

THE LEVEL OF SOPHISTICATION OF MANAGEMENT ACCOUNTING PRACTICES: A CASE OF THE DEVELOPING ECONOMY

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Abstract

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This study aims to identify the extent to which management accounting practices (MAPs) are used in the Tunisian context. To achieve this goal, the research is based on semi-structured interviews with 192 Tunisian small and medium-sized enterprises (SMEs). We used descriptive statistics to interpret our results. The International Federation of Accountants (IFAC) model was then applied to analyze the evolution stage of MAPs. This inquiry highlights the traditional practices as the most used ones. Sophisticated or more advanced practices remain an exception as in all developed countries. The limit of our research is that it is interested only in the industrial sector; other sectors have their own specific problems and require separate in-depth studies. The expectations of this study are the enrichment of the limited literature on MAPs at the scale of developing countries in the broad sense and Arab countries in a more specific context. The originality of this study is that it examines the level of sophistication of MAPs in the Tunisian context, using a set of MAPs (38 practices) instead of focusing on a singular number of practices. It is also the first analysis to determine its level in Tunisian enterprises using the IFAC model.

Keywords: Accounting and Disclosure, Traditional Management Accounting Practices, Sophisticated Management Accounting Practices, MAPs, Corporate, Governance and Reporting, IFAC Model

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1. INTRODUCTION

In the beginning and with the simple form of the organization, the sales figures are the resources of all information. The story begins with cost calculations and ends with the setting of sales prices. Several cost measurement methods were analyzed between the 19th and early 20th centuries to study productivity and relate profits to products under the guise of so-called cost accounting. The techniques of this accounting are, for example first in first out, last in first out variance analysis and standard costing (Bostan Rebeca, 2019).

Several authors such as Johnson and Kaplan (1987) have spoken of the lost relevance of traditional management accounting practices (MAPs) such as standard costing, variance analysis, budgeting, and the importance of creating new techniques. Many studies have been carried out in developed countries, seeking to explore and highlight the importance and benefits of contemporary practices (Hussein, 2018; Janudin et al., 2019; Rybicka, 2018; Nuhu et al., 2023).

Other research has focused on the question of the degree of use of these practices (Abdel-Kader & Luther, 2006; Rashid et al., 2021).

The major part of those studies has found that traditional MAPs are the most used. However, an overview of the accounting literature shows that the subject of MAPs has been treated from different angles in developed countries (Shahzadi et al., 2018; Nguyen et al., 2019; Inun Jariya & Haleem, 2021; Lawal et al., 2022). Whereas in developing countries, there is a lack of knowledge, especially, in the Arab world (Ghasemi et al., 2015; Andesto, 2016; Azudin & Mansor, 2017; Krisnadewi & Erawati, 2018; Kalifa et al., 2019).

Therefore, the current study attempts to complete the literature on management accounting in developing countries in a broad sense and the Arab context in a narrow sense as well as the Tunisian context in particular. It also aims to issue a perspective on the current role of management accounting in identifying the degree of the use of MAPs and determining the complexity of MAPs in Tunisian companies using the model of the International Federation of Accountants (IFAC).

Tunisian companies are currently experiencing new economic and political turbulence (Ayadi & Affes, 2014), which negatively impacts their competitive positions in an open market. In this sense, an in-depth investigation of their management systems becomes urgent in order to pinpoint the shortcomings and implement a management accounting system compatible with the new requirements.

The objective of this research is to recognize the intensity of the use of MAPs and identify the level of sophistication of MAPs in Tunisian companies using the model of the IFAC (IFAC, 1998) in Tunisian companies.

In this paper, we attempt to find an answer to the research question:

RQ: In which phases of the evolution of MAPs according to the IFAC (1998) model are Tunisian industrial companies involved?

To answer this question, we conducted a survey using a questionnaire based on the IFAC (1998) model. This model classifies MAPs into four evolutionary phases: 1) cost determination and financial control, 2) management planning and control, 3) reduction of waste in business process, and 4) creating value through the effective use of resource. Based on the literature reviewed, we have classified a range of MAPs into the different IFAC phases.

The results of this study show that Tunisian industrial companies use MAPs which fall within the first two levels of evolution of MAPs according to the IFAC (1998) model. These results place Tunisia in the same basket of developing countries that are still faithful to traditional MAPs.

The contribution of this paper is to enrich the review of Tunisian accounting literature on a narrow scale, and then on a broader scale, with Arab countries in the first rank and developing countries in the second.

Similarly, the results of this paper represent an alert for managers to discover the gap that exists between the management accounting system that should be used in a business world marked by intense competition and high environmental uncertainty, and the one that companies use. We are talking here about a lost relevance as indicated by

Johnson and Kaplan (1987), but in a new cover by the non-utilization of contemporary MAPs which are the real pivots of good management in today's context.

The rest of this paper is structured as follows. Section 2 reviews the relevant literature. Section 3 analyzes the methodology that was used to conduct empirical research on a sample of Tunisian companies while Section 4 analyzes and interprets the outcomes finally found. Section 5 concludes this study.

2. LITERATURE REVIEW

During our research, we adopted the contingency theory which is built on the idea that there is no universal accounting system for all organizations under all conditions (Otley, 1980).

2.1. Management accounting practice

Management accounting practices (MAPs) are defined from two perspectives in the academic literature. While some definitions present MAPs as a component of a broader management information system (Suranattakul et al., 2020), others have presented them as management accounting systems (Erokhin et al., 2019; Al Refai & Poornima, 2021; Qiu et al., 2023).

After the Second World War, management accounting was introduced as an advanced version of cost accounting. Via this new version of the accounting discipline, managers seek to fill two important gaps in cost accounting which are the focus on the figures and the calculations of product costs. Management accounting has thus played the role of the expert who will translate what has just passed through this box. As a result, this accounting has been cleared as a system of contributing to informing and assisting in decision-making and control of the business (Sunarni, 2013; Guni, 2019; Geddes, 2020; Suryana et al., 2023, Alkhasawneh et al., 2023). It has been armed with several innovative techniques from the 1950s until the 1980s when this discipline was challenged. As advanced by Zaniewicz da Silva et al. (2020), these innovations are, as an example in the 1950s, discount cash flows, total quality management, Cusum charts, and optimum transfer pricing.

In the 1960s, many techniques were developed such as opportunity cost budgeting and zero-base budgeting. The techniques of the 1970s are, for example, agency theory, just-in-time scheduling, strategic business units, experience curves, portfolio management, and materials resource planning. In the 1980s, the best-known accounting practices were activity-based costing (ABC), target costing, and benchmarking (Askarany, 2018).

Even if managers and academics believe that management accounting makes accounting more helpful for decision making its techniques showed limits regarding the rapid development of technologies and intensification of competition (Abdel-Kader & Luther, 2008; Mella, 2018; Cerqueira et al., 2023).

It has become urgent to create new techniques in harmony with the current context to make the discipline in line with the context and more

relevant. An innovative wave of management accounting techniques has emerged, the most successful innovations being strategic management accounting.

Indeed, in the face of the failure of management accounting, strategic management accounting is coming back on the scene, and its strength is the focus more on competition analysis.

According to Shah et al. (2011), this discipline is qualified as the messiah of the accounting discipline. In the same decade, the ABC method emerged. The idea that this method is a new technique has been rejected by some authors (Berg & Madsen, 2020).

Far from this skepticism, the introduction and popularization of the ABC method took place in the 1980s to deal with a turbulent business environment and to meet the needs of all companies to provide a wider range of products, more personalized, more flexible to meet customer demands and better quality (Berg & Madsen, 2020).

Since its introduction in the late 1980s, the technique has undergone considerable evolution known as the activity-based thinking (ABT) trinomial (Al-Sayed & Dugdale, 2015). It translated into activity-based management (ABM) in the late 1980s and time-driven activity-based costing (TDABC) in the mid-2000s by Kaplan and Anderson (2004).

In the same stream of evolution, Kaplan and Norton (1992) introduced the balanced scorecard. All these new techniques qualified as a value-based management structure (Dung, 2018; Quesado & Silva, 2021; Hint et al., 2018).

2.2. Stages of the evolution of management accounting practices from the perspective of the IFAC (1998)

According to the IFAC (1998), management accounting has gone through four stages of evolution and grouped these practices into four levels of sophistication.

Figure 1 while identifying the characteristic grades of each stage, has not provided specific examples of MAPs that are linked at the different stages.

Indeed, relying on the IFAC text on the one hand, and reading the literature on the development of management accounting on the other hand, Abdel-Kader and Luther (2006) interpreted the four levels of sophistication of the management accounting system. Then they classified each of the 38 MAPs into the appropriate class. The four stages of sophistication are as follows:

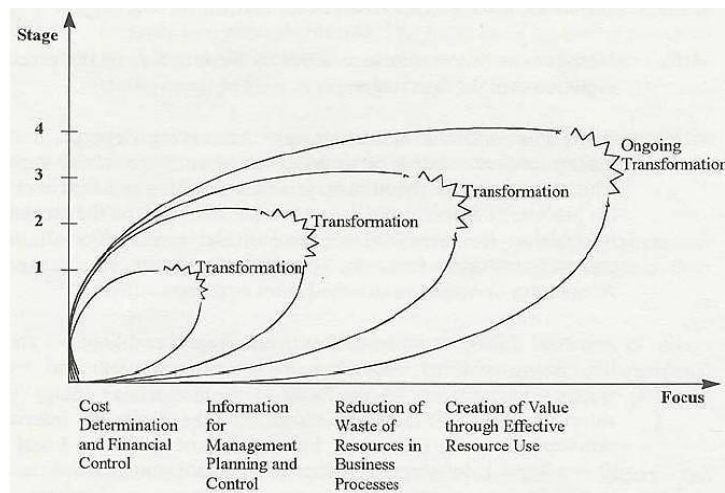
Stage 1: Cost determination and financial control (pre-1950). The first stage of evolution is associated with earlier developments in the year 1950. For this stage, management accounting had to deal mainly with internal issues, especially production capacity. The main source of data was the financial statements.

Stage 2: Provision of information for management planning and control (by 1965). The IFAC (2018) describes managerial accounting at this stage as “a managerial activity, but in a staff role” (paragraph 19). Management control has been oriented towards industry and internal administration rather than strategic and environmental considerations. During this stage, the techniques evolved following the need for decision-making tools contributing to the improvement of efficiency and the realization of profit.

Stage 3: Reduction of resource waste in business processes (by 1985). The challenge of responding to global competition has been met by the introduction of new management techniques, and at the same time by frequently controlling costs, thanks to the reduction of wastage in the resources used in business processes (IFAC, 2018).

Stage 4: Creation of value through effective use of resources (by 1995). According to the IFAC (1998), since 1990, the business world has experienced rapid technological development which has affected many aspects of the industrial sector. The design, maintenance, and development of information systems have become indispensable conditions to guarantee the effective management of the company. Consequently, management accounting in its fourth stage of evolution focuses on the creation of value through the efficient use of resources through the use of technology.

Figure 1. The characteristic grades of each stage



Source: IFAC (2018, as cited in Abdel-Kader & Luther, 2006).

3. RESEARCH METHODOLOGY

An exploratory study based on a questionnaire for a sample of Tunisian business leaders. It aims to study the levels of sophistication of management accounting in the Tunisian context.

We explain the data collection method and then we identify our sample; the measures of the variables used in this research work will then be presented.

Doing the questionnaire is the only possible way of collecting data to test the different hypotheses because the data does not exist in any database.

The questionnaire was addressed through direct contact and email. After the distribution of 250 questionnaires, only 192 copies were finally completed and kept with a response rate of 76%.

The questionnaire is distributed and collected as shown in Table 1.

Table 1. The questionnaire distributed and collected

Elements	Copies distributed	Copies collected	Rate of participation
Questionnaire via direct contact	200	192	96%
Questionnaire via mail	50	0	0%
Total	250	192	76%

Respondents were chosen from different Tunisian manufacturing industries.

The 38 MAPs were organized according to the stages of management accounting evolution produced by the IFAC-based model to study the level of sophistication of MAP in the Tunisia context (Askarany, 2018; Abdel-Kader & Luther, 2008).

The answers to the questionnaires were classified according to the 5-point Likert scale where 1 — never; 2 — occasionally; 3 — neutral; 4 — often; 5 — very often.

3.1. Reliability validity of the measurement scale

According to the measurement scales of the different items that we have adopted, we have grouped these items by simple summation of the variables.

Table 2. Usage scores that are attached to each stage of the IFAC

Stage	Mean
Stage 1: Cost determination and financial control (CDFC)	2.8250
Stage 2: Provision of information for management planning and control (IPC)	2.8299
Stage 3: Reduction of waste in business resources (RWR)	2.7817
Stage 4: Creation of value creation through effective use of resources (CV)	2.8819

Source: Authors' elaboration.

We determined an average for each respondent company for all the MAPs related to each stage of the IFAC (DCCF, IPC, RGR, and CV). The results were used to rank each of the 192 companies in the group (1, 2, 3, and 4), through the use of cluster analysis.

PCA results show that 88.883% of information has three main components. Based on this rate, we segmented our initial sample into three subsamples. Each subsample corresponds to a level of sophistication. It has been noted that there is a loss of information on the order of 11.117%.

We then tried to measure the internal correlations and consistencies for each group of items using Cronbach's alpha reliability index.

According to the empirical literature, the acceptance interval of consistency between the variables is between 0.6 and 0.8. We used the principal components approach in which we used the Kaiser-Meyer-Olkin (KMO) index and the Bartlett statistic. If the KMO index is greater than or equal to 0.5, and/or the Bartlett statistic is significant, it is understood that in terms of correlation, the variables in question are convergent and, therefore, represent a situation interesting and acceptable for factor analysis.

3.2. Principal component analysis

The analysis of the reduction of dimension of the initial space to a family of principal components, allowed us to understand the grouping of the variables to release concentrated information concerning the subgroups obtained. However, in our study, the principal component analysis (PCA) approach will be used to help us determine the number of clusters in the study of accounting sophistication levels.

3.3. Segmentation

The application of the segmentation method represents the main step in our exploratory statistical analysis. Indeed, it puts us on the point of determining and differentiating between groups choosing levels of different accounting practices.

4. RESULTS

The addressed leaders were asked to assess the frequency of use of each of the 38 MAPs.

Based on practice usage scores that are attached to each stage of the IFAC (Table 2), we grouped the individual companies into subgroups.

Table 3. Kaiser-Meyer-Olkin index

Kaiser-Meyer-Olkin measure of sampling adequacy		0.728
Bartlett's test of sphericity	Approx. Chi-square	53.800
	Df	6
	Sig.	0.000

Source: Authors' elaboration.

The calculation of KMO (Table 3) in this study is equal to 0.728 with a value above the threshold of acceptability set by Tabachnick and Fidell (2012),

that is values above 0.6 are acceptable. To study the correlation of our variables, we used the Bartlett test which aims to show that each variable is

perfectly correlated with itself, but not with the other variables. The results show that the test is perfectly significant.

Table 4. Percentage of information captured by the four components

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2.173	54.328	54.328	2.173	54.328	54.328
2	0.754	18.861	73.189			73.189
3	0.628	15.694	88.883			88.883
4	0.445	11.117	100.000			

Source: Authors' elaboration.

Respondents were asked to give their proper interpretation of MAPs and the factors that influenced the choice of MAPs used. There was a consensus on the fact that MAPs seek relevant information to help decision-making and strengthen control functions.

All respondents agreed that the choice of MAP was linked to several factors, namely: the nature of linked to several factors, the nature of the business, the elements needed for decision- and how existing resources are used.

The results show that MAPs enable management to gather relevant information for appropriate decision-making, which is consistent with the findings of Oboh and Ajibolade (2017).

Table 5. Distribution of the sample in the groups

	Group 1	Group 2	Group 3
The number of firms	100	56	36

The mean scores of the variables as well as the Fisher tests of each group are presented in Table 6.

Table 6. Final ranking and contribution of variables

Stage	Cluster			F-test	Prob.
	Group 1 (100)	Group 2 (56)	Group 3 (36)		
CDFC	2.66	2.75	3.43	19.311	0.000
IPC	2.47	3.11	3.31	34.261	0.000
RWR	2.50	3.01	3.16	24.329	0.000
CV	2.63	2.93	3.51	34.954	0.000

Source: Authors' elaboration.

Once the group analysis is validated, we switch to link each group to the level of sophistication that suits them.

According to the IFAC (1998) evolutionary management accounting model, at level 1, companies pay more attention to the practices of the DCCF and less to the practices of the other levels (CPI, RGR, and CV).

Level 2 companies pay more attention to the practices of the levels (DCCD and CPI) and less attention to the practices of the levels (RGR and CV).

For level 3, companies pay more attention to the practices belonging to the stages of DCCF, CPI, and RGR.

The main conclusion that draws our attention is that no company is classified as level 4, however, companies pay attention to the sophistication stages of DCCF, PCI, RGR, and CV.

These results are explained by the fact that in the Tunisian context, we are in the presence of small and medium-sized enterprises (SMEs), the majority of which are family-owned. Again, most studies have shown that management accounting in Tunisia is in an underdeveloped phase (Mnif, 2008; Ghorbel, 2012).

As a conclusion, the management accounting system of most Tunisian companies is part of the lower level according to the evolutionary model of IFAC (1998). This implies that Tunisian companies use the least sophisticated management accounting techniques in harmony with their expectations in terms of costs and pricing.

Indeed, the results of our research show that the majority of Tunisian companies use management

accounting systems dating from the years before 1950, for a contemporary competitive struggle.

There is therefore a lack of adoption of current practices of the costing system in developed countries compared to developed countries. This has been confirmed by the work of Abdel-Kader and Luther (2006) and Al-Omiri and Drury (2007).

In this sense, Tunisian companies are limited to level 3 in the scale of evolution of MAPs according to IFAC (1998) as the most sophisticated level in their context. Thus, according to Table 5, 100 companies (52%) belong to level 1, 56 companies (29%) are at level 2, and 36 companies (19%) are at level 3.

5. CONCLUSION

This study seeks to show where Tunisian companies position themselves in the evolving model of MAPs put forward by the IFAC (1998) and developed by Abdel-Kader and Luther (2006). To do this, we sent 192 questionnaires to financial executives of Tunisian SMEs to analyze the stage of evolution of MAPs in Tunisia.

The results of our research show that 52% of Tunisian companies use MAPs belonging to level 1 of sophistication. For level 2, we recorded 29%. Thus, the majority of companies surveyed have a high level of confidence in practices qualified as traditional by the accounting literature review.

This is consistent with previous research carried out in the Arab context (McLellan & Moustafa, 2010), in Egypt (Hussein, 2018), in Libya (Mohamad Ahmad & Leftesi, 2014), and Yemen (Al-Dhubaibi et al., 2014).

These results are also consistent with previous surveys conducted in Sri Lanka (Inun Jariya & Haleem, 2021), Vietnam (Dung, 2018), Malaysia (Janudin et al., 2019), and Ghana (Adu-Gyamfi et al., 2020).

Indeed, even in the most developed countries, the main techniques used are traditional. This can be explained by resistance to change which hinders the implementation and the degree of conservatism and the management team as well as the stage of the organizational life cycle. However, an organization can expect benefits from resorting to more sophisticated management accounting practice only

in specific contexts: for example, the advantages are expected for businesses, in general, moving from level up to sophistication level 4 (value creation), through the efficient use of resources. Considering the limitations identified for the study, further research is recommended to generalize the results. Tunisia has been used for illustration purposes only. The model can, however, be tested in any context around the world.

The results can also be explained by the effects of contingent factors which explain the low rates observed. Thus, future studies could explore the factors explaining these low rates.

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