0	26.0

Note: Data extracted from question 14 of the survey. Not important = 1, critical = 5.

Controlling and cost focus were the ultimate reason for ABC adoption by Danish medium-size and large manufacturing companies (Nielsen *et al*., 2004) and Swedish manufacturing firms (Dahlgren *et al*., 2001), whereas Abusalama's survey of Irish top 1000 companies (2008) pointed out the inability of conventional systems to provide users with relevant cost data, findings fully compliant with the outcome of this survey.

The adopting entities were asked to rate using a 1-5 Likert scale the usefulness and success areas related to activity-based costing practices. The results indicate that the first place by importance is occupied by product pricing decisions, with a mean of 5.0 and total score of 30.0. This item is closely followed by cost savings (mean = 4.833; total score = 29.0), and improvements in the company performance measurement (mean = 4.333; total score = 26.0) and reward system (mean = 4.167; total score = 25.0). These findings are summarized in Table 9.Irish and Swedish firms also rate product pricing and cost reduction as success areas of ABC (Abusalama, 2008; Dahlgren *et al*., 2001).

Table 9. ABC system success areas

	Product pricing	Cost savings	Planning	New product design	Customer profitability analysis	Value added analysis	Insourcing/ Outsourcing decisions	Cost modeling	Restructuring decisions	Performance measurement	Strategic planning	Reward system	Capital investment decisions
N	6	6	6	6	6	6	6	6	6	6	6	6	6
Mean	5.000	4.833	3.333	3.667	3.333	3.667	2.167	4.000	4.000	4.333	3.500	4.167	3.833
Std. Deviation	0.000	0.408	1.033	0.516	0.516	0.516	0.753	0.894	0.632	0.516	1.049	0.408	1.169
Range	0.0	1.0	3.0	1.0	1.0	1.0	2.0	2.0	2.0	1.0	3.0	1.0	3.0
Minimum	5.0	4.0	2.0	3.0	3.0	3.0	1.0	3.0	3.0	4.0	2.0	4.0	2.0
Maximum	5.0	5.0	5.0	4.0	4.0	4.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0
Sum	30.0	29.0	20.0	22.0	20.0	22.0	13.0	24.0	24.0	26.0	21.0	25.0	23.0

Note: Data extracted from question 15 of the survey. Low = 1, high = 5.

Using a Likert-type scale, respondents were then asked to assess the technical difficulties related to the implementation of ABC in their companies. As can be seen in Table 10, most issues were encountered upon assigning resources to activities, given the mean of 3.5 and total score of 21.0.

Table 10. ABC implementation hurdles per area

	Designing the system	Defining activities	Assigning resources to activates	Selecting cost drivers	Assigning the costs of activities to cost objects
N	6	6	6	6	6
Mean	2.833	3.333	3.500	2.667	3.333
Std. Deviation	0.753	0.516	0.548	0.816	0.516
Range	2.0	1.0	1.0	2.0	1.0
Minimum	2.0	3.0	3.0	2.0	3.0
Maximum	4.0	4.0	4.0	4.0	4.0
Sum	17.0	20.0	21.0	16.0	20.0

Note: Data extracted from question 16 of the survey. Very easy = 1, extremely difficult = 5.

Defining activities and assigning cost of activities to cost objects were assessed as the second most problematic area (mean = 3.333; total score = 20.0). As opposed to these results, Abusalama found that selection of cost drivers and designing the system were scored as being the most difficult task to tackle (2008).

5.4 Enterprise Size

5.4.1 Number of Employees

Section one on organizational characteristics contained two questions that enabled the researcher to denote the size of the surveyed insurance companies. The first question asked for number of employees, whereby the surveyed entities were classified as small (less than

100 employees) and big (100 employees or more). The classification is relative because the study sample is not representative of the entire Macedonian economy nor is the classification rule. Table 11 depicts the distribution of firms according to their size based on number of staff across adopters and non-adopters.

Table 11. Variable empiric frequencies: number of employees (firm size: displayed in rows) and answer bimodality in correlation to ABC adoption (displayed in columns)

		Current ABC adoption status		
Number of employees		No	Yes	Total
Less than 100	Count	23	2	25
	% within No. employees	92.0%	8.0%	100.0%
	% within ABC adoption	82.1%	33.3%	73.5%
More than 100	Count	5	4	9
	% within No. employees	55.6%	44.4%	100.0%
	% within ABC adoption	17.9%	66.7%	26.5%
Total	Count	28	6	34
	% within No. employees	82.4%	17.6%	100.0%
	% within ABC adoption	100.0%	100.0%	100.0%

Note: Data extracted from questions 2 and 10 of the survey.

According to these frequencies, most of ABC adopters come from big entities where 44.4 percent use ABC actively, as opposed to mere 8.0 percent of total small entities based on number of staff. Fisher's Exact Test indicates that the association between company size as measured by the number of staff and ABC adoption is considerable given the p-value of 0.031 (at the $\alpha = 0.05$ level). More details are provided in Table 12.

Table 12. Fisher's exact test for company size: number of employees

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	6.048[a]	1	.014	.031	.031	
Continuity Correction[b]	3.800	1	.051			
Likelihood Ratio	5.384	1	.020	.031	.031	
Fisher's Exact Test				.031	.031	
Linear-by-Linear Association	5.870[c]	1	.015	.031	.031	.028
N of Valid Cases	34					

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.59.

b. Computed only for a 2x2 table

c. The standardized statistic is 2.423.

5.4.2 Annual Gross Written Premium

The second question on company size asked the participants to specify the annual gross written premium of their entities calculated as average of the last two years, allowing them to

go for one of two answers: less than 6 million Euros, and equal to or more than 6 million Euros. Once again, the classification is relative. Based on the answers to this item, the questionnaire pre-distinguished between small and big firms. Table 13 provides a resume of the answers to this question.

Table 13. Variable empiric frequencies: annual gross written premium (firm size: displayed in rows) and answer bimodality in correlation to ABC adoption (displayed in columns)

		Current ABC adoption status		
Average annual gross written premium		No	Yes	Total
< 6mn EUR	Count	22	1	23
	% within Avg annual GWP	95.7%	4.3%	100.0%
	% within ABC adoption status	78.6%	16.7%	67.6%
6mn EUR or more	Count	6	5	11
	% within Avg annual GWP	54.5%	45.5%	100.0%
	% within ABC adoption status	21.4%	83.3%	32.4%
Total	Count	28	6	34
	% within Avg annual GWP	82.4%	17.6%	100.0%
	% within ABC adoption status	100.0%	100.0%	100.0%

Note: Data extracted from questions 3 and 10 of the survey.

According to the frequencies displayed in Table 13, the majority of ABC adopters are large entities where 45.5 percent have established ABC practices, as opposed to 4.3 percent of total small entities based on average annual gross written premium. With a p-value of 0.008, Fisher's Exact Test indicates a significant difference in adoption between big and small companies as measured by their annual gross written premium (at the $\alpha = 0.05$ level). Information on Fisher's Exact Test are provided in Table 14.

Table 14. Fisher's exact test for company size: annual gross written premium

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	8.652[a]	1	.003	.008	.008	
Continuity Correction[b]	6.055	1	.014			
Likelihood Ratio	8.303	1	.004	.008	.008	
Fisher's Exact Test				.008	.008	
Linear-by-Linear Association	8.398[c]	1	.004	.008	.008	.008
N of Valid Cases	34					

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.94.

b. Computed only for a 2x2 table

c. The standardized statistic is 2.898.

5.5 ABC Knowledge

In order to specify the components of activity-based system knowledge, respondents were asked to state where they have obtained their knowledge about this cost management technique. The majority (18 participants or 53 percent) chose the formal education option, with professional training courses following the lead according to the rating presented in Table 15. Nielsen *et al*. reached the same result in their Danish research (2004) where education was ranked number one. The answers of the Macedonian respondents are due to their professional qualification, whereby all of them come from the finance departments of the surveyed entities, which explains their financial educational and training background.

Table 15. First encounter with ABC

	Frequency	Percentage
University	18	53%
Professional training	7	21%
Seminars or conferences	4	12%
In-house training	5	15%
Total	34	100%

Note: Data extracted from question 8 of the survey.

The questionnaire then went into investigating whether there is any correlation between ABC knowledge and ABC adoption. The cross tabulation results of ABC knowledge with adoption status are shown in Table 16. Knowledge level was scored using a Likert-type scale ranging from 1 to 5, going from 1=no knowledge to 5=expert knowledge.

Table 16. Cross tabulation of level of ABC knowledge and current ABC adoption status

		Current ABC adoption status		
Level of ABC knowledge		No	Yes	Total
No knowledge	Count	2	0	2
	% within knowledge level	100.0%	0.0%	100.0%
	% within ABC adoption status	7.1%	0.0%	5.9%
General knowledge	Count	14	1	15
	% within knowledge level	93.3%	6.7%	100.0%
	% within ABC adoption status	50.0%	16.7%	44.1%
Good knowledge	Count	10	3	13
	% within knowledge level	76.9%	23.1%	100.0%
	% within ABC adoption status	35.7%	50.0%	38.2%
Extensive knowledge	Count	2	2	4
	% within knowledge level	50.0%	50.0%	100.0%
	% within ABC adoption status	7.1%	33.3%	11.8%
Total	Count	28	6	34
	% within knowledge level	82.4%	17.6%	100.0%
	% within ABC adoption status	100.0%	100.0%	100.0%

Note: Data extracted from questions 8 and 10 of the survey.

According to the frequencies presented in Table 16, 17 companies (50 percent of the surveyed entities) claimed that they have good or extensive knowledge of ABC systems compared to 17 companies that had no or only general knowledge about this cost management technique. Following the execution of Fisher's Exact test, the p value of 0.164 indicates that there is no significant relationship between knowledge levels and ABC implementation (at the $\alpha = 0.05$ level). These results are shown in Table 17.

Table 17. Fisher's exact test for ABC knowledge

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	4.818[a]	3	.186	.164		
Likelihood Ratio	4.750	3	.191	.180		
Fisher's Exact Test	4.359			.164		
Linear-by-Linear Association	4.358[b]	1	.037	.045	.035	.028
N of Valid Cases	34					

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .35.

b. The standardized statistic is 2.088.

5.6 Cost Structure

Table 18 presents the association between cost structure and ABC implementation status. Overhead costs were defined as low if their ratio to total costs was below 50 percent and high if the proportion was equal to or exceeded 50 percent. Some 28.6 percent of 7 entities with considerable overhead use ABC systems. The table also indicates that 14.8 percent or 4 out of 27 companies with lower overhead ratio have adopted ABC.

Table 18. Cross tabulation: Cost structure (overhead ratio) and ABC adoption status

		Current ABC adoption status		
Overhead costs		No	Yes	Total
Less than 50%	Count	23	4	27
	% within Overhead costs	85.2%	14.8%	100.0%
	% within Current ABC adoption status	82.1%	66.7%	79.4%
More than 50%	Count	5	2	7
	% within Overhead costs	71.4%	28.6%	100.0%
	% within Current ABC adoption status	17.9%	33.3%	20.6%
Total	Count	28	6	34
	% within Overhead costs	82.4%	17.6%	100.0%
	% within Current ABC adoption status	100.0%	100.0%	100.0%

Note: Data extracted from questions 7 and 10 of the survey.

With a p-value of 0.580, the Fisher's Exact Test indicates that there is no significant difference in adoption between companies with high and low overheads (at the $\alpha = 0.05$ level). The Fisher's Exact Test data are provided in Table 19.

Table 19. Fisher's exact test overhead ratio

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.724[a]	1	.395	.580	.360	
Continuity Correction[b]	.087	1	.768			
Likelihood Ratio	.660	1	.417	.580	.360	
Fisher's Exact Test				.580	.360	
Linear-by-Linear Association	.703[c]	1	.402	.580	.360	.274
N of Valid Cases	34					

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.24.

b. Computed only for a 2x2 table

c. The standardized statistic is .838.

5.7 Product Diversity

The results of a cross tabulation of product diversity with ABC adoption status are presented in Table 20. Product diversity is measured by number of insurance classes covered by the insurance business. The question classifies entities as large should the number of insurance classes exceed or equal 10, and small when the number of classes is below 10. As indicated in the table, 45.5 percent of businesses with a diversified portfolio apply ABC techniques, as opposed to mere 4.3 percent of companies with less than 10 insurance classes.

Table 20. Variable empiric frequencies: product diversity (displayed in rows) and answer bimodality in correlation to ABC adoption (displayed in columns)

		Current ABC adoption status		
Number of insurance classes		No	Yes	Total
Less than 10	Count	22	1	23
	% within No. classes	95.7%	4.3%	100.0%
	% within ABC adoption	78.6%	16.7%	67.6%
More than 10	Count	6	5	11
	% within No. classes	54.5%	45.5%	100.0%
	% within ABC adoption	21.4%	83.3%	32.4%
Total	Count	28	6	34
	% within No. classes	82.4%	17.6%	100.0%
	% within ABC adoption	100.0%	100.0%	100.0%

Note: Data extracted from questions 4 and 10 of the survey.

Fisher's Exact Test indicates that the association between product diversity as measured by the number of insurance classes sold and ABC adoption is considerable given the p-value of 0.008 (at the $\alpha = 0.05$ level). The details on this test are presented in Table 21.

Table 21. Fisher's exact test for company size: annual gross written premium

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	8.652[a]	1	.003	.008	.008	
Continuity Correction[b]	6.055	1	.014			
Likelihood Ratio	8.303	1	.004	.008	.008	
Fisher's Exact Test				.008	.008	
Linear-by-Linear Association	8.398[c]	1	.004	.008	.008	.008
N of Valid Cases	34					

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.94.

b. Computed only for a 2x2 table

c. The standardized statistic is 2.898.

5.8 Non-adopters: Reasons for Not Implementing ABC

The second part of the questionnaire also sought to establish the reasons for not adopting ABC by companies that are not currently using this cost management system. The barriers encountered by companies that consider the adoption of activity-based systems are generally classified in the literature into three core types: behavioral and organizational, technical and systems hurdles (Abusalama, 2008). One of the objectives of this study is to determine what type of issues is the most common reason for not implementing ABC. Table 22 depicts the results of the comparison between different implementation barriers.

Table 22. Reasons for not adopting ABC

	Number of times selected	% of Non-adopters
Inadequate computer software	22	78.6%
Simple operations process, easy to track costs	17	60.7%
Difficulty in defining activities	16	57.1%
Difficulty in assigning costs of activities to cost objects	16	57.1%
Satisfied with the current system	12	42.9%
Low overhead costs	12	42.9%
Difficulty in selecting cost drivers	12	42.9%
Difficulty in assigning resources to activities	11	39.3%
Low number of products	10	35.7%
ABC is not relevant for our business	9	32.1%
Internal resistance	7	25.0%
High ABC implementation costs	7	25.0%
Other projects have higher priority	7	25.0%

Data collection difficulties	6	21.4%
Lack of top management support	4	14.3%
Uncertainty of ABC benefits	4	14.3%
Lack of ABC knowledge	2	7.1%
Total entities: Non-adopters	28	

Note: Data extracted from question 17 of the survey. 28 entities are non-adopters of ABC.

Every hurdle listed in this question was awarded a number of points equal to the number of respondents who selected the particular option. Once the survey results were summed up, they showed that the largest implementation barrier is of systems nature, or the lack of adequate computer software support. Namely as many as 22 or 78.6 percent of all non-adopters awarded a point to this item. According to the respondents, the second largest hurdle to ABC adoption is the perceived simplicity of operations and easy tracking of costs, which is behavioral and organizational by nature. The difficulties in defining activities and in assigning costs of activities to cost objects occupy the third and fourth position judging by the number of times selected (total of 16 or 57.1 percent of respondents opted for this item). Given this score, technical barriers were considered as third by importance in contributing to non-adoption of activity-based techniques. Therefore, according to the score ranking provided in Table 22, systems barriers rather than technical or behavioral are the most common reason for not implementing ABC. These findings differ somewhat to Abusalama's research (2008) where low overheads, low portfolio diversification, and satisfaction with the current system were the three top ranked respondent explanations for not using ABC.

6. Conclusion and Recommendations

The main objective of this study was to assess the adoption rate of ABC practices by the Macedonian insurance businesses and its correlation to four contingent variables, to investigate the benefits ABC provides to adopters, and to identify the reasons why some entities have not implemented ABC to date in spite of the system advantages. Besides this core research objective, several other issues were acknowledged, such as:

- Who initiated the adoption of ABC,
- Degree of ABC adoption within the organization,
- Who took an active role in the implementation phase,
- To what ends ABC systems are used by the Macedonian insurance segment,
- What were the difficulties experienced upon implementing the system,
- Attitudes towards the adoption of ABC,
- Reasons for non-adopting.

The research revealed that ABC diffusion is rather low, or 18 percent of the target population that actively participated in the questionnaire. In terms of benefits, the survey emphasizes improvements in multiple areas such as product and customer pricing, cost accuracy and

control, and performance management. These findings are related to the most frequent initiator and most engaged department when it comes to activity-based system implementation: the finance department. Accounting professionals understand and explore the benefits of cost control and cost accuracy as one of the priorities of their work.

In spite of the low ABC adoption rate by the Macedonian insurance industry, 39 percent of non-adopters expressed an intention to use this cost management tool in the future. Certainly, given the rather early acknowledgement of this technique whereby formal university education was indicated as the first place to encounter ABC, and the fact than half of the research participants have solid knowledge about ABC, the prospects for future use of this technique by the Macedonian insurance businesses seem positive.

In terms of the four hypotheses examined in this paper, the null hypothesis on entity size (as measured by number of employees and annual gross premium written) and product diversity are accepted based on the Fisher's Exact Test score indicating the existence of a significant relationship between these two variables and the entity ABC implementation status. As regards to level of ABC knowledge and cost structure, the results of Fisher's Exact Test depicted an insignificant relationship with ABC adoption status.

Finally, the respondents not using ABC to date correlate the lack of it with system obstacles and the need to set up a contemporary information technology in order to generate proper financial and operations information. The respondents also stated that their operations process is simple which makes it easy to track costs. The existing cost structure with low overheads clarifies why respondents claim to have simple operations in their companies. Certainly, technical hurdles were also ranked high as adoption barriers, but can be seen as a result of lacking adequate information technology support necessary to design activity-based costing systems.

In a competitive industry such as the Macedonian insurance segment, knowing the true cost plays a vital role in planning and strategy. Modern costing techniques like ABC can support operations by providing information for strategic choices, such as insourcing/outsourcing decisions and product mix. Furthermore, due to its focus on dissolving complex processes into activities, managers obtain a clearer and more accurate insight into performance results. Therefore, in order to implement ABC successfully, company management must make sure that the computer/software systems are prepared to tackle the challenge. Moreover, the team of employees working on the project set-up and adoption need to be released from regular duties in order to fully direct their know-how and energy to the project requirements.

Nonetheless, ABC should not be the only steering wheel that gives strategic and competitive direction to organizations. This management tool must be supplemented by a proper human resource and IT system set-up in order to maximize company benefits. In this regard, employees need to be prepared and trained properly in order to accept adoption of new accounting and management practices with a positive attitude. As competition forces intensify, the need for solid strategic information will intensify. This research demonstrates the existence of a common agreement that a contemporary cost management system such as activity-based costing equips the organization with solid grounds to compete in an aggressive

market. Nonetheless, firms are also aware that the adoption process can be truly challenging and demanding in terms of resources, time and energy. That is why cost and benefits must be properly assessed.

In terms of suggestion for future research, it will be useful to examine the impact of organization culture on the company adoption of ABC by Macedonian companies. Several cultural dimensions, like enterprise innovation and outcome orientation can be examined separately and in combination to appraise the extent of their relationship with the extent of ABC adoption. Another suggestion is to expand the same study by including other Macedonian service segment businesses aside from the insurance industry or even manufacturing companies in order to examine ABC adoption rates, factors influencing ABC adoption, and hurdles that may limit the organization willingness to embark on the activity-based costing system boat. A larger target segment will help improve the generalizability of research results and underline the importance of statistical testing upon overcoming sample size limitations.

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Appendix

Appendix 1. Questionnaire

Implementation of Activity-Based Costing Systems in the Macedonian Insurance Industry

Dear Madam, Sir,

Activity-Based Costing (ABC) systems appear to offer significant benefits to companies adopting it. However, there is also evidence that the introduction of the system poses significant difficulties. In an attempt to investigate these issues, I am conducting a survey of the entire Macedonian insurance company market and would very much appreciate if you could participate in the study by completing and returning the enclosed questionnaire.

The questionnaire seeks to establish the extent to which ABC practices have been adopted by the Macedoninan insurance companies and the implementation problems that they have encountered or identified. The results of the survey will be used in an aggregated form only. Individual responses are anonymous and confidential. The survey forms part of my academic work as assistant professor at the School of Business Economics and Management, University American College Skopje. Aspects of the result will be published in aggregate in various professional and academic journals. Should you have any enquiries regarding the research or the questionnaire do not hesitate to contact me (e-mail: dusica@uacs.edu.mk).

Your participation in this survey is deeply appreciated, and I look forward to receiving your completed questionnaire soon. Please send the completed questionnaire by e-mail to: dusica@uacs.edu.mk.

Thank you for your co-operation.

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Dusica Stevcevska-Srbinoska, PhD

Section 1: Organization and Environment

1. Please indicate the sub-segment your company operates in:

    (a) Life

    (b) Non-life

2. Please indicate the number of employees in your company:

    (a) Less than 100

    (b) More than 100

3. Please indicate the annual gross written premium of your company (average of 2015 and 2016):

(a) Less than €6 million

(b) Above €6 million

4. How many insurance classes does your company offer?

(a) Less than 10

(c) 10 insurance classes or more

5. Please indicate which of the following cost management techniques are utilised within your company?

(a) Standard costing

(b) Job costing

(c) Process costing

(d) Budgeting

(e) Target cost planning

(f) Balance Scorecard (BCS)

(g) Net Present Value (NPV)

(h) Return On Investment (ROI)

(i) Payback period

(j) Cost-Volume-Profit analysis (CVP)

(k) Activity-Based Costing (ABC)

6. Please indicate the degree of importance of the following objectives in allocating overhead costs by circling the adequate number.

	Not important	Little important	Considerably important	Of high importance	Ultimately important
Product cost control	1	2	3	4	5
Product price	1	2	3	4	5
External reporting	1	2	3	4	5
Product planning	1	2	3	4	5
Manager/employee performance evaluation	1	2	3	4	5
Other (please specify)	1	2	3	4	5

7. Please indicate the approximate percentage of your total company cost accounted for by each of the following categories.

a) Direct material	--------- %
b) Direct labour	--------- %
c) Overhead/indirect costs	--------- %
Total	100 %

Section 2: Activity-Based Costing (ABC)

8. Please indicate how familiar you are with Activity-Based Costing (ABC) systems?

(a) No knowledge

(b) General knowledge

(c) Good knowledge

(d) Extensive knowledge

(e) Expert knowledge

9. Where did you first learn of ABC?

(a) University

(b) Professional training

(c) Seminars or conferences

(d) In-house training

(e) Own reading (books, journals and so on)

10. What is the current ABC adoption status within your organisation?

(a) Implemented ABC

(b) No implementation of ABC to date (please go to question 17)

11. Who initiated ABC adoption within your company?

(a) Top management

(b) Operations managers (sales, claims, planning & development, PR, IT, Project office)

(c) Finance managers

(d) Underwriting managers

(e) HR managers

(f) Legal and compliance managers

(h) Other (please specify) _____

12. When introducing ABC, did your company initially introduce it:

(a) Across the whole organisation

(b) In selected departments

13. How much involvement did each of the following categories have in the ABC implementation? Please indicate your response by circling a number for each item.

Involvement level:		Low				High
A	In-house accountants/finance	1	2	3	4	5
B	Information systems personnel	1	2	3	4	5
C	External consultants	1	2	3	4	5
D	Underwriting department	1	2	3	4	5
E	Sales/marketing personnel	1	2	3	4	5
F	Procurement department	1	2	3	4	5
G	Legal and compliance department					
h	Claims department					
I	Board of directors	1	2	3	4	5

14. Please circle the number which best describes the importance of the following factors in the decision to adopt ABC.

Level of importance:		Not important	Little	Medium	High	Critical
a	Increasing overhead costs	1	2	3	4	5
b	Increasing number of products	1	2	3	4	5
c	Inability of the traditional cost systems to provide relevant cost information	1	2	3	4	5
d	Increasing regulatory environment	1	2	3	4	5
e	Intense competition	1	2	3	4	5

15. Please circle a number to indicate the level of success you would attribute to the ABC system in your company, in relation to each of the following areas of application.

		Success Level				
		Low				High
a	Product/service pricing	1	2	3	4	5
b	Cost reduction	1	2	3	4	5
c	Forecasting	1	2	3	4	5
d	New product design	1	2	3	4	5
e	Customer profitability analysis	1	2	3	4	5
f	Value added analysis	1	2	3	4	5
g	Outsourcing/insourcing decision	1	2	3	4	5
h	Cost modelling	1	2	3	4	5
i	Restructuring decision	1	2	3	4	5
j	Performance measurement	1	2	3	4	5
k	Strategic planning	1	2	3	4	5
l	Reward system	1	2	3	4	5
m	Capital investment decisions	1	2	3	4	5

16. In implementing ABC, what was the extent of the difficulties encountered in the following areas?

		Very easy	Relatively easy	Moderately difficult	Fairly difficult	Extremely difficult
A	In designing the system	1	2	3	4	5
B	In defining activities	1	2	3	4	5
C	In assigning resources to activities	1	2	3	4	5
D	In selecting cost drivers	1	2	3	4	5
E	In assigning the cost of activities to cost objects	1	2	3	4	5

Please go to Question 19.

17. **If your company has not adopted ABC**, please indicate the

possible reasons for this by ticking the box corresponding to the contributing factors.

a) Satisfied with current system

b) Lack of knowledge regarding ABC

c) ABC is not relevant to our business

d) Small percentage of overhead costs

e) Service/operations process is simple, easy to track costs

f) Low number of products

(g) Difficulty in defining activities

(h) Difficulty in assigning resources to activities

(i) Difficulty in selecting cost drivers

(j) Difficulty in assigning cost of activities to cost objects

(k) Data collection difficulties

(l) Internal resistance

(m) High costs of implementing ABC

(n) Lack of top management support

(o) Uncertainty of ABC benefits

(p) Inadequate Computer software

(q) A higher priority of other changes/ projects

18. Are there any announcements/plans for introducing ABC in your Company in the next five years?

a) Yes

b) No

c) No information.

19. Which of the following bases are currently used to allocate overhead costs to products in your organization?

a) Number of employees

b) Number of insurance policies

c) Insurance policy volume (in MKD, gross premium written)

d) Number of claims

e) Claims volume (in MKD)

f) Other (please specify)_____

20. Are you satisfied with your current overhead cost allocations?

a) Yes

b) No.

Thank you for your time and effort.