The Implementation of Management Accounting Innovations within the Jordanian Industrial Sector: The Role of Supply-Side Factors

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Abstract
This paper focuses on the diffusion of management accounting innovations (MAI) in Jordan. The main objectives of the study were to determine the role of supply-side factors on decisions(s) to implement (or not) MAI within the Jordanian industrial sector, and to ascertain the level of satisfaction among Jordanian industrial companies concerning the role of these factors in driving the diffusion of MAI. A multi-method approach (combination of questionnaire survey and semi-structured interviews) was used in this research study. The study was conducted in two sequential stages using mixed methods of data collection and analysis. It was found that among the 58 companies which responded, only 23 (39.65%) are using at least one of the five mentioned MAI. The second research question sought to determine the factors that drive MAI among Jordanian industrial companies. The 23 companies that are implementers of MAI were asked to rate the importance of various factors in driving the decision to implement MAI. The results suggest that the role of consultant companies and accounting education were the most important factors driving the decision to implement MAI within the Jordanian industrial sector. The results of examining the degrees of satisfaction regarding the current role of supply-side factors in driving the implementation of MAI shows that most of these factors need improvement. Finally, the most cited reasons for not implementing MAI were lack of Co-operation between universities (academics) and companies (professionals) in Jordan, Lack of Conferences, seminars and workshops in Jordan.
Keywords: Management Accounting Innovation (MAI), Supply-side factors, Jordanian industrial sector, Diffusion Theory.

Article Type: Research paper

1. Introduction
Over the last ten to fifteen years a number of new ideas have been introduced in the field of management accounting. Concepts such as Activity Based Costing (ABC), Activity Based Management (ABM), Target Costing, Strategic Cost Management and Economic Value Added (EVA™), Balanced Scorecards (BSC) are now regularly included in standard management accounting textbooks (e.g. Horngren, Foster and Datar, 1999), and have also been gradually introduced into practice (Bjornenak and Olson, 1999; Bjornenak and Ax, 2005; Askarany, 2006; Askarany and Yazdifar, 2007; Alawattage et al., 2007; Bhimani et al., 2007; Duh et al., 2009; Smith et al., 2008; Hopper et al., 2008; Abdel-Kader and Luther, 2008). There has been much debate over the extent to which the nature of management accounting is changing. Johnson and Kaplan (1987) argued that management accounting had changed little since the early twentieth century. However, they also stated that the environment in which management accounting is practised has changed considerably during the same period, with different organisational structures, significant advances in information technology, more competitive markets, and new management practices (Atkinson et al., 1997; Baines and Langfield-Smith, 2003).

In addition, there has been a growing interest in the study of the diffusion of management accounting innovations (MAI) and of the factors influencing the decision of whether or not to implement them during the past two decades (e.g., Al-Omiri and Drury, 2007a; Gosselin, 2007; Kaplan and Anderson, 2007; Askarany and Smith, 2008; Shields 1995; Clarke et al., 1999; Chongruksut 2002; Pierce and Brown 2004; Cohen et al., 2005 Anderson, 1995; Baines and Langfield-Smith, 2003; Chenhall and Langfield-Smith, 1998; Gosselin, 1997; Malmi, 1999).

Gosselin (2007) claimed that most of the literature about studies on diffusion of MAI has focused upon examining the association between diffusion of MAI and demand side factors (such as: top management support, training, size of company, competition, product diversity and internal resource) rather than upon supply-side factors (such as: consultant companies, accounting bodies, accounting research, accounting education and accounting journals). For example, undertaking a historical review of empirical and contingency-based research over the last two decades, Bjornenak (1997) and Gosselin (2007) observed that there has been very little research available on examine the role of supply-side factors to driving the implementation of MAI. Gosselin (2007, p 665) suggested that, “Future studies should focus on the influence of supply side relating to the diffusion of more sophisticated costing systems”. This observation provides the motivation for this paper to explore the role of supply-side factors on decisions(s) to implement (or not) MAI within the Jordanian industrial sector, and to ascertain the level of satisfaction among Jordanian industrial companies regarding the role of these factors in driving the diffusion of MAI. It does so by investigating four research questions:

1. What is the current status of implementation of MAI within the Jordanian industrial sector?
2. What are the main supply-side factors driving the implementation of MAI within Jordanian industrial sector?
3. What is the degree of satisfaction in Jordanian industrial companies concerning the role of supply-side in driving the implementation of MAI?
4. Among those companies which have not implemented MAI, what are the main reasons for not doing so?
2. Literature Review

2.1. Definitions of Innovation

The common criterion in any definition of innovation is newness. According to Rogers, (2003, p.33) newness in an innovation could be not only in terms of new knowledge, but also in terms of first persuasion, or influence to implement or a decision to implement. According to that innovation can be related to new technological changes and products and new administrative techniques and services. Damanpour, (1991) pointed out that the term “innovation” may be viewed as the implementation of an idea which may relate to a system, program, policy, process, and plan or service that is new to the company at the time of implementation.

2.2. The Diffusion of Innovation

Bjornenak (1997, p.3) defined the diffusion as “the process whereby an innovation is spread or disseminated.” Bjornenak and Olson (1999, p.1) stated that diffusion has been defined as “a social process by which an innovation spreads through a social system over time.” Rogers (2003, p.11) defined diffusion as “The process by which an innovation is communicated through certain channels over time among the members of a social system”

Rogers (2003, p.99) distinguished between the implementation process and the diffusion process. The implementation process pertains to an individual, whereas the diffusion process occurs within a society, as a group process. Rogers (2003, p.150) defined the innovation implementation process as “Mental process through which an individual passes from first knowledge of an innovation to a decision to implement or reject and to confirmation of this decision.” He also defined the diffusion process as “The spread of a new idea from its source invention or creation to its ultimate users or adopters.”

Three important social phenomena describe the speed and range of a diffusion process (Bjornenak, 1997). Initially, the idea may meet resistance because, for example, of an unwillingness to make organisational changes or because of theoretical objections. Barriers to diffusion may also arise, such as a lack of resources or cultural/linguistic issues. There is also the possibility that the extent of contacts a potential adopter has made – that person’s ‘information field’ – are insufficient to convince the individual to adopt the innovation. The information field affects the rate of diffusion (Bjornenak and Ax, 2005).

By focussing on the information field we direct attention to the supply side of the diffusion process. Diffusion studies have traditionally focused on organization’s demand for innovations and emphasised the role of potential adopters of innovations in driving the communication process. These studies have regarded the information field as a passive factor in the diffusion process. However, more recent studies have seen the supply side as actively seeking to control the information field of potential adopters (Abrahamson, 1996).

2.3. The Association between MAI and Supply-Side Factors

Clarke et al. (1999) claimed that, while most MAI studies take a demand-side perspective (factors), the supply-side is important because it provides an alternative explanation for implementation rate of ‘new’ MAI. Similarly, Bjornenak (1997, pp.15) suggested that, “The results also indicate that the rather narrow demand perspective explored did not fully explain the diffusion process. Thus, other perspectives are needed to better understand the diffusion process. Taking the supply-side into account seems to promising”. Consequently, the objective of this section is to review the empirical studies on diffusion of MAI in developed countries to determine the factors that driving the implementation of MAI, which will be used subsequently to design the questionnaire survey and conducted the interviews in the current research.

A small number of studies investigated the impact of supply-side factors on the implementation of MAI during the last two decades. For instance, Bjornenak (1997) investigated the diffusion of ABC
based on a questionnaire survey of 75 of the largest manufacturing companies in Norway, distinguishing between the supply-side and the demand-side. While the former relates to the organisational environment with its various influences, such as consultancy and the mass media, the latter aims to link specific properties of the innovation with the characteristics of the potential adopters. According to Bjornenak, the most influential factors on the demand-side concerned the nature of the phenomenon being diffused. In the case of ABC diffusion, he identified cost structure, existing costing systems, product diversity and competition as the essential factors. On the supply-side, the majority of the adopters of ABC received assistance from consultants indicating that they played an essential role in these diffusion processes. Similarly, company size was identified as a relevant factor, since larger companies proved to have a larger network of communication channels and infrastructures to adopt the accounting innovation. Courses and availability of internal change agents seemed to provide for the most effective communication channels.

Bjornenak, (1997) pointed out that most adopters require persuasion to accept an innovation, in the form of awareness and demonstration. For instance, the first set of adopters or consultants may take on the active role of drivers of the diffusion process. Bjornenak also drew attention to the importance of the infrastructure in the diffusion of an accounting innovation. Media, such as articles, books, seminars and conferences, may be used to inform and convince potential adopters. Similarly, Abrahamson (1996) suggested that the impact of management fashions on the innovation adoption decision could be studied by comparing the temporal frequency of articles on innovation in the mass media with the innovation diffusion curve. A theoretical relationship requires that an increase in the number of publications should precede and accompany the take-off of an innovation.

Clarke et al. (1999, p.466) studied the state of management accounting practices in Ireland. The data was collected by a questionnaire mailed to 511 Irish manufacturing companies. They found ABC systems were not as widely used within Irish companies as within companies in the USA, the UK, and Canada because, "the practice of management accounting in Ireland is marginalised." In other words, Irish management accountants work as record-keepers rather than innovators and decision-facilitators possibly due to supply and demand barriers. For instance, universities do not supply business companies with creative and problem-solving graduates (accountants and managers), whilst companies and professional bodies do not demand changes in the education of accountants and managers. Also, the results from Clarke et al.’s study indicate that ABC was not well understood by Irish management accountants.

Abrahamson (1991, 1996) claimed that the imitation process was derived primarily from professionalism. There are two important sources of imitation in professionalism: one from formal education and legitimisation provided by university specialists. They are the main forces for the development of organisational norms among professional managers and qualified staff. The second source is from professional networks that diffuse new models rapidly. The filtering of personnel is another important mechanism for encouraging imitation among companies. Companies can do this through the employment of individuals from companies within the same industry or through the hiring of top executives from financial or legal departments whose experience and expertise enriches the level of professionalism within the company.

2.4. Accounting Education and MAI in Jordan: Example of ABC

Jordanian accounting education is heavily based on accounting theory and practice in the United States where most Jordanian academics completed their graduate studies (Hutaibat, 2005). Thus, most Jordanian accountancy programs, including management accounting courses, generally consist of similar course outlines and course titles to American courses and most teaching and studies of management accounting in Jordanian universities merely “translates and introduces” western techniques of management accounting (EI-Issa, 1990). Abu Elhijaa (2001) claimed that it is the responsibility of academic institutions such as universities, to spread and enhance awareness of western management accounting innovations and the expected benefits that may be gained from them.
For the Jordanian industrial sector, ABC is a new cost accounting system (Al-Khadash and Feridun, 2006). However, it is known among Jordanian academics who have studied abroad since the early 1990s (Hutaibat, 2005). ABC first appeared in Jordanian literature in the early 1990s. Thereafter, it began to be discussed. However, these discussions tended to stay at conceptual and theoretical levels and there were not any sufficient and comprehensive studies about its application level at that time. In the mid-1990s and early 2000s, the ABC concept was widely discussed in Jordan through seminars, conferences and journals (Khasharmeh, 2002). Consideration of ABC in the Jordanian industrial sector emerged from parent company policies in the USA or the UK (Arafat, 2002; Hutaibat, 2005). Al-Khadash and Feridun (2006) claimed that the level of awareness of the importance of using management accounting innovations such as ABC is significantly higher among financial managers in the Jordanian industrial sector than was previously the case. Furthermore, they added that Jordanian industrial companies offer a good environment to adopt new management accounting innovations, such as ABC, because they have the funding as well as the human resources to do so.

3. Research Methodology and Data Collection Methods

3.1. The Context and Population of the Study

The Jordanian industrial sector is viewed as one of the economic sectors that Jordan should develop if it is to achieve better economic growth (Central Bank of Jordan, 2007). It is mainly built upon three industries: manufacturing, electricity production, and mining. Companies in these three sectors are largely privately owned and are mostly small and medium-sized (Hutaibat, 2005). The overall contribution of the industrial sector to the Jordanian GDP for the year 2005 was approximately 17 per cent. Industrial sector exports contributed about 93.5% of the national exports. The total number of industrial establishments reached 21,000, employing more than 173,000 workers. This figure represents about 48% of the total number of workers in Jordan (Ministry of Planning Report, The Economic Indicators 2007, Amman, Jordan, 2007).

By the beginning of the 1990s, Jordan’s accession to the World Trade Organisation (WTO), and signing of Free-Trade Agreements with a number of different parties, meant that it had become a fertile ground for its industrial production to grow and expand (Central Bank of Jordan, 2007). Following Jordan’s joining of these global bodies, an urgent need was identified to develop all Jordanian economic sectors, especially the industrial sector, so that it might operate successfully in a free market economy (Ministry of Industry and Trade, 2007).

The industrial sector grew to nearly 21 per cent of GDP by 2006, in large part as a result of the United States–Jordan Free Trade Agreement (ratified in 2001 by the U.S. Senate). This agreement led to the establishment of 13 qualifying industrial zones (QIZs) throughout the country (Ministry of Industry and Trade, 2007). The QIZs, which provide duty-free access to the U.S. market, produce mostly light industrial products, especially ready-made garments. By 2006 the QIZs accounted for nearly US$1.1 billion in exports (Ministry of Planning Report, The Economic Indicators 2007, Amman, Jordan, 2007).

As more multinational companies establish joint ventures or regional offices in Jordan, it is expected that changes will occur to management accounting practices. These changes will be driven by the need for Jordanian companies to implement management accounting innovations in order to compete more effectively.

This study focuses on the Jordanian industrial sector for three reasons:

1. The researchers have extensive familiarity with and experience of cost accounting systems in Jordanian industrial companies.
2. There is a clear trend in the social and economic development plans of successive Jordanian governments to support the industrial sector and encourage and assist its members to enter international markets. Recently, this has been one of the central preoccupations of the government and industry alike. This has taken the form of carefully identifying the priorities
and paying equal attention to both the development of internal capabilities of industrial companies while providing the necessary environment and conditions for industrialisation (Central Bank of Jordan, 2007).

3. Industrial companies are exposed to changes in the industrial environment, such as changes in the production cost structure (Innes and Mitchell, 1991; Askarany, 2006); and to changes arising from new highly technological manufacturing techniques (Clarke et al., 1999). These changes commonly lead industrial companies to implement innovations in their management accounting systems.

The population of the study consisted of Jordanian industrial shareholding companies listed on the Amman stock exchange at the end of 2009. The total number of companies included was 88. These companies were selected as the arena for this study for two reasons:

(i) The industrial companies sector is one of the largest sectors listed on the Amman stock exchange; and,

(ii) A great deal of data about the industrial shareholding companies is available from the Amman stock exchange.

3.2. Methods of Data Collecting

De Vaus (2007) suggested that data can be collected and interpreted in various ways, each of which has advantages and disadvantages compared with some, or all of the others. One way of overcoming this issue is to adopt a multiple-method approach to data collection (Sekaran, 2003; Collis and Hussey, 2003). In the current paper, a multiple-method approach (combination of questionnaire survey and semi-structured interviews) was used. This research was, therefore, conducted in two sequential stages, the first using multiple-methods of data collection, and the second focusing upon analysing the results.

In the first stage, a questionnaire survey was employed in order to determine the current status of implementation of management accounting innovations among Jordanian industrial companies; It also sought to identify the main factors driving the implementation of MAI; the degree of satisfaction regarding the current role of supply-side factors in driving the implementation of MAI; and, finally, to ascertain the main reasons for not implementing MAI.

Originally, the questionnaire was constructed in English. Because the general language of the target population was Arabic, the questionnaire had to be translated into their language. Three translation stages were used: a translation firm produced an official translation of the questionnaire in Arabic; then, a bilingual English/Arabic speaker, who grew-up in Jordan refined that translation to eliminate such errors as technical terms being mistranslated. A third translator, who gained his doctorate in accounting in the United Kingdom and who has been teaching accounting in Jordan for more than five years, then checked the translation to ensure that it was asking the same questions in Arabic as had been asked in English in the original questionnaire. No significant differences were detected. Finally, the draft questionnaire was sent to three heads of cost accounting departments in the industrial sector. To decide which companies should be chosen, prior studies suggest that the pilot study group should be part of the general group being investigated in the primary survey (Sekaran, 2003). Based on the comments received from pilot study, the final version of questionnaire was designed.

All questions were adopted from past studies (Bjornak, 1997; Clarke et al. 1999; Malmi, 1999; Abrahamson, 1991). Regarding question type, close-ended questions are quicker and easier for the respondents to complete. Therefore, the current research employed this type of design in all questions. Finally, the research study employs five-point Likert scales through the questionnaire for all the statements requiring scaling.

The questionnaires were sent to the chief financial manager in each Jordanian industrial company listed on the Amman stock exchange (88 companies by the end of 2009). Of 88 questionnaires distributed, 58 were returned: a response rate of 66%. To improve the response rate after the questionnaires were distributed, initial distribution was followed by a phone call and, later, by a personal visit to collect the completed questionnaires. As the headquarters of the majority of the
companies are located in the capital of Jordan (Amman), a researcher was employed for one month whose role was to follow-up the respondents and to collect all responses. This is seen as a major factor in achieving such a high response rate. Tests for non-response bias were carried out by comparing responses of early and late respondents, on the basis that the latter are more likely to resemble non-responses (Bjornenak, 1997). No evidence of non-response bias was found.

In the second stage, semi-structured interviews were employed in order to understand the current role of supply-side factors in driving the implementation of MAI and in order to identify the main reasons for not implementing MAI. Consistent with and as recommended for research of this type (Sekaran, 2003; Collis and Hussey, 2003; De Vaus, 2007; Yin, 2003), the researchers performed several activities before, during and after the interviews to obtain relevant information from the interviewees and in order to increase the validity and reliability of the information.

The researchers sent a letter to all 58 industrial sector companies informing them of the study. The letter was followed by telephone calls in which they were asked if they were willing to participate in the study. During the telephone calls, the researchers asked the respondents if they would agree to their interviews being tape-recorded. In order to convince them to participate, the researchers also informed them that all interviews were being undertaken in strict confidentiality and that no response would be reported in such a way as to enable the source to be identified. At this point, 12 companies agreed to be interviewed at a mutually convenient time and location.

In order that interviewees could prepare for the interview, a list of the interview questions was sent to them in advance of the interviews; and an agreement letter was provided with general information about the research.

All the interviews were conducted in Arabic. Each interview lasted between 15 and 25 minutes. After each interview, the researchers prepared a transcript in Arabic. The interviewees were then given a copy of the transcript and were invited to discuss any conflicting issues, and/or make changes as appropriate. All of the interviewees agreed to the content of the transcripts and approved their use. The researchers then prepared the agreed transcripts for analysis.

3.3. Operational Definition

Bjornenak (1997) reviewed the literature on the diffusion of management accounting innovations and undertook a survey in order to examine factors, such as consultant companies and mass media and their part in the diffusion process. Clarke et al. (1999) examined the role of accounting education and accounting bodies. Among supply-side factors addressed in these and other studies, including Abrahamson (1991) and Malmi (1999), the following seven factors are cited particularly frequently and are, consequently, the focus of this study:

(i) Consultant companies.
(ii) Accounting education in Jordanians school and universities.
(iii) Professional accounting bodies in Jordan.
(iv) Conferences, seminars and workshops
(v) Co-operation between universities (academics) and companies (professionals).
(vi) Specialist management accounting journals.
(vii) Accounting research in Jordan.

Following the identification of supply-side factors, the next task was to identify which MAI to examine. A historical review of empirical and contingency-based research over the last two decades was undertaken and identified the following key sources: Chenhall and Langfield-Smith (1998); Maiga and Jacobs (2003); Abernethy and Bouwens (2005); Abdel-Kader and Luther (2006); Alawattage et al. (2007); Alcouffe et al. (2008); and, Abdel-Kader and Luther (2008).

Sources were then consulted which focused on Jordan: Hutaibat (2005); Al-Khadash and Feridun (2006); and Nassar et al. (2009). These revealed that the five most popular recently developed cost and MAI in the Jordanian industrial sector were:
• **Activity based costing (ABC):** An approach to costing that focuses on activities as the fundamental cost objects. It uses the cost of these activities as the basis for assigning costs to other cost objects such as products, services, or customers.

• **Activity based management (ABM):** Use of ABC concepts to facilitate the identification and reduction of non-value-added activities.

• **Benchmarking:** The search for industry best practice that will lead to superior performance. It emphasises an outward focus and seeks to improved performance by learning from the experience of effective organisations.

• **Balanced scorecard:** An integrated strategic performance management framework that helps organisations translate strategic objectives into relevant performance measures, by linking nonfinancial measures with a financial perspective in four areas of performance concerned with: financials, internal process, customers and innovation & learning.

• **Target costing:** A form of costing system in which the manufacture of a product or the provision of a service is restricted within a predetermined total cost ceiling so that a competitive price is achieved.

The questionnaire asked the respondents to determine the level of importance of the influence of the listed supply-side factors on decisions to implement these five MAIs. Reponses were on a 5-point scale, ranging from 1 = Vitally unimportant to 5 = Vitally important.

4. Results
4.1. Characteristics of the Study Sample

Respondents were asked to classify their companies’ industry type. The classification of type of sectors was based on the reports of department of statistics in Ministry of Industry and Trade in Jordan. The first group was called the engineering sector, and this group includes two sectors, namely: Electrical, and Engineering and Construction industries. The second group was called the Processing sector, and this group includes four sectors, namely: Chemical industries, Medical industries, Glass and Ceramic industries and Mining and Extraction industries. The last group is called Consumers Product sector, and this group includes five sectors, namely: Food and Beverages, Tobacco and Cigarettes, Textiles, Leathers and Clothing, Paper and Carton industries, and Printing and Packaging, as shown in Table 1-1. On the basis of number of employees, the respondents’ companies were classified as follows: 22.41% employ less than 100 employees; 47% employ between 101 and 500 employees; 27.58% have between 501 and 1000 employees; and, two companies 3.46% employ more than 1000 employees.

Table 1.1: Characteristics of the respondents

<table>
<thead>
<tr>
<th>Industrial Sector</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Sector</td>
<td>16</td>
<td>27.58</td>
</tr>
<tr>
<td>Processing Sector</td>
<td>19</td>
<td>32.75</td>
</tr>
<tr>
<td>Consumers Product Sector</td>
<td>23</td>
<td>39.67</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of employees</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 100 Employees</td>
<td>13</td>
<td>22.41</td>
</tr>
<tr>
<td>100-500 Employees</td>
<td>27</td>
<td>46.55</td>
</tr>
<tr>
<td>501-1000 Employees</td>
<td>16</td>
<td>27.58</td>
</tr>
<tr>
<td>More than 1000 Employees</td>
<td>2</td>
<td>3.46</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>100.0</td>
</tr>
</tbody>
</table>

5. Survey Results

Results are reported below for each of the research questions.

1. **What is the current status of implementation of MAI within the Jordanian industrial sector?**
Twenty-three (39.65%) of the 58 respondent companies were using at least one of the five mentioned MAI. Table 1-2 presents this in greater detail:

Table 1.2: Percentages of users for each MAI

<table>
<thead>
<tr>
<th>Type of MAI</th>
<th>No. of users</th>
<th>Users percentages out of the 23 user</th>
<th>Users percentages out of the total respondents (58)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC</td>
<td>15[1]</td>
<td>65.21%</td>
<td>25.86%</td>
</tr>
<tr>
<td>ABM</td>
<td>6</td>
<td>26.08%</td>
<td>10.34%</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>21</td>
<td>91.13%</td>
<td>36.20%</td>
</tr>
<tr>
<td>Balanced scorecard</td>
<td>18</td>
<td>78.26%</td>
<td>31.03%</td>
</tr>
<tr>
<td>Target costing</td>
<td>19</td>
<td>82.60%</td>
<td>32.75%</td>
</tr>
</tbody>
</table>

[1] ABC users in the current study are defined as those companies which have finished implementation of ABC and currently ABC information is used as a part of their costing practices and/or companies have begun implementing ABC systems.

[2] 6 companies out of 15 had implemented ABC in full while, 9 companies are currently implementing ABC.

The main results based on this questionnaire survey are that 15 companies out of 58 (25.86%) were using ABC and 6 (10.34%) were using ABM. Expressed as percentages of the 58 respondent companies and generalizing across the sector, the rate of ABC implementation within the Jordanian industrial sectors is about 25.86% (10.34% had fully implemented ABC and another 15.52% were in the process of implementing it). The overall rate of ABM implementation was about 10.34%.

Table 1-2 shows that for those 23 companies that had implemented MAI, 91% had implemented Benchmarking; and 78.26% had implemented Balanced scorecard. The overall implementation rate of Balanced scorecard within the Jordanian industrial sector is 31%. Finally, 19 companies (82.60%) had implemented Target costing.

2. Regarding to supply-side factors what are the main factors driving the implementation of MAI within Jordanian industrial sector?

The 23 respondents who had implemented MAI were asked to give their opinions on the degree of importance of the seven factors in the decision to implement MAI. They were asked to rate items on a 5-point scale ranging from 1 = vitally unimportant to 5 = vitally important. The responses are summarised in Table 1-3.

Table 1.3: Degree of importance of the supply-side factors on driving the implementation of MAI

<table>
<thead>
<tr>
<th>Factor</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>% Vital Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultant companies</td>
<td>3.00</td>
<td>5.00</td>
<td>4.13</td>
<td>.475</td>
<td>65.20%</td>
</tr>
<tr>
<td>Accounting education</td>
<td>2.00</td>
<td>5.00</td>
<td>4.04</td>
<td>.694</td>
<td>39.10%</td>
</tr>
<tr>
<td>Professional accounting bodies</td>
<td>1.00</td>
<td>5.00</td>
<td>3.91</td>
<td>.848</td>
<td>17.40%</td>
</tr>
<tr>
<td>Conferences, seminars and workshops</td>
<td>2.00</td>
<td>5.00</td>
<td>3.35</td>
<td>.714</td>
<td>4.30%</td>
</tr>
<tr>
<td>Co-operation between universities (academics) and companies (professionals)</td>
<td>2.00</td>
<td>5.00</td>
<td>3.30</td>
<td>.876</td>
<td>4.30%</td>
</tr>
<tr>
<td>Specialist management accounting journals</td>
<td>1.00</td>
<td>5.00</td>
<td>2.87</td>
<td>.795</td>
<td>17.40%</td>
</tr>
<tr>
<td>Accounting research</td>
<td>2.00</td>
<td>5.00</td>
<td>2.87</td>
<td>.869</td>
<td>4.30%</td>
</tr>
</tbody>
</table>

It can be seen from Table 1-3 that the role of consultant companies and accounting education were cited as the most important factors that driving the decision to implement MAI within the Jordanian industrial sector. These findings are consistent with the results in the study by Cohen et al. (2005) that companies should used outside experts to help them choose a more sophisticated systems and deal with problems that are encountered during the implementation. Similarly, Anderson (1995) found that once the problem with current management accounting systems in her case site had been identified, the choices of MAI were profoundly influenced by the opinions of consultant companies (external experts). Abrahamson (1991) called this type of implementation the “fashion” perspective. This perspective assumes that companies will tend to imitate other companies because of conditions of
uncertainty relating to goals and the efficiency of innovations. Therefore, under conditions of uncertainty, companies in a group imitate MAI promoted by consulting companies.

The above results were supported by findings of semi-structured interviews. According to the head of the cost accounting department in company A “I was requested to work with a consultant to replace the old cost accounting system and implement a new system to fit our business and production processes”. He added, “The Company decided to deal with experts at that time. Actually, we got them here; they spoke to our managers, stock department manager, IT manager, and me. One of them (consultants) explained why ABC is an appropriate system for our operation system and company”. Similarly, the head of costing department in Company B said, “The implementing of ABC in our company started with meetings between foreign experts and our top managers from various departments”. Therefore, the implementation of MAI in these two companies was driven by the consultant companies.

The fact that accounting education was cited as a second highest factor driving the decision to implement MAI suggests that managers of Jordanian industrial companies recognize the potential of accounting education to raise the awareness of new management accounting innovation and so increase the overall level of MAI. Argyris and Kaplan (1994) suggested that education about MAI is a crucial step of success in MAI implementation as, in this step, both managers and employees identified the differences between the traditional management accounting (TMA) and MAI. The above results were further supported by findings of interview data from the financial manager in company C “Our managers have the basic knowledge and skills needed to implement modern management accounting and we can always start with simple system then build-up all that they need” He added, “the managers knowledge was the key issue in the process of implementation of MAI in our company”.

3. What is the degree of satisfaction regarding to current role of supply-side on driving the implementation of MAI within Jordanian industrial sector?

Table 1-4 shows the results of examining the degree of satisfaction regarding to current role of supply-side factors on driving the implementation of MAI namely: (local consultant companies, accounting education, conferences, seminars and workshops, accounting researches, cooperation between academic universities and companies, professional accounting bodies). Table 1-4 below shows that most of these factors need improvement.

<table>
<thead>
<tr>
<th>Local consultant companies</th>
<th>Dissatisfied</th>
<th>Needs improvement</th>
<th>Seems reasonable</th>
<th>Very satisfied</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>15</td>
<td>6</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>(4.3)</td>
<td>(65.2)</td>
<td>(26.1)</td>
<td>(4.3)</td>
<td>100%</td>
</tr>
<tr>
<td>Accounting education</td>
<td>1</td>
<td>12</td>
<td>8</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>(4.3)</td>
<td>(52.2)</td>
<td>(34.8)</td>
<td>(8.7)</td>
<td>100%</td>
</tr>
<tr>
<td>Professional accounting bodies</td>
<td>3</td>
<td>7</td>
<td>11</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>(13.0)</td>
<td>(30.4)</td>
<td>(47.8)</td>
<td>(8.7)</td>
<td>100%</td>
</tr>
<tr>
<td>Conferences, seminars and workshops</td>
<td>2</td>
<td>13</td>
<td>7</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>(8.7)</td>
<td>(56.5)</td>
<td>(30.4)</td>
<td>(4.3)</td>
<td>100%</td>
</tr>
<tr>
<td>Accounting research</td>
<td>7</td>
<td>13</td>
<td>3</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>(30.4)</td>
<td>(56.5)</td>
<td>(13.0)</td>
<td>(0.0)</td>
<td>100%</td>
</tr>
<tr>
<td>Co-operation between universities</td>
<td>10</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>(academics) and companies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(professionals)</td>
<td>(43.5)</td>
<td>(52.2)</td>
<td>(4.3)</td>
<td>(0.0)</td>
<td>100%</td>
</tr>
</tbody>
</table>

The results shown in Table 1-4 were supported by the findings from the semi-structured interviews. According to the financial manager in company D “there are not enough consultants that provide education about ABC. We should have more practical ABC training. Each company be interested in implementing ABC should have advisers to check and give advice”. Similarly, the
financial manager in company E said that “In Jordan there is a lack of consultant companies, which makes the company, depends fully on expensive foreign expertise”.

The financial manager in company F suggested that there should be more conferences and seminars on accounting issues in general, and the implementation process of MAI in particular. He also suggested that there was a need for journals specializing in MAI to be made available to accountants and financial managers in Jordan. In addition, he commented on the shortage of management accounting research and PhD degrees in this area of management accounting within Jordanian public universities. “Our universities are not active in management accounting research. For example, this is the first time I have seen a questionnaire or participated in an interview on the factors driving the implementation of MAI in our sector in such detail as yours. Actually, I wanted to apply to do a PhD in accounting in Jordan but we do not have such doctoral courses in our public universities”.

The head of cost accounting department in Company E pointed out the importance of cooperation between industrial companies and universities. He stated that such cooperation does not exist or is very weak at present. If promoted, such cooperation would certainly improve accounting practices and knowledge about MAI in the Jordanian industrial sector. “To be honest with you, from the past and until today the relationship and cooperation between accounting professionals in the field and academics in universities is very weak. I only communicate when somebody comes to ask me to fill in a questionnaire or is asking to conduct an interview. I think we should communicate more often if we really need to improve our costing system and implement MAI”.

The importance of professional accounting bodies in Jordan was highlighted during the interview with the financial manager of Company I. The interviewee emphasised the role and importance of such bodies for improving and supporting the companies to adopt and implement MAI within the industrial sector. The role and importance of such accounting bodies is very clear in other countries, such as the USA and the UK. “We don’t have well-established professional accounting bodies in Jordan. Such institutions would help to improve and support the implementation of MAI, like CIMA in the UK”.

4. Among those companies that have not implemented MAI, what are the main reasons for not doing so?

Thirty-five respondents who operated traditional management accounting systems (TMAs) and had not implemented MAI were requested to give reasons explaining their decisions to continue with TMAs. They were given a list of 7 potential reasons that may explain why their business units had not implemented MAI. The individual respondents were asked to rate items on a five-point scale where 1 represented ‘strongly disagree’ and 5 ‘strongly agree’. The possible reasons were explored by looking at the mean scores of each item. The responses are summarised in Table 1-5.

Table 1.5: Reasons for have not implementing MAI

<table>
<thead>
<tr>
<th>Reason</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>% Strong Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Co-operation between universities (academics) and companies (professionals) in Jordan</td>
<td>2.00</td>
<td>5.00</td>
<td>4.33</td>
<td>.492</td>
<td>51.42%</td>
</tr>
<tr>
<td>Lack of Conferences, seminars and workshops in Jordan</td>
<td>2.00</td>
<td>5.00</td>
<td>3.75</td>
<td>.452</td>
<td>60.00%</td>
</tr>
<tr>
<td>Lack of local Consultant companies</td>
<td>2.00</td>
<td>5.00</td>
<td>3.67</td>
<td>.651</td>
<td>37.14%</td>
</tr>
<tr>
<td>Poor of Accounting education</td>
<td>2.00</td>
<td>5.00</td>
<td>3.17</td>
<td>1.030</td>
<td>22.85%</td>
</tr>
<tr>
<td>Lack of Specialist management accounting journals in Jordan</td>
<td>1.00</td>
<td>5.00</td>
<td>2.92</td>
<td>.289</td>
<td>31.42%</td>
</tr>
<tr>
<td>Lack of Accounting research</td>
<td>1.00</td>
<td>5.00</td>
<td>2.92</td>
<td>.289</td>
<td>31.42%</td>
</tr>
<tr>
<td>Lack of Professional accounting bodies</td>
<td>2.00</td>
<td>5.00</td>
<td>2.75</td>
<td>.452</td>
<td>17.14%</td>
</tr>
</tbody>
</table>

It can be seen from Table 1-5 that the most cited reasons for not implementing MAI were lack of Co-operation between universities (academics) and companies (professionals) in Jordan (mean
scores = 4.33), Lack of Conferences, seminars and workshops in Jordan Lack (mean scores = 3.75), followed by lack of local Consultantant companies (mean scores =3.67).

5. Discussion and Conclusion

The objective of the research was to explore the role of supply-side factors on decisions(s) to implement (or not) MAI within the Jordanian industrial sector, and to ascertain the level of satisfaction relating to the role these factors play in driving the diffusion of MAI among Jordanian industrial companies. For the first research question, namely to gather evidence about the current status of implementation of MAI within the Jordanian industrial sector, the surveys were distributed to 88 industrial companies and 58 companies responded. Among the 58 responded companies only 23 companies (39.65%) are using at least one of the five mentioned MAI.

The answer to the second research question sought to determine the factors that drive the implementation of MAI among Jordanian industrial companies. The 23 respondent companies that are implementers MAI were asked to rate the importance of various factors in driving the decision to implement MAI. The results suggested that the role of consultant companies and accounting education were cited as the most important factors that drive the decision to implement MAI within the Jordanian industrial sector. The results of examining the degrees of satisfaction in the role of supply-side factors as driver of the implementation of MAI shows that most of these factors need improvement. Finally, the most cited reasons for not implementing MAI were lack of co-operation between universities (academics) and companies (professionals) in Jordan, lack of conferences, seminars and workshops in Jordan and lack of local Consultantant companies.

The questionnaires and interviews findings emphasised the role and importance of Accounting bodies for improving and supporting the companies to adopt and implement MAI within the industrial sector. The role and importance of such accounting bodies is very clear in other countries, such as the USA and the UK. However, in Jordan there is no professional management accounting body.

A perceived need was identified among the interviewees for more conferences and seminars in accounting issues in general and ABC in particular as well as the need for journals specialising in management accounting to be made available to accountants and financial managers in Jordan. They also commented on the shortage of management accounting research and PhD degrees in this area of management accounting within Jordanian public universities.

Some limitations should be noted when interpreting the results of this study. Its scope is limited by focusing only on the Jordanian industrial companies that are listed on the Amman stock exchange. This limitation may restrict the generalisability of the findings. The results of this research may have been different if a broader range of companies had been selected. Therefore, there is a need to find ways to increase the coverage of surveys so as to obtain a more comprehensive picture of the Jordanian industrial sector’s perceptions of implementation of MAI. The limitations, however, present opportunities for future studies to investigate same issues in other emerging economics with similar circumstances of Jordan.

References


