



MANAGEMENT ACCOUNTING PRACTICES IN SMALL AND MEDIUM-SIZED
ENTERPRISES REGARDING THE IMPACT OF ORGANIZATIONAL DNA,
COMMERCIAL POTENTIAL AND OPERATIONAL TECHNOLOGY

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Abstract

The present study aimed to investigate the effect of organizational DNA, commercial potential and operational technology on management accounting practices. This research is research in which small and medium-sized enterprises working in industrial towns of Guilan were selected as the statistical society and 342 firms were selected by random sampling as the statistical population. Data were collected through a questionnaire and analyzed through structural equations and path analysis. The results confirmed the impact of organizational DNA on the management accounting practices in small and medium-sized enterprises working in industrial towns of Guilan. Moreover, the study of the impact of commercial potential and operational technology on management accounting practices indicated that commercial potential and operational technology had a positive and significant impact on management accounting practices.

Key words: management accounting, organizational DNA, commercial potential and operational technology, SMEs.

I. INTRODUCTION

In the past few decades, business management and accounting researchers have been pursuing a sustained effort to explore small and medium-sized enterprises (SMEs) as this sector plays an important role in the economic growth of developing and developed countries. Small and medium-sized enterprises make up 99% of the world's commercial population (Azudin and Mansor, 2017). In Iran, more than 90 percent of national enterprises are small and medium enterprises. This number accounts for more than 63% of total population employed in the industrial sector and the contribution to the economy of the country is 51 to 52% (Farahani, Shabani and Qafari, 2013). Due to their small and simple organizational structure, high flexibility toward changes, acceptable pace in the course of activities, and the ability to compete in the external environment, these firms have great potential and abilities to improve their performance and achieve the planned targets using existing resources. According to what has



been stated, the correct identification of the strategic factors affecting the performance of small and medium-sized enterprises and the proper utilization of each of them can act as a powerful weapon and protect small and medium businesses against unpredictable environmental changes. (Yadolahi, Aqajani and Aqajani, 2009). Like large firms, small and medium firms face business sustainability issues with regard to factors such as globalization, size, technological advancement, market competition, management change, and investment constraints (Davilla, 2005 Davilla & Foster 2007 Nandan 2010 Ahmad 2012 Fasesin Salman and Dunsin 2015 Messner 2016 Azudin and Mansor 2017). In order to adapt to this environment, firms first need to strengthen their competitive ability in various fields, such as quality, innovation, and pricing of goods and services. This requires the use of various tools. Management accounting is one of these tools (Khodamipoor and Talebi, 2010; Bagheri et al, 2017). Modern management accounting is the process of identifying, measuring, collecting, analyzing, preparing, participating, and communicating with the financial information used by the management in planning, evaluating, and controlling the internal operations of the organization with emphasis on cost price, quality, and time (the vertices of survival triangle) and providing strategies for adapting to dynamic environmental factors such as globalization technology and customer needs (Rahnama Roodposhti and Ahmadi Loyeh, 2016). According to Senfblechner and Hiebl (2015), firms need both financial and non-financial information for survival (Azudin and Mansor, 2017). Management accounting practices provide a combination of financial and non-financial techniques with the goal of providing critical information at both organizational and operational levels (Ahmad, 2017). For this particular reason, management accounting can be used as an added value of accounting knowledge for small and medium-sized enterprises to help them improve managerial performance. In this regard, Nishmura (2003) stated that changes in management accounting practices were due to business challenges that can be attributed to both internal and external factors. Based on this claim, various studies were conducted to examine internal and external factors affecting changes in management accounting practices and their use in organizations. These include studies by Davilla (2005), Davilla and Foster (2007), which specifically emphasized the impact of internal factors (size and change in senior management personnel) and reported the positive impact of these factors on management control systems in the growing or small firms in the United States. From the perspective of external factors, Amat, Carmona, and Roberts (1994) examined the impact of market competition and Ahmad (2012) studied the impact of advanced manufacturing technology on management accounting practices (Azudin and Mansor, 2017). Looking at the economic changes of recent years in Iran, one can clearly see the tendency toward the market economy, including the liberalization of competition in many industries and the transfer of public corporations to the private sector, particularly by establishing a privatization organization in 2011 and announcement of general policies of Principle 88 of the Leader aiming at increasing competition and market efficiency. Increasing competition means that firms need financial and non-financial information related to cost management and management accounting more than ever. Therefore, it can be argued that in order to enter the external and even internal markets and their survival, especially in today's society, Iranian firms have no choice but to think about the implementation of appropriate accounting practices (Hassan Yeganeh, Dianti Deilami and Norouzbeigi, 2011; Dianti Deilami, Alambeigi, and Barzegar,



2016). Accordingly and considering the existing research vacuum on the role of management accounting and its practices in small and medium-sized enterprises in the country, the present study attempted to study the role of internal and external factors affecting small and medium-sized enterprises beside studying management accounting practices in these enterprises. According to Azudin and Mansor (2017), factors such as organizational DNA (including size, competitive strategy and decentralization), commercial potential (including customer power, technology advancement and market competition), and operational technology (including the complexity of processing systems, advanced production technology, and comprehensive quality management) were studied as independent and influential variables on SMEs' management accounting practices. Therefore, the research questions were designed as follows:

- How much do SMEs apply management accounting practices?
- Does the organizational DNA of SMEs influence their management accounting practices?
- Does the commercial potential of SMEs influence their management accounting practices?
- Does the operational technology of SMEs influence their management accounting practices?

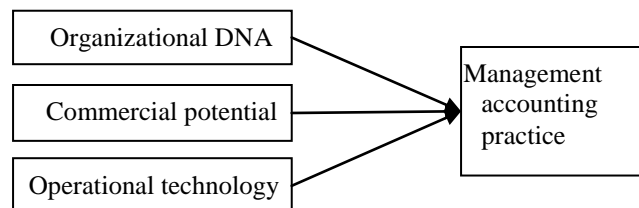


Figure (1) conceptual model of research
Source: (Azudin and Mansor, 2017)

II. METHODOLOGY

The present research is a descriptive-survey and applied research. The statistical population in this research is the small and medium enterprises working in industrial towns of Guilan, which consists of 759 firms. Due to the limited size of the population, Cochran's formula was used to estimate the sample size. First, 50 questionnaires were distributed as samples in 50 firms. After calculating their variance and putting it in the Cochran's formula, the minimum sample size was estimated to be 317. A questionnaire was used to collect information. Considering the availability of more samples and preventing the risk of diminishing the number of samples due to non-returned or unusable questionnaires, 400 questionnaires were distributed. Finally, 342 questionnaires were used for analysis. A simple random method was used to select the sample members. It should be noted that since the level of analysis was organizational, only one questionnaire was distributed to be answered by one of the top executives of each firms. The



questionnaire contained 41 items that were measured by a 5-point likert scale (from 1: hardly ever to 5: always). The items are presented in Table 1 and Table 2.

Table 1. Dependent Variable of Management Accounting Practice, Steps, and Indices of Measurement of Each Step

Steps	Indices
Step 1: cost determination and financial control (CDFC)	1. Using a rate higher than the overhead rate
	2. Budgeting to control costs
	3. Flexible budgeting
	4. Performance appraisal based on financial criteria
	5. Evaluation of large investments based on the repayment period and / or accounting rate of return
Step 2: Information for Management Planning and Control (IPC)	6. Separation of variable / incremental costs and fixed costs
	7. Using administrative overheads
	8. Using learning curve technique
	9. Budgeting for planning
	10. Budgeting based on "What-If" analysis (prediction of possible outcomes)
	11. Budgeting for long-term (strategic) programs
	12. Performance appraisal based on non-financial operations related to operations
	13. Cost-volume-profit analysis for main products
	14. Product profitability analysis
	15. Evaluating important investments based on discounted cash flow method
	16. Long-term prediction
Step 3: Reduction of Waste in Business Resources (RWR)	17. Activity-based costing
	18. Activity-based budgeting
	19. Quality-based costing
	20. Performance appraisal based on non-financial criteria related to employees



	21. Risk assessment of large investment projects using probability analysis or computer simulation
Step 4: Creation of Value through Effective Resource Use (VC)	22. Target costing
	23. Performance appraisal based on non-financial criteria related to customers
	24. Performance appraisal based on residual income or economic value added
	25. Customer profitability analysis
	26. For evaluation of major investments, non-financial aspects are documented and reported.
	27. Calculating and using capital cost in adjusting cash flow to evaluate important investment
	28. Stockholder value analysis
	29. Industry analysis
	30. Competitive position analysis
	31. Analysis of product life cycle
	32. Analysis of strengths and weaknesses of competitors

Table 2. Independent variables and their measurement indices

Variable	Indices	Variable	indices
Organizational DNA	Size	Operational technology	The complexity of the processing systems
	Competitive strategy		Advanced production technology
	Decentralization		Comprehensive quality management
Commercial potential	Customer power		
	Technological advancement		
	Market competition		



The questionnaire was a composite questionnaire based on the research of Uyar and Kuzey (2008) and Azodin and Mansour (2017). Thus, the management accounting questionnaire was measured according to the framework provided by Delkader and Luther (2008) and used to measure the three variables of organizational DNA, commercial potential and operational technology from the framework provided by Azodin and Mansour (2017). Since the validity of the questionnaires was approved in the mentioned researches, the validity of the questionnaire was approved. However, the content analysis was used to ensure fit for the population. Thus, in order to achieve content validity, the viewpoints of some of the professors related to the field of study were used. Moreover, it was attempted to evaluate and analyze the questionnaire using the opinions of accounting experts. Finally, after applying the opinions of the professors and experts, modifying the questionnaire, and providing explanations for each item, a final questionnaire was designed and distributed on a wider scale. The reliability of the tool was also calculated using SPSS software. Cronbach's alpha coefficients are as follows:

Table 3. Cronbach's Alpha Coefficients

	Variable	Number of items	Cronbach's coefficients
Dependent	Management accounting practices	32	0.871
independent	Organizational DNA	3	0.819
	Commercial potential	3	0.793
	Operational technology	3	0.931

The Cronbach's alpha coefficients show the desirable reliability of the research questionnaires.

III. RESULTS

In this study, the collected data were descriptive and inferential statistics using SPSS19 and Lisrel 8 software. Mean values, standard deviation, variance and frequency were used in descriptive statistics for distribution of statistical sample in terms of general variables and dimensions of independent and dependent variables. In inferential statistics, structural equations and path analysis were used. In the sample, 43 firms (12.6%) had a staff of less than 50 and 299 firms (87.4%) had a staff ranging from 50 to 100. Among the firm, 91 firms (26.6%) worked in food and beverage industry, 78 firms (22.8%) in materials and chemicals industry, 13 firms (3.8%) in paper and paper product industry, 15 (4.4%) in rubber and plastic industry, 19 firms (5.6%) in the non-metallic mineral industry, 10 firms (2.9%) in basic metals industry, 63 firms (18.4%) in metal products industry, 14 firms (4.1%) in machinery and equipment industry, 19 firms (5.68%) in textile industry, 20 firms (5.8%) in machinery and electrical machinery industry. Regarding the history of the firms, the findings showed that 15 firms (4.4%) had experience of less than 5 years, 55 firms (16%) between 6 and 10 years, 83 firms (24.3%) between 11 and 15, 98 firms (28.7%) between 16 and 20 years, and 91 firms (26.6%) had experience of more than 20 years in their industry.



Table 4. Description of variables

	N	Mean	Std. Deviation	Variance
Management accounting practices	342	3.551	0.3834	0.147
Step 1: cost determination and financial control (CDFC)	342	3.499	0.50817	0.258
Step 2: Information for Management Planning and Control (IPC)	342	3.321	0.4073	0.166
Step 3: Reduction of Waste in Business Resources (RWR)	342	3.757	0.73292	0.537
Step 4: Creation of Value through Effective Resource Use (VC)	342	3.711	0.40176	0.161
Organizational DNA	342	3.789	0.5609	0.315
Commercial potential	342	3.443	0.66564	0.443
Operational technology	342	3.657	0.94117	0.886

It can be seen that among the four steps in accounting management practices, the highest mean values were for the third and fourth steps, followed by the first step and, finally, the second step. Among the independent and dependent variables, the lowest mean values were related to commercial potential variable and the highest score was for the organizational DNA.

Testing the model

The conceptual model of the research was tested using Lisrel software. Prior to addressing the results obtained from the research model paths, it is necessary to ensure the fit of the model. Therefore, the fitting indices of the model were first studied and the results of the study were presented in Table (5).

Table 5. the fitting indices of the model

Index	RMSEA	$\chi^2/\delta\phi$	NFI	NNFI	CFI	IFI
Value	0.67	1.81	0.94	0.93	0.95	0.95
Optimal mode	$0/08 \geq 0 \leq$	$3 \geq 1 \leq$	$1 \geq 0/9 \leq$	$1 \geq 0/9 \leq$	$1 \geq 0/9 \leq$	$1 \geq 0/9 \leq$



Index	GFI	RMR	90% confidence interval for RMSEA
Value	0.91	0.033	$0.10 \geq \text{RMSEA} \leq 0.40$
Optimal mode	$0.9 \leq \text{GFI} \leq 1$	$0 \leq \text{RMR} \leq 0.05$	The RMSEA value between the lower and upper limits

The fitting indices of the model include root mean square error of approximation (RMSEA), root mean square residual (RMR), goodness of fit index (GFI), normed fit index (NFI), non-normed fit index (NNFI), comparative fit index (CFI), incremental fit index (IFI), etc. The values obtained and their optimal modes are presented in Table 5. The obtained values indicate that the fitness of model is optimal and all indices are in an optimal range. The fitness of model with the statistical society properly can be explained. Hence, the results obtained from the research model paths can be compared.

Table 6. Path analysis results between independent and dependent variables

Path	Standard coefficient	t-value	result
Organizational DNA à management accounting practice	0.3	2.76	confirmed
Commercial potential à management accounting practice	0.37	2.13	confirmed
Operational technology à management accounting practice	0.33	2.24	confirmed

Table 6 presents the findings of the conceptual model with regard to three independent variables (organizational DNA, commercial potential and operational technology) and the dependent variable of management accounting practice. As it can be seen, t-value of all paths is outside the range of [-1.96 and +1.96]. Therefore, all paths are confirmed. In this sense, the effect of all three independent variables of organizational DNA, commercial potential and operational technology on management accounting practices of SMEs working in industrial towns of Guilan was confirmed. These findings are in line with the research by Azodin and Mansour (2017) regarding the confirmation of the effect of operational technology and in contrast regarding the confirmation of the effect of commercial potential and organizational DNA. That is because their research showed no significant effect of the two variables on the management accounting practices of SMEs in Malaysia.



IV. CONCLUSION

In this study, management accounting practices of SMEs working in industrial towns of Guilan were studied in four steps. The results showed that the third step - management accounting practice based on reduction of waste in business resources- was mostly used, followed by creation of value through effective resource use. Therefore, activities such as activity-based costing, activity-based budgeting, industry analysis, competitive position analysis, stockholder value analysis, analysis of product life cycle, and analysis of strengths and weaknesses of competitors were of the highest priority for the studied firms. Thereafter, the impact of factors such as organizational DNA, which includes size, competitive strategy and decentralization; commercial potential, which includes customer power, technological advancement and market competition; and operational technology, which includes the complexity of processing systems, advanced production technology, and comprehensive quality management, were tested on management accounting practices of the SMEs. The results indicated the impact of all variables on management accounting practices of the SMEs. Hence, the SMEs of Guilan can use the results of this research to identify the variables affecting their management accounting practices and take steps to improve their performance process in the subject area.

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