Channels of the Diffusion of Management Accounting Innovations in MNCs and Complex Organisations – A comparative study

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Abstract

Responding to increasing changes and advances in technology through the proliferation of globalisation, a range of management accounting innovations (MAIs) has emerged. Concerning these MAIs, researchers have put forwarded alternative views. One school holds the view that adopters are rational and make technically efficient independent choices. The social and organisational contexts in which such adoptions take place are thus taken for granted. Another school explores more dynamic consequences of MAIs including the issues of how MAIs are adopted and implemented differently in different organisational settings. This paper contributes to the latter. By benchmarking with independent (non-group) companies, the paper provides evidence of the adoption of MAIs in dependent (subsidiary) companies. The paper aims to unearth four interrelated propositions derived from the extant literature on the diffusion of new ideas, and discusses the network view and subsidiaries capabilities both absorptive and combinative in diffusion of MAIs in group organisations which have not been discussed in MA literature. Data were collected through 584 responses by members of the Chartered Institute of Management Accountants (CIMA) to a questionnaire and follow-up interviews with over 50 respondents of companies operating in the UK, Australia and New Zealand. The study focuses on five popular MAIs, namely, (1) activity-based costing (ABC), (2) activity-based management (ABM), (3) balanced scorecard (BSC), (4) benchmarking, and (5) target costing (TC). The data revealed that the diffusion of MAIs in group (subsidiary) organisations is different from that in independent organisations and that the adoption and implementation of MAIs is associated with (1) intra-subsidiary relations and their interdependence, (2) subsidiary capabilities (both absorptive and combinative), (3) geographical proximity of parent and subsidiary organisations, and (4) the ability of managers other than accountants.

Key words: Management accounting innovations, activity based costing, activity based management, baanced scorecard, benchmarking, target costing, diffusion of new ideas, subsidiary organisations, group organisations, intra-subsidiary relations, absorptive and combinative capabilities, CIMA members

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1. **Introduction**

Research in management accounting innovations (MAIs) has now started to proliferate (Askarany *et al*. 2010; Alcouffe *et al*. 2008; Tillmann and Goddard, 2008; Ax and Bjørnenak, 2005; Maiga and Jacobs, 2005; Guilding *et al*., 2000; Chenhall and Langfield-Smith, 1998; Gosselin, 1997). Researchers tend to follow two alternative theoretical perspectives: the rational and the interpretive. The former holds the view that adopters are rational and make technically efficient independent choices. The social and organisational contexts in which such adoptions take place are thus taken for granted (e.g., Rogers, 2003, 1995). In contrast, the latter explores more dynamic consequences of MAIs including the differences between early and late adopters, the effects of supply and demand forces, the social and economic consequences, and the bundling effects of innovations (Modell, 2009; Kennedy and Fiss, 2009; Ax and Bjørnenak, 2007, 2005)[1].

Whist we appreciate this development, as discussed by Naranjo-Gil *et al*. (2009), we still know little about why only certain organizations adopt and implement MAIs. Apart from the studies by Yazdifar *et al.* (2008a, b), Yazdifar and Tsamenyi (2005), and Jones (1985, 1992), surprisingly, there is little research examining the differences between the adoption of MAIs in 'dependent' companies (i.e., subsidiaries) and 'independent' companies (i.e., non-group companies). Despite researchers having examined how subsidiaries' strategic roles are implicated in control systems (e.g., Chung *et al.*, 2000; Gupta and Govindarajan, 2000, 1991; Taggart, 1997a, b) and how local resistance is imposed by the parent (e.g., Dossi and Lorenzo, 2008; Siti-Nabiha and Scapens, 2005), little is known about the differences in the adoption of MAIs in dependent and independent companies. In particular, the literature lacks studies on the extent and sources of MAIs diffusions in group organisations, factors contributing to the implementation of them and the role of management accountants. Providing both quantitative and qualitative evidence, this paper aims to fill this gap "to better understand the nature of accounting change" (Alcouffe *et al*., 2008, p.1) by testing four propositions discussed later in this paper. Thus, we have both empirical and theoretical aims.

As we will show later in the paper, the data were collected through 584 responses by the members of the Chartered Institute of Management Accountants (CIMA) to a questionnaire and follow-up interviews with over 50 respondents of the companies operating in the UK, Australia and New Zealand. While the

[1] See Baxter and Chua (2003) for the discussion on seven different research perspectives that lie outside the main stream.

questionnaires were directed to both dependent and independent organisations, the focus was on an illustration of MAIs' diffusion in dependent organisations. Hence, the interviews were conducted only with the respondents working in dependent organisations.

Though the definition of MAIs can be contested, the study focuses on five MAIs that have become much more popular in the past two decades. They are (1) activity-based costing (ABC), (2) activity-based management (ABM), (3) balanced scorecard (BSC), (4) benchmarking, and (5) target costing (TC). The extant literature substantiates that these MAIs have proved to be popular techniques: see Naranjo-Gil *et al*. (2009), for ABC, BSC and benchmarking; for ABM see Baird *et al*. (2004); for TC see Yazdifar and Askarany (2010), Ax *et al*. (2008), Ansari *et al*. (2006), and Bjørnenak and Olson (1999). Similar views were expressed by the CIMA members we interviewed; hence, our choice.

The remainder of the paper is structured as follows. Section 2 presents a literature review of the diffusion of MAIs with special attention being paid to the diffusion of innovations in group organisations. Section 3 describes the research methodology adopted. Section 4 analyses the findings of the survey and interviews and discusses their implications for our understanding of management accounting practices in different settings. Section 5 offers the conclusions.

2. A Literature Review

2.1 Research on Diffusion of Management Ideas

Research on the diffusion of management ideas has progressed under competing views ranging from rational-economic perspectives to social-organisational process perspectives[2]. As mentioned at the outset, the former held the view that innovations emerge due to economic and rational reasons, so the managers must follow the prescribed methodologies to enhance economic efficiency. For example, early writers, such as Rogers (1983), who saw diffusion as a process in which innovations are communicated and disseminated through certain channels through time among the members of a social system, advocated ways that diffusion must take place: first, there must be an idea or innovation to be diffused; second, there must be a population of potential adopters for the innovation; and last, there must be communication flows between the innovators and adopters. Roger believed these technical steps are functional to the anticipated efficiency aims so they should be easily adoptable.

[2] Wolfe (1994) classifies organizational innovation research into three distinct streams: diffusion of innovations; organizational innovativeness and process theory.

Another stream of researchers tried to integrate economic views with the social and organisational dynamics that underpin diffusion programmes. Tolbert and Zucker (1983), while building on the rational actor model in which organisational adoption is motivated by a desire for technical or efficiency gains and related boosts to economic performance, emphasized the social embeddedness of organisations and motivations stemming from legitimacy motives, powerful constituents, peer organisations, or outside stakeholders. According to the model, early adopters seek technical gains from adoptions, while late adopters are primarily interested in the social benefits of appearing legitimate. However, this view has recently been criticized, as it is not clear that social and economic motivations for the adoption of innovations are indeed mutually exclusive. For example, the study by Kennedy and Fiss (2009) shows that both early and late adopters are affected by the logics of efficiency and legitimacy because they complement rather than conflict with each other. The findings invite further studies to examine adoption motivation to enhance understanding of the mechanisms behind the diffusion process.

Contesting autonomous views, a few writers promoted a process perspective. Geroski (2000) and Bjørnenak and Olson (1999) promoted this view to argue that new technologies or ideas are dispersed rather than undergoing an instantaneous adjustment (see also Lapsley and Wright, 2004; Hussein, 1981). Lapsley and Wright (2004: 356) argued that the diffusion of innovation cannot take place without a "boundary spanning process" whereby internal actors develop networks external to their organisation. Ax and Bjørnenak (2007) argue that (MA) innovations are not a fixed technical solution, but are flexible in that they might be intentionally or unintentionally changed and become more attractive. Ax and Bjørnenak conclude that the interaction between the networks of developers (i.e., the supply side) and adopters (i.e., the demand side) is important for the diffusion of MAIs to be effective. As Modell (2009) observed, establishing such interactions is not easy, as the underlying dynamics are quite complex. For example, power relations would determine the adoption of MAIs: Yazdifar *et al*. (2008 a) illustrated how parent companies force a subsidiary to adopt certain types of MAIs. Their study apply a hybrid institutional theory integrating both new institutional sociology and old institutional economies to examine how an environmental institution such as parent company influences the MA practices of a subsidiary firm and how the subsidiary responds to the imposed changes by the parent company. The study invites further studies (both quantitative and qualitative) in group organisations to shed light on the mechanisms of diffusion of MAIs in group organisations.

In another study, Abrahamson (1991) explored the issue of why innovations are sometimes diffused and at other times are rejected. He developed a matrix of four elements showing why this would occur: (1) efficient choice, (2) force, (3) fashion, and (4) fads. *Efficient-choices* are made assuming that there are benefits and efficiencies that can be gained from the adoption of innovations. However, there are instances where technically inefficient innovations are diffused or efficient innovations rejected. The other three elements explain this. *Forced* selection can occur when powerful organisations, such as governmental agencies (DiMaggio and Powell, 1991), a powerful purchaser (Malmi, 1999), and headquarters and parent companies (Dossi and Patelli, 2008, Yazdifar *et al*. 2008a,b) force the adopters to implement a particular technology. Thus, the adopters (such as subsidiary companies) have only a small role to play in the determination of what choices must be made (Lapsley and Wright, 2004; Malmi, 1999). Similarly, the *fashion* perspective leads to imitating certain technologies promoted by "fashion-setting organisations" or "fashion setters", such as consultants, irrespective of whether or not such technologies are efficient (Malmi, 1999). Finally, the *fad* perspective explains that innovations are adopted for legitimacy rather than rational purposes.

However, it is argued that fads and fashion views are based on the traditional perspective of innovations diffusion which is considered as supply-driven and consequently have been criticised for neglecting the complexities of change dynamics associated with local adopters (Modell, 2009). It is argued that by de-emphasising the rational choice explanations of adoption, there is a paradoxical implication that the recipients of innovations, such as the managers of adopting organisations (e.g., subsidiary organisations in this study), are passive and unreflective, while the promulgators manoeuvre rationality. Hence, the fad-fashion perspective provides limited insight into what actually happens. The model has found that there is a complex interplay between the suppliers and adopters of innovations in the process of bundling new ideas.

Being embraced by these competing views, there are several empirical studies on the diffusion of MAIs. For example, Bjørnenak (1997) examined the diffusion of ABC across Norwegian manufacturing organisations. He found three types of diffusion processes. The first relies upon 'skilled workers moving' about and causing change. The second is 'contagious diffusion', which occurs when *information* is spread in a smooth, continuous and random way. The third is 'hierarchical diffusion', which occurs when information is dispersed through a trickle-down process from large to intermediate to small units. However, the study, did not examine hierarchical diffusion in depth. In particular, the above and other studies in the MA literature do not examine the diffusion process in group organisations vis-à-vis independent organisations and also means of diffusions of

MAIs in subsidiary organisations. The present study will contribute to the literature by examining the extent and mechanisms of diffusion of MAIs in group organisations in comparison to independent ones (see hypotheses one and two in subsection 2.2.4).

A further insight from the literature is that not all MAIs may successfully be diffused, adopted and implemented. The success, here, can be measured in different ways including the degree to which innovations are adopted and implemented in practice, the number of books, journal, magazine and professional articles devoted to innovations, and the number of people attending conferences, seminars, courses, workshops and training courses on innovations (Ax and Bjørnenak, 2007, p.362-3). Among the above, the degree to which MAIs are adopted and implemented (levels of implementation) is the main measure of success (Ax and Bjørnenak, 2007). However, most of the surveys on MAIs diffusions only examine the success of an innovation at adoption stage but not levels of implementation or the extent to which the innovations have been implemented i.e., fully or partial implementation . The literature also lacks such a study in group organisations and MNCs. This study will examine this by testing hypothesis three in subsection 2.2.4.

Moreover, the literature suggests that the individuals acting as financial officers (e.g., Chief Financial Officers) have a significant effect on the adoption of MAIs (Naranjo-Gil *et al*., 2009; Byrne and Pierce, 2007; Järvenpää, 2007; Emsley *et al.*, 2006; Burns and Baldvinsdottir, 2005; Emsley, 2005; Pierce and O'Dea, 2003). Emsley (2005) studied management accountants' willingness to adopt and implement MAIs and showed that some management accountants displayed a higher level of innovativeness because of their involvement in managerial decision making. Naranjo-Gil *et al.'s* (2009) study showed that some CFOs are more likely to change their organisational accounting systems than are others and that demographic data are predictive of CFOs' innovativeness. Byrne and Pierce (2007) identify a set of antecedents and characteristics with respect to the roles of management accountants and explore the consequences of how these roles are discharged. However, these studies and the extant literature do not discuss the role of management accountants in the adoption and implementation of MAIs in subsidiary organisations vis-à-vis non-group organisations. The present research will contribute to this area and this will be tested through the hypothesis four in subsection 2.2.4.

In summary, the review of the literature suggests that MAIs may not only be adopted due to their technical efficiency. Rather, some organisations (including subsidiaries) may adopt MAIs due to their relationships with other organisations such as parent or other subsidiary organisations (Yazdifar *et al.*, 2008a,b) and/or

the role played by their accountants (Naranjo-Gil *et al*., 2009). The relationship between parent and subsidiary organisations is a vertical mechanism as opposed to lateral relationship which is between subsidiaries[3]. The former is also called "network of organisational units" and the latter is called a "network of managers" (Manev, 2003). Surprisingly, the latter dimension of the group and MNCs network has not been studied in general (Manev, 2003) and in particular in the field of MA and MAIs diffusions, and this research is to contribute to the extant literature by studying these dimensions from the adopters side i.e., subsidiary organisations. Hence, conclusions drawn from this comparative study may enrich our comprehension of accounting change (Chua, 1995).

2.2. Issues in the diffusion of MAIs within Group Organisations

2.2.1 Parent-subsidiary relationship (network of organisational units) and diffusion of MAIs

As the current paper examines and compares the diffusion of MAIs within dependent and independent organisations, the forced perspective may provide more insights into the diffusion process in group organisations (Yazdifar *et al*., 2008a, b; Yazdifar and Tsamenyi, 2005). Researchers who use forced-selection theories assume that powerful organisations, such as parent companies, may or may not have conflicting preferences concerning whether they want their subsidiary organisations to use a particular administrative technology (Covaleski and Dirsmith, 1988; Rowan, 1982; Benson, 1975). When parent organisations' interests and preferences are homogenous in favouring an administrative technology, they will act in concert to back its diffusion, implementation and retention. However, the parent companies have diverse interests and preferences to those of subsidiaries: some parent companies would exert political pressures encouraging the continuous use of an existing administrative technology; others would try to force the rejection of the new administrative technology (Abrahamson, 1991). The study undertaken by Yazdifar *et al.* (2008a) discusses how a parent organisation used budgetary control and capital investment rules to impose (by financially supporting) its preferred administrative innovations instead of supporting those proposed by the subsidiary, which were not in line with the

[3] Vertical integration mechanisms consist of various types of contact and communication between the managers of subsidiaries and headquarters managers, with the goal of creating a shared understanding between subsidiary and headquarters management regarding the interests of the overall corporation and the role of the subsidiary (O'Donnell, 2000). While vertical integrating mechanisms focus on the relationship between headquarters and subsidiary managers, lateral integrating mechanisms refer to activities that facilitate contact among managers of different subsidiaries. The purpose of lateral integration mechanisms is to provide subsidiary managers with an understanding of the role of their particular subsidiary and more important, the role of other subsidiaries, in meeting overall corporate goals.

parent organisation's strategy. So, the MAI technique adopted by the parent organisation was trickling down from the parent organisation to subsidiaries in the form of a "hierarchical diffusion process" (Bjørnenak, 1997) and the parent organisation exerted budgetary and political pressure to reject the costing system selected by its subsidiary.

In another study, Yazdifar and Tsamenyi (2005) present results of a questionnaire survey that examined whether significant differences exist between the perceptions of CIMA members working in dependent (subsidiaries) and independent organisations on three main issues: (1) management accounting practices, (2) factors driving change in management accounting practices, and (3) the roles of management accountants. The study reports that some differences exist between the two groups in terms of the variables tested and suggest that the differences could be explained by the institutional theory (in particular new institutional sociology theory - NIS) argument[4]. They argued that dependent organisations are likely to adopt certain practices due to influence from the head office. The study invites further studies, in particular case studies, to shed light on the differences between dependent and independent organisations resulting from the role of parent companies.

The extent of diffusion of MAIs resulting from the influence of parent companies, via vertical mechanism, the level of implementation of the innovations and management accountants' role in group organisations will be examined in this study and compared with lateral mechanisms of diffusion of MAIs. The analysis will assist us in better understanding the nature of MAIs diffusions and MA change in group organisations.

2.2.2 Interrelationship: Subsidiary-subsidiary relationship (network of managers) and diffusion of MAIs

Viewed through the lens of agency theory, many of the studies in group organisations assume a hierarchical relationship between headquarters and subsidiaries. However, much of management research in this field over the past decade has viewed subsidiary companies as being a member of a set of interdependent organisational subunits as opposed to merely acting as an agent of

[4] NIS challenges conventional wisdom and prevailing research beliefs that assert that organisations are bounded, relatively autonomous and made up of rational actors (Abernethy and Chua, 1996). NIS views organisations as embedded within larger interorganisational networks and cultural systems. This institutional environment not only influences the organisation's input and output markets but also its beliefs, norms and historical traditions. Through the lens of NIS, subsidiary companies are subject to environmental pressures exerted by their constituencies, amongst them parent companies in particular.

corporate headquarters (O'Donnell, 2000). The studies also highlight the role of the network of intra-subsidiary organisation linkages, which can result in a high degree of interdependence among the subsidiary organisations (Phene and Almeida, 2008). Interdependence has been defined as the state in which the activities and outcomes of one actor are influenced by the actions of another actor (Saavedra *et al.*, 1993). Extending this conceptualisation to group organisations and MNCs, interdependence can be defined as the state in which the outcomes of a subsidiary of a group organisation influence or are influenced by the actions of another subsidiary within the group operating in a different region or country.

As subsidiaries become more interdependent, they increasingly rely on other subsidiaries as providers and users of their resources, technologies or experiences (O'Donnell, 2000). Research has demonstrated that a subsidiary's power within a group is greater when the subsidiary is highly interdependent upon other subsidiaries (Astley and Zajac, 1990). O'Donnell (2000) comments that with increased international interdependence, the actions and decisions taken at a particular foreign subsidiary have a greater impact on activities throughout the organisation. This is because, as he states, subsidiary-level decisions have greater ramifications for the organisation as a whole when international interdependence is high.

2.2.3 Lateral integration: Isomorphism between subsidiary organisations

The group organisations that are active in different international locations (MNCs) are subjected to different and potentially contradictory pressures for conformity. On the one hand, the institutional environments differ across countries so that subsidiaries need to adopt the institutional practices prevalent in the host country. On the other hand, the subsidiaries are subjected to the forces of their parent companies, an isomorphic pull towards similarity between subsidiaries in the group (Westney, 1993). This happens as MNCs are capable of transferring knowledge and resources across different countries.

In the case of group organisations and MNCs, isomorphism occurs as managers replicate key management practices and techniques (including MA practices) from other subsidiaries within the group where they have been successful (Kostova, 1999). Such transfers of organisational knowledge and practices and the consequent isomorphism are facilitated by more extensive interactions and communications across the subsidiaries, by the use of informal mechanisms of coordination and by building good relationships between managers (Kostova, 1998; Ghoshal and Westney, 1993). This trend toward isomorphism takes place through the network ties among managers of subsidiaries (Manev, 2003).

In MNCs, subsidiary organisations experience different economic, sociopolitical and cultural conditions that impose upon them a high degree of uncertainty and ambiguity. This may cause further difficulties especially in decentralized organisations where the subsidiary organisations may be left with little instruction from headquarters (Manev, 2003). Under these conditions, subsidiary managers may cope with this uncertainty by turning to peers with whom they have connections, and whom they know and trust, such as the managers of other subsidiaries, for information and advice. So, it can be argued that, under the conditions of uncertainty in decentralized group organisations and MNCs, network ties between subsidiary managers become a conduit for the transfer of information and new practices, such as MAIs, which facilitates the isomorphism of organisational knowledge and practices between the subsidiaries (Manev, 2003).

The lateral integration or so called managerial network is an important informal coordination mechanism between subsidiaries in group organisations. Through their lateral contacts with other subsidiaries at other locations, subsidiary managers not only learn about successful management practices but, when their subsidiaries share knowledge about the implementation of new (MA) practices and techniques, can also coordinate their actions at the grass-roots level. Lateral communication between subsidiary managers facilitates coordination especially when subsidiaries are rather interdependent in decision making (Mascarenhas, 1984). Hence, the more subsidiary managers interact with each other, the more they learn about (MA) techniques and practices adopted and implemented in other subsidiaries within the group.

Both external (to group) and internal (parent and other subsidiaries) sources of knowledge assimilation and adoption of MAIs for subsidiary organisations may have certain characteristics that differently affect the subsidiary organisations in relation to the changes in their (MA) systems. The subsidiary's management, structure and culture also play an important role in the adoption of (MA) innovations from different sources. The subsidiary's abilities to access and exploit external and internal group knowledge are known as "absorptive capacity" (Cohen and Levinthal, 1990) or "sourcing capability" (Phene and Almeida, 2008), while the ability to utilize these resources shows the "combinative capability" of subsidiaries where managerial capabilities permit the integration and recombination of knowledge from different sources (Phene and Almeida, 2008). Both absorptive and combinative capabilities are important in the adoption and implementation of MAIs in subsidiary organisations and this line needs further research to enhance our knowledge of the diffusion of MAIs in group organisations.

2.2.4 Subsidiaries capabilities in adopting MAIs

While knowledge from parent organisations, other subsidiaries and also external environment is critical to the adoption of (MA) innovations by a subsidiary organisation, the recognition, absorption and the utilization of this knowledge is dependent on subsidiary capabilities and its knowledge stock (Phene and Almeida, 2008). For instance, Birkinshaw and Hood (2000) suggest that, in addition to the important influence of the parent company and external environment in determining subsidiary directions and roles, the influence of the subsidiary management cannot be overlooked. In another study, they commented that changes to the subsidiary stock of capabilities and its charter are closely tied to the subsidiary's ability to add value (Birkinshaw and Hood, 1998). The subsidiaries' ability to recognize, assimilate and exploit new external information (or 'sourcing capability') is critical to the adoption of new knowledge and innovation. However, there may be differences across subsidiaries in how this knowledge is utilized. This is an important potential, which is referred to in the international management literature as "combinative capability" (Phene and Almeida, 2008) and which represents creativity in knowledge management and how to fit that into an organisational context.

From the review of the literature above, organisational networks in summary can be classified into two broad types: external and internal. External networks are formed between a number of organisations whereas internal (including both vertical and lateral) networks are formed between parents-subsidiaries and subsidiaries-subsidiaries, which are separated by functions, businesses, or geographic locations. In the present study, we are concerned with internal networks as mechanisms for organisational decision-making and the diffusion of MAIs within group organisations. We propose that the internal network may affect the rate of diffusion of an MAI, its implementation stages and the role of management accountants. We suggest the following propositions:

(1): MAIs diffusion rate in dependent organisarions (which have internal network with parent companies and other subsidiaries) is different from those in independent organisations.

This proposition suggests that the extent and rate of diffusion of MAIs in dependent (subsidiary) organisations may differ from that in independent organisations rather than being autonomous and common in all organisations. An examination of this proposition would provide some theoretical knowledge on the nature of MA change in group organisations which is considered to have a different institutional environment than independent organisation. The anaysis would also provide some practical

knowledge for managers who due to intensifying national and international competition and reduced organisational slack, are concerned not only with diffusion rates, but also with the issue of whether the most technically efficient MAIs diffuse and are retained (Abrahamson, 1991). Data were collected to test whether or not this proposition holds true in the context of group organisations.

(2): Parent companies (via vertical mechanisms) are the main facilitators of MAIs diffusions in subsidiary organisations.

Analysis of this hypothesis would provide theoretical knowledge on how accounting change would occur in group organisations and the methods of diffusion of MAIs in order to better understand the nature of accounting change (Alcouffe *et al*, 2008). The analysis would also provide some practical knowledge for managers who are concerned with the role of inter-subsidiary relationships and communications between subsidiaries in the adoption of innovations.

(3): MAIs diffused in subsidiary organisations by parent companies (via vertical mechanism) are more successfully implemented than are MAIs diffused by other sources. This could indicate whether practice implementation is related to adoption motivation (cf. Kennedy and Fiss, 2009).

The data collected were useful for understanding the role of inter-unit networking (through lateral relationships and team-based decision-making) on the implementation process of MAIs. The analysis shed light on how the logics of adoption interact with subsequent implementation activities.

(4): Management accountants in group organisations are involved in accounting changes in their subsidiary and participate in strategic decision making processes.

The analysis of this hypothesis will provide knowledge on the accountant's participation in strategic decision making processes and to what extent they are becoming 'strategic management accountant' to undertake SMA projects. In this way, it is possible to see how management accountants act as catalysts in the areas of strategic decisions rather than playing a number crunching role.

3. Research Methods

In order to test the propositions above, the data were collected during 2007-2009 from two sources: a survey and face-to-face and telephone interviews with CIMA qualified management accountants. While questionnaires can provide evidence of patterns amongst large populations and proved to be much economic in collecting a large volume of primary data, they had limitations in gathering some significant and more in-depth insights on participants' attitudes, thoughts and actions (Kendall, 2008; Converse and Presser, 1986; Rossi *et al.*, 1985). The interviews not only overcame this limitation, but also provided a deeper understanding of the nature of the diffusion of MAIs at different implementation levels and their contexts, and acted as a way of validating quantitative data (cf. Cadez and Guilding, 2008). This hybrid method has long been used in this type of research (Emsley, 2005).

3.1 Questionnaire Survey

A postal questionnaire survey was used to gather the data. The aim of the questionnaire was to test the propositions mentioned above. The cooperation of three CIMA qualified members was helpful in this regard. A pilot test was then carried out asking some practitioners and academic colleagues the questions used in the questionnaire. Subsequent modifications were made to improve the questionnaire's usability.

The questionnaire was mailed to 2041 (qualified) members of the Chartered Institute of Management Accountants (CIMA) in Australia, New Zealand and the UK in 2007 (1,175 in Australia, 366 in New Zealand and 500 in the UK) who were working in the managerial accounting sections of organisations in 2007. The head office of CIMA in the UK provided the authors with a list of names and addresses of qualified members in the above three countries. Following this, a general announcement about this questionnaire survey was made on the CIMA website. Three weeks later, an online questionnaire was also made available encouraging those who had received copies of the questionnaire, but who had not had a chance to complete it.

There were 584 useable responses (both hard copies and online replies) from the three countries. These included 310 completed questionnaires plus 88 not-completed or not delivered for Australia; 142 completed questionnaires plus 10 not-completed or not delivered for New Zealand; and 132 completed questionnaires plus 45 not-completed or not delivered for the UK. Eventually, the survey ended up with satisfactory response rates of 28.5%, 39.5% and 29% from Australia, New Zealand and the UK respectively. Krumwiede (1998) agrees that the normal response rate for such surveys must be approximately 20% though there are many published surveys with lower response rates.

Non-response bias was examined using the aggregated data provided by CIMA (such as the total number of CIMA members working in manufacturing and non-manufacturing organisations, the average length of experience of CIMA members and their average ages as qualified members), by comparing them with the same information gathered by the surveys, and by comparing the early responses with the late ones. The former showed responses to be representative, while the latter showed that there was no perceived difference between these responses. This exercise suggested that non-response bias would not influence the outcomes.

3.2 Interviews

As mentioned earlier, the interviews aimed at eliminating some of the uncertainties, validating responses, examining answers to open ended questions in detail as well as gathering additional qualitative interpretations. The respondents were the CIMA qualified management accountants who had expressed their interest in participating in an interview by checking a box in the questionnaire and providing the researchers with their contact details. Consequently, 56 interviews were conducted with CIMA members working in subsidiary organisations: 34 in Australia, 13 in New Zealand and 9 in the UK (face-to-face and over the phone). These took place between 2007 and 2009.

The initial interviews resolved some of uncertainties and validated the responses by examining the answers to open-ended questions and by gathering additional qualitative data. The comments received from respondents to the initial, open-ended questions drew our attention to important, but unexplored issues in the MA literature, i.e., the source of innovation diffusions in groups and MNCs, which resulted from an inter-subsidiary relationship. Consequently, we adjusted our interview questions to include such issues as well. In this way, we ensured that the essential issues were systematically covered during the interviews. Moreover, although the semi-structured questions were set, the interviews took a flexible form along with follow-up questions aimed at clarifying some of the practices).

All but six of the interviews lasted between 1 and 2 hours. For validification purposes, these were also followed-up by some telephone calls and emails to clarify some issues that had emerged subsequently. Apart from three, all the interviews were tape recorded with the permission of the interviewees, and then transcribed. Finally, confidentiality was assured both externally and internally.

4. Findings and Discussion

The findings from the survey are presented in a series of tables. As a starting point, Tables 1, 2 and 3 summarize the necessary characteristics of the respondents' organisations. As shown in Table 1, 27.2% of respondents of the

survey were from dependent (subsidiary) organisations and 72.8% were from independent organisations. Compared to the UK and NZ, there is a higher number of subsidiary companies in Australia. The Chi-Square tests indicate that there is a significant association between the ownership types (dependent vs. independent) and the countries surveyed. However, the number of dependent companies participating in this study was lower than the number of independent companies in the three countries.

Insert Table 1 here

Table 2 shows the industry classification of these two types of companies: 63.7% are in service and 36.3% are in manufacturing. The Chi-Square tests indicate a significant association between the ownership types (dependent vs. independent) and the types of industries (manufacturing and service). However, as the present study focuses on a comparative analysis of the diffusion of MAIs in dependent and independent organisations, the impact of industry types on the diffusion of MAIs must be left to future studies.

Insert Table 2 here

Table 3 summarizes the participating companies in terms of their size and ownership types. The summary shows that, in terms of number of employees, 25% of organisations are small, and the rest are medium and large. The Chi-Square tests indicate that there is a significant association between the ownership types (dependent vs. independent) and the sizes of companies. The impact of size on the diffusion of MAIs is an important factor (for such findings, see Askarany *et al.* 2009). However, we examine the impact of ownership types on the diffusion of MAIs.

Insert Table 3 here

The contextual characteristics above will provide a useful background for our analysis, to which we now turn.

4.1 The extent of diffusion between dependent and independent companies

Our first proposition was on the premise that there is a difference in the extent of diffusion of MAIs between dependent and independent organisations.
Table 4 summarizes the responses to the adoption of MAIs in both dependent (subsidiary) and independent organisations. The responses show that the adoption rates and take up of all five MAIs (i.e., ABC, ABM, BSC, benchmarking and TC) in dependent (subsidiary) organisations is higher than in independent ones. The

Chi-Square tests also indicate that there is a significant association between the ownership types (dependent vs. independent) and adoptions of BSC and benchmarking (but not with ABC, ABM and TC). The higher take up of MAIs by dependent organisations observed in this study is in contrast with previous survey findings conducted in the UK in 2000 by Yazdifar and Tsamnyi (2005), which reported a lower adoption rate of MAIs in dependent organisations than in independent ones between 1990 and 2000. However, the present survey indicates that, eight years later, the dependent organisations present a higher take up rate. This would raise the following question: What factors have contributed to the higher take up of the new MA techniques in group organisations?

Insert Table 4 here

The majority of interviewees addressed the above question. They pointed out that changes in the market, technology, competition and customer focus were the most influential factors for this development. In addition, they also pointed out that an increase in the relationships between subsidiaries has become a factor. However, the interviewees did not undermine the role of parent organisations in effecting change in the subsidiaries' MA practices, but emphasised these new factors, which came to be determinative from the 2000s. An interviewee argued, "We have gained valuable knowledge and expertise from other subsidiaries". Another commented, "We now see the success in collaborative actions between us and other peer subsidiaries and also learning from each other".

We gathered similar comments suggesting a trend of subsidiary organisations gaining a proper understanding of the new techniques prior to any adoption and implementation. This was the case in the adoption and implementation of MAIs so that subsidiaries themselves were stimulated by these new techniques within the group, but without parent organisations' involvement.

The interviews with 56 accountants in subsidiary organisations revealed four types of diffusion and adoption of the new systems in group organisations (see details in Table 5). The classification of the methods of diffusion and adoption of MAIs in group organisations has not been presented and discussed in the extant MA literature. The four methods will now be discussed. One type of diffusion and adoption of MAIs in group organisations is based on the 'groupwide decision' where the MAIs are selected by parent organisations and subsidiaries are asked to follow the groupwide decision. A second type is where an MAI was first adopted by another subsidiary within the group and then was taken up by other subsidiaries. A third type is where two or more subsidiaries jointly decide to take up an MAI, and a fourth one is where the subsidiaries adopt an MAI that is chosen

by the subsidiary for itself and without the involvement of parent and/or other subsidiaries[5].

4.2 Parent companies' facilitation on the diffusion of MAIs

The interviewees in subsidiary organisations were asked to indicate whether those MAIs adopted in their organisations were initiated by their parent organisation, learnt from other subsidiaries, jointly adopted by other subsidiaries or, finally, adopted by the subsidiary organisation without the involvement of the parent organisation and/or other subsidiaries. The results are summarized in Table 5.

Insert Table 5 here

As Table 5 reveals, most of the changes in subsidiary organisations (about 54%) are launched by parent organisations, about 24% are diffused by other subsidiaries, about 9% are jointly taken up by two or more subsidiaries and 13% of the adoptions of MAIs in subsidiary organisations are initiated by a subsidiary without the involvement of the parent organisation and/or other subsidiaries. The extant literature has mainly studied the diffusions of innovation in group organisations through the first and fourth methods listed above (e.g., Dossi and Patelli, 2008; Al Chen *et al*. 1997), but the second and third ones, which are the diffusion of innovation when an innovation is jointly adopted by two or more subsidiaries or when a subsidiary adopts an innovation after it has been adopted by another subsidiary, have not been previously discussed. There might be several motivations for these types of diffusion of innovations within group organisations; we were able to examine three of them as discussed by the interviewees. The interviewees commented that in the case of joint adoption of MAIs or when a subsidiary follows another subsidiary in adopting an innovation, the subsidiaries could share their knowledge about the innovations and the implementation process. This not only would reduce costs, but would also lead to increased knowledge about the innovation implementation, which would result in a reduction in the uncertainty that exists in change programmes. Finally, the interviewees also discussed how in the case of joint adoption of an innovation, the subsidiaries were in a stronger position to defend/legitimise the decision of adopting new techniques and to challenge a possible disagreement expressed by

[5] Here, it should be noted that though for ease of analysis this study has presented the four sources of diffusion and adoptions of MAIs for subsidiary companies as separate methods, in practice, these sources may jointly affect the adoption and implementation of innovations in a subsidiary company.

the parent organisation. In other words, the joint adoption was also a tactic to challenge the institutional pressures of parent companies[6].

Overall, the findings indicate that almost 87% (53.7% + 24.1% + 9.2%) of the adoption of MAIs in subsidiary organisations has been due to the involvement of either the parent company or other subsidiary organisations. Indeed, it seems that the subsidiary organisations are operating in a different business and economic environment where the take up of innovations by themselves is much lower than in independent organisations. The take up of MAIs by subsidiary organisations without the involvement of other subsidiaries and parent organisations forms only 13% of the changes in their organisations in comparison to independent organisations where the take up of an MAI does not involve a parent organisation or other subsidiaries. This finding suggests that the subsidiary organisations may leave to parent organisations the decision to make changes to their (MA) systems and/or to follow other subsidiaries.

All the interviewees were also asked about their understanding of the MAIs, how they work, their advantages, outcomes, difficulties, and limitations. In response, the interviewees were more supportive of those changes that were initiated by themselves and equally supportive of those MAIs jointly adopted with other subsidiaries or learnt from them. Two interviewees in dependent organisations commented, “We feel it is easier to learn from a colleague in another subsidiary than from a boss in the parent organisation. It gives more confidence when working with a colleague from another subsidiary. We sometimes get partial solutions from people at headquarters, but much more and practical comments from colleagues even in another subsidiary”. So, they had a better understanding of the new MA techniques when the subsidiary adopted them by itself or through another subsidiary, but without the parent’s involvement: “There is a ‘must’ with the parent’s decisions which obstructs smooth learning”, an interviewee affirmed. In the case of adopting an MAI without the involvement of the parent, the subsidiaries’ understanding of the new techniques mostly took place before and during the implementation process. However, this was not the case of those adopted MAIs that had been initiated by parent organisations where the learning about some aspects of the new systems was sometimes postponed until post implementation. “This happens as the adopted approach is hierarchical”, an interviewee in a dependent organisation affirmed. So, with this, one should expect a more successful implementation of the MAIs initiated by subsidiary

[6] The subsidiaries challenge parent companies’ institutional pressure by demonstrating the rationality of their decision as it is decided by other subsidiaries as well. The tactic of the joint adoption of innovation to response to institutional pressures, such as those imposed by parent companies, is one of the strategic responses to institutional pressures discussed by Oliver (1991, p.152).

organisations than those enforced by parent organisations. The discussion in the following section aims to analyse the third research hypothesis:

4.3 Success of parent companies' influences

Although the notion of "success" has a far from an uncontestable definition, by "successful implementation" we mean higher levels of implementation of MAIs as indicated in the questionnaire survey (levels one to four) and summarized in Table 6.With regard to the implementations of MAIs in the two types of organisations, the analysis in Table 6 reveals that subsidiary organisations are further advanced in the implementation of ABC and (slightly in) BSC, while the independent organisations present a higher level of implementation of ABM, benchmarking and TC.

Insert Table 6 here

A comparison of Table 6 with Table 5 also indicates that the higher level of implementations of ABC and BSC in subsidiary organisations corresponds with the higher adoption rates of these techniques by subsidiaries via other sources (i.e., decided by a subsidiary organisation after another subsidiary had implemented it, jointly decided by two or more subsidiaries, and decided by a subsidiary organisation with no previous adoption within the group) than when implementation is forced by parent organisations. So, the findings suggest that a greater involvement by subsidiaries in the adoption and implementation would be expected to result in greater levels of implementation of MAIs (see also Dossi and Patelli's study on the use of performance measurement systems in subsidiary organisations, 2008). Table 6 reveals that the independent organisations show a higher level of implementation of ABM, benchmarking and TC, and we can see from Table 5 that most of these techniques had been decided by parent organisations for subsidiaries rather than decided by the subsidiaries. The Chi-Square tests indicate that there is a significant association between the ownership types (independent and dependent) and the levels of implementation of all five MAIs tested in this study.

In addition, according to Table 7, the Chi-Square tests indicate that there is a significant association between the sources (via parent or other three sources) of adoption of four MAIs tested in this study, namely, ABC, ABM, benchmarking and TC (but not BSC) and their implementation levels in subsidiary organisations. This indicates that the higher level of implementation of the MAIs in dependent organisations is positively associated with the method of adopting these innovations. That means, the greater involvement of the subsidiaries in the early stages of the adoption of MAIs (e.g., ABC and BSC adoptions shown in Table 5), the higher the level of implementation of MAIs in subsidiary organisations (e.g.,

ABC and BSC implementation levels shown in Table 6). In other words, the finding shows that the practice implementation of MAIs in (group) organisations is related to adoption motivation and how the logic of adoption relates to subsequent implementation activities (Kennedy and Fiss, 2009).

Insert Table 7 here

So far, what we have seen is that there have been two sets of possible sources for the adoption of MAIs and assimilating knowledge: the external (non-group) environment and the internal environment, which includes both the parent company and other subsidiaries. Of the subsidiaries we studied, 53.7% had taken up the adoption of their MAIs from the parent company, 34.3% (24.1% + 9.2%) from or with other subsidiaries and 13% directly (i.e., without the involvement of parent or other subsidiary organisations) from the external environment.

A common theme that emerged from our interviews was that those subsidiaries that had already given some (practical[7]) thought to the MAIs or had already adopted some, were more prepared to and capable of adopting and implementing other MAIs. The interviewees in the subsidiary organisations that had adopted one or more MAIs in the past discussed the possibility of adopting other techniques. This comment was based on their understanding of the views of other managers in their organisations. A similar theme was also observed from the analysis of the survey results. For example, most of those subsidiary organisations that had either introduced ABC on a trial basis, or had adopted and implemented it, had also adopted one or more other MAIs in the following percentages: 56% ABM, 66% BSC, 80% benchmarking and 44% TC. So, it can be argued that their technical expertise and insights resulting from the earlier thinking about and adoption of certain innovations (stock of knowledge) and their openness to change have provided the subsidiary organisations with the capability to recognize the knowledge and techniques available within the group and identify potential sources of assistance, e.g., other subsidiaries within the group. Thus, the knowledge stock of the subsidiary can be expected to act as an important factor in the adoption and implementation of new techniques including MAIs[8].

[7] By 'practical thought', we refer here to the case where the subsidiaries had considered the adoption and implementation of an MAI in real organizational life and not at a theoretical level, which is taught at universities or other teaching institutions (e.g., CIMA), which provides attendants with certificates.

[8] Of course, the mere recognition of the availability of external knowledge (both outside and within the group) does not necessarily permit a subsidiary firm to absorb it. The subsidiary must also develop linkages to sources of knowledge (other subsidiaries) that act as conduits for knowledge transfer (Dyer and Nobeoka, 2000; Gulati *et al.*, 2000).

This would lead to a subsequent transfer of knowledge about MAIs between subsidiaries and between the parent company and subsidiaries if the subsidiaries were located near each other. The geographic proximity between the subsidiary organisations was noticed in several of the MAIs' knowledge exchanges between subsidiaries in the interviewed organisations, and it was discussed by the interviewees. Company visits and meetings, frequent phone calls, mails to send forms and sample reports facilitated knowledge transfer and the knowledge-building process between subsidiaries. Therefore, it can be argued that parents and subsidiary organisations may need to establish intra-organisational mechanisms, processes, and systems to link various subsidiaries across time (Hansen, 1999; Almeida *et al*., 1998). There were also four cases in the interviewed subsidiaries where the subsidiaries faced significant difficulties in the implementations of MAIs, which the interviewees believed partly arose due to lack of proper communication arising from the geographical distance between the subsidiary and headquarters or other subsidiaries, making effective assimilation difficult. Phene and Almeida (2008, p.911), regarding the innovations in MNCs, suggest: "Geographic proximity appears to be more important than organisational context or identity, permitting more effective knowledge assimilation for innovation", and our evidence lends weight to this.

4.4 Management Accountants' Involvement

Surprisingly, those CIMA members (we interviewed) who were attached to dependent organisations claimed that they did not play a major role in the process of adopting MAIs in their organisations and did not contribute to the 'absorptive capacity' of their organisation. They showed that top managements and managers of operating departments rather than financial experts were more supportive in adopting new techniques, including MAIs. The accountants claimed that the managers display a better understanding of the application and benefits of the new (MA) techniques than the accountants do. The accountants also discussed that other managers show more willingness to take the risk of supporting new systems than do accountants. The common theme in nine interviewees' comments was that the accountants' knowledge gained during academic and professional education (e.g., CIMA) is mainly at a theoretical level with less knowledge of how to implement and apply the new techniques (Burns *et al*. 2004). "We need more practical knowledge that gives us confidence on how to act", an interviewee commented. Another interviewee claimed, "Everyone knows that these techniques are superior to traditional ones, but how should ABC be implemented? How can we simplify the use of it? How to deal with difficulties? These are not taught at universities or during other training programmes, such as the CIMA qualifications that we posses now." The interviewees commented that the interest of non-accountant management was the main support for the adoption and implementation of MAIs.

The interviews also suggest that the accountants expected other organisational members to take the first step in advocating the adoption of MAIs. An interviewee stated, “To be honest, it seems that others [non-accountant managers] know these techniques [MAIs] better than we do”. Another commented, “The marketing manager discussed ABC in a meeting and I was surprised how he could see and nicely explain the application of the technique for our business”. Another interviewee stated, “We are still talking about budgets and variances while other managers are more advanced in knowing about the changes in the market, business, economy and what techniques and systems we need to respond to the changes. They have a better assessment of the situation, what we need and what the outcomes of the adoption of an MA technique will be”. The accountants kept quiet, as they were worried that they would be blamed if things went wrong.

Overall, the accountants we interviewed in subsidiary organisations were not what Coad (1996) called “strategic management accountants”. To undertake SMA projects, Coad (1996) urges that management accountants need to work smartly and hard. He defines ‘smart work’ as the manifestation of a tendency to select clever and ingenious approaches and techniques (such as those MAIs discussed earlier) to deal with a given task, and then modifying those approaches intelligently and resourcefully when needed and where necessary. Hard work is regarded as the use of effort to complete and perform the task. Thus, and as discussed in detail by Coad, smart work and hard work are not mutually exclusive. Coad, then, discusses both learning and performance orientations and argues that the strategic management accountant requires a learning orientation, as this learning motivates both smart and hard work, whereas a performance orientation motivates only hard work, and is not sufficient to undertake SMA projects. He hypothesises that in addition to undertaking smart work, the effective strategic management accountant requires high levels of communication skills and the ability to empathise with others both within and outside organisation (cf. Langfield-Smith, 2008). However, most of the interviewees did not claim that they were working smartly and hard, as discussed above. They discussed the importance of the above roles, but added that they did not perform that way. The accountants in the subsidiaries had established contacts with other subsidiary organisations to proceed with the implementation of MAIs, but the original idea of adopting an MAI and how to proceed with it had come from other departments and not from the accounting department in all of the interviewed organisations. The accountants were following other departments’ initiatives, but the accountants did not initiate any change in the subsidiaries. This observation may bring us to agree reluctantly with Cooper's (1996) assessment of the inability of accountants to rise to the challenge of SMA (see also Langfield-Smith, 2008).

5. Conclusions

The purpose of this paper is to examine how MAIs are diffused in subsidiary organisations in relation to the obscuring relationships with their parents. This study aimed to unearth four propositions derived from a literature review on the diffusion of MAIs: (1) the extent of the diffusion of MAIs in dependent (subsidiary) organisations differs from that in independent organisations; (2) the parent companies, via their vertical mechanisms, act as the main facilitators of the diffusion of MAIs in subsidiary organisations; (3) MAIs diffused in subsidiary organisations by parent companies (via vertical mechanism) are more successfully implemented than are MAIs diffused by other sources; and (4) management accountants in group organisations are involved in accounting changes in their subsidiary and participate in strategic decision-making processes. The propositions were tested through an analysis of both quantitative and qualitative data collected from a survey of 584 responses by the members of the Chartered Institute of Management Accountants (CIMA) working in dependent and independent organisations to a questionnaire and follow-up interviews with over 50 respondents in dependent organisations. Thus, this study is a pioneering effort in that it is the first to examine different sources of the diffusion of MAIs in group organisations and subsidiaries.

Concerning the first proposition, the study offers a detailed picture of the diffusion of MAIs in group organisations and suggests that the diffusion of MAIs in subsidiaries is different from that in independent organisations. For a subsidiary organisation, there are two environments, one being external to the group and the other being the environment formed by the group and other subsidiaries within the group. The subsidiary can adopt MAIs from both sources, but with different orientations. The study provides interesting results regarding the question of which sources of external knowledge (external environment, group and other subsidiaries) are playing a role in the diffusion of MAIs in group organisations. In particular, the study provides evidence that there can be four sources driving innovations in subsidiaries: parent, peer, joint and individual. Interestingly, two of these sources (i.e., peer and joint) are related to the inter-subsidiary relationship or to the so-called lateral relationship. According to the literature on the diffusion of MAIs, this is a novel finding.

Testing the second proposition, the study shows that, although 53.7% of the MAIs are adopted and diffused in group organisations by parent organisations, the inter-subsidiary relationship also plays an important role as it forms 33.3% (24.1% + 9.2%) of diffusions of the MAIs in group organisations. The subsidiaries show less interest (only 13%) in adopting MAIs without the involvement of their parent

organisation or other subsidiaries. Therefore, despite the claim that subsidiaries act as "appendages" of parent organisations (Bartlett and Ghoshal, 1991; Stopford and Wells, 1972) or "miniature replica" subsidiaries (White and Poynter, 1984), the present study claims that the interdependence of subsidiaries has a substantive impact on the adoption and implementation of MAIs in subsidiaries. The findings suggest that the subsidiary is part of a network – not just a dyadic relationship with a parent company. The literature on MA change lacks data on this particular scenario. With these findings, it is clear that the dynamic relationships between subsidiaries can produce considerable diffusion-effects within subsidiaries. This dynamic relationship between entities of MNCs in the diffusion of MAIs requires further studies.

Despite the influence of the parent organisations, this study also highlights the role of subsidiaries' capabilities in adopting and assimilating MAIs. Absorptive capacity or sourcing capability (subsidiaries' ability to recognize, assimilate and exploit new techniques, such as MAIs) and combinative capability (i.e., creativity in knowledge management and how to fit that into an organisational context) are critical to the adoption and implementation of MAIs. The paper supports the idea that the absorptive capacity of a subsidiary is related to its prior knowledge stock and permits the recognition and absorption of knowledge including MAIs. The study indicates that those subsidiaries that had already adopted any of MAIs were more prepared to and capable of adopting and implementing other MAIs. Thus, the knowledge stock of the subsidiary can be expected to act as an important factor in the adoption and implementation of new techniques, including MAIs. However, this stock of knowledge and the subsidiary's capabilities in adopting MAIs are, to some extent, distinct from the capabilities of its parent companies and sister subsidiaries. The particular geographical setting and history of the subsidiary are important in defining "a development path that is absolutely unique to that subsidiary, which, in turn, results in a profile of capabilities that is unique" (Teece *et al*., 1997, cited in Birkinshaw and Hood, 1998, p.781). Since Cohen and Leninthal (1989) first introduced the idea of absorptive capacity, the concept has been widely cited, but it has not been discussed in the MA literature. We consider this paper as a starting point to discuss this and invite further case studies in this area. In future studies, we hope to identify the actual mechanism and processes underlying absorptive capacity and knowledge assimilation to determine and measure their role in the diffusion of MAIs in group organisations.

Moreover, the study found that the geographical proximity of parent and subsidiary organisations plays a role in the diffusion and implementation of MAIs; also, the distance may contribute to a subsidiary not being able to utilize knowledge from group and other subsidiaries. This is an area that has not been discussed in the extant literature on the diffusion of MAIs in group organisations.

With an efficient communication structure in place in group organisations, different subsidiaries will be more able to seek out, collect and disseminate information (Tushman, 1977). This in turn increases the chance of adopting MAIs through interaction within the group. A well-developed internal communication infrastructure in group organisations may outweigh the geographical issue and facilitate the dispersion of ideas about the adoption and implementation of MAIs and improve the visibility of the new techniques.

With regard to the third proposition, our study revealed that the level of implementations of MAIs adopted by subsidiary organisations may be higher if these are initiated by the subsidiary organisations themselves rather than forced by parent organisations. The study reports a higher level of implementations of ABC and BSC in subsidiary organisations where there were higher adoption rates of these techniques via other sources than those forced by parent organisations. However, in comparison to independent organisations, the subsidiary organisations in this study show a lower level of implementation of ABM, benchmarking and TC where the adoption of these techniques had mostly been decided by parent organisations. It can be argued that the subsidiary organisations will take ownership of the new techniques if they believe that they are their own systems rather than the group organisations' systems imposed on the subsidiary (Dossi and Patelli, 2008). So, the practice of implementation of MAIs in group organisations is probably related to adoption methods and motivation (amongst other possible factors and characteristics of innovations and adopters). The improved interaction between the group and subsidiary organisations may positively affect motivation and remove potential barriers. Since the successful implementation of an organisational change such as the implementation of MAIs is quite difficult, we believe it is necessary to examine both motivation and outcomes to understand fully the partial implementation processes in group organisations and MNCs.

Concerning the fourth proposition, the study revealed that the management accountants in subsidiary organisations are not sufficiently "strategic management accountants" to undertake SMA projects. Frequently, the accountants did not show any interest in initiating change programmes and tended to concentrate on their independent 'watchdog' role, focusing on 'preventing things from happening' (Johnston *et al.*, 2002, p.1331) rather than being effective strategic management accountants, as discussed by Coad (1996). This might be due to the type of training provided to them during their academic and/or professional qualifications. Indeed, one may question the reason for the minimal attempt by the qualified accountants in subsidiary organisations to effect changes in MA systems. This leaves us with serious questions. What knowledge and skills does

an accountant need to be a “strategic management accountant”? What do they need that the universities and other training centres do not offer to them?

The findings of this study have further theoretical implications as well. On the one hand, these findings challenge the rational perspective which holds the view that adopters are rational and make technically efficient independent choices and that the social and organisational contexts in which such adoptions take place are taken for granted. In particular, the agency theory percept that the agent-principal relations between headquarters and subsidiaries can prompt forceful adoption has reservations. On the other hand, the findings support the view that MAIs take place in dynamic and complex inter-organisational relationships (i.e. between adopting organisations and enforcing organisations), in intra-organisational relations between subsidiaries, and in their enabling mechanisms including managerial knowledge and capabilities. The effects of isomorphism, fads and fashions would be valid to these very relationships rather than to the global arena of diffusion.

The interviews in this study were with CIMA qualified accountants working in subsidiary organisations. It is believed that the interviews with accountants in independent organisations would also shed light on the issues discussed above. In this study, we have focused our investigation on a limited number of MAIs (ABC, ABM, BSC, benchmarking and TC). While these innovations were intended to serve as indicators of a broader construct, overlooked idiosyncrasies might render them less appropriate as proxies for the adoption of MAIs in general (Naranjo-Gil *et al*., 2009; Chenhall and Langfield-Smith, 1998). In addition, this study was conducted in three countries, namely, the UK, Australia and New Zealand, in different industry sectors and organisations with various sizes, and the analysis was based on the overall responses to the study; therefore, the specific features of each country on the adoption of MAIs in the studied organisations, the type of industry sectors and company size have not been discussed or analysed. These require further study.

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Table 1: The proportion of dependent and independent companies participated in the survey

Organisation type	UK	NZ	AU	Total
	%	%	%	%
Independent	89.1	83.5	61	72.8
Dependent	10.9	16.5	39	27.2
	100%	100%	100%	100%

Chi-Square Tests			
Organisation type	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45.453	2	.000

Table 2: Industry classification and ownership type

Industry sector	Independent	Dependent	Total
	%	%	%
Manufacturing	23.7	12.6	36.3
Service	49.1	14.6	63.7
Total	72.8	27.2	100%

Chi-Square Tests			
Organisation size	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.010	1	.003

Table 3: Organisation size (number of employees) and ownership type

Organisation size (no of employees)	Independent	Dependent	Total
	%	%	%
Less than 100	31.8	24.4	29.9
100-500	29.6	39.4	32.1
More than 500	38.6	36.2	38
	100%	100%	100%

Chi-Square Tests			
Organisation size	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.530	2	0.000

Table 4: Adoption of MAIs in the surveyed organisations

MAIs	Independent	Dependent (subsidiary)	Total
	%	%	%
ABC	25.5	33.1	27.6
ABM	19.1	22.5	20
BSC	34.4	48.3	38.2
Benchmarking	49.4	62.9	53.1
TC	23.1	23.8	23.3

Chi-Square Tests			
ABC	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.099	4	0.192
ABM	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.019	4	0.061
BSC	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.657	4	0.047
Benchmarking	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.371	4	0.023
TC	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.398	4	0.355

Table 5: Summary of sources for MAIs adopted by subsidiary companies

Methods of diffusion of innovations in group companies	ABC	ABM	BSC	Benchm arking	TC	Total no. of MAIs adopted	% of MAIs adopted
Decided by parent organisation	12	11	7	13	15	58	53.7%
Decided by subsidiary organisation after another subsidiary had implemented it	10	2	8	4	2	26	24.1%
Jointly decided by two or more subsidiaries	2	2	1	3	2	10	9.2%
Decided by subsidiary organisation with no previous adoption within the group	4	3	3	1	3	14	13%
Total	**28**	**18**	**19**	**21**	**22**	**108**	**100%**

Table 6. Comparison of the levels of implementation of MAIs in independent and dependent organisations

MAIs	All levels of implementation	Independent organisations %	Accumulated results		Dependent (subsidiary) %	Accumulated results
ABC	- Activity analysis	13.9	13.9		8.5	8.5
	- The identification of cost drivers	-	13.9		-	8.5
	- Allocation of cost to cost pools	54.3	68.2		43.7	52.2
	- Revised product costing based on activity not volume	31.8	100		47.8	100
		100%			100%	
ABM	- Activity analysis	19.1	19.1		24.5	24.5
	- The identification of value-adding and non-value adding drivers	22.6	41.7		32.1	56.6
	- The identification of separate drivers of cost, quality, response and innovation	21.7	63.4		7.5	64.1
	- Adoption of strategies to impact on performance of key drivers	36.6	100		35.9	100
		100%			100%	
BSC	- Establishment of detailed corporate objectives and critical success areas	14.7	14.7		10.5	10.5
	- Measurement of overall performance based on a linked combination of financial and non-financial indicators	31.5	46.2		30.5	41
	- Communication and commitment to separate measures used to evaluate finance, processes, innovation and customers	26.1	72.3		33.7	74.7
	- Review of the implementation of strategies devised to impact on specific measures in the scorecard	27.7	100		25.3	100
		100%			100%	
Benchmarking	- Identification of critical success areas and associated key performance measures	15.2	15.2		17.2	17.2
	- Comparison of own performance with that of publicly available measures for similar companies	24.5	39.7		31.2	48.4
	- Collaboration with appropriate benchmarking partners identified to compare internal processes	24.5	64.2		19.4	67.8
	- Devising of strategies which address identified performance deficiencies	35.8	100		32.2	100
		100%			100%	
TC	- Identification of target product cost as the difference between expected price and required profit	24.8	24.8		23.7	23.7
	- Adoption of cost cutting strategies at the production stage to approach target	13.2	38		20.3	44
	- Examination of all cost reducing strategies at the planning and pre-production stages	28.1	66.1		32.3	76.3
	- Adoption of value engineering to incorporate customer requirements	33.9	100		23.7	100
		100%			100%	

Chi-Square tests for ownership types and implementation levels of MAIs

Chi-Square Tests			
ABC	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.555	2	.014

ABM	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.911	3	.033

BSC	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.982	3	.003

Benchmarking	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.958	3	.043

TC	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.451	3	.014

Table 7. Chi-Square tests for sources of adoption of MAIs and implementation levels in dependent organisations

Chi-Square Tests			
ABC	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.880	6	0.031

ABM	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.221	6	0.003

BSC	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.816	9	0.224

Benchmarking	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.936	3	0.026

TC	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.139	6	0.041