Costing and Management of Overheads in GCC Countries: Two Grounded Theory Case Studies

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This research is a first attempt to investigate overhead costs and cost allocation in terms of product costing and cost management in the petrochemical companies in GCC Countries using a grounded theory methodological framework and two exploratory case studies were used in this study. This study employed a structured set of coding procedures to organise different ideas that emerged from the analysis of the data in order to formulate hypotheses for each case. These hypotheses from the two case studies were carefully compared and contrasted in detail in order to formulate general hypotheses which were considered as the main findings of this research. These hypotheses provide a good opportunity for future research.

INTRODUCTION

The gap between academic research and the practice of management accounting has long been recognised by management accounting researchers (Scapens, 1983; Otley, 1985; Mclean, 1988; Edwards & Emmanuel, 1990, Sulaiman, Ahmad, & Alwi, 2004). This gap related to changes in competition, technology, and the economic deregulation of industry in many countries. Kaplan (1984) argued that many companies still use the same cost accounting and management control system that was developed decades ago for a very different competitive environment from that of today. He pointed out that the challenges of the competitive environment in the 1980s should encourage us to re-examine the traditional cost accounting and management accounting system. Despite changes in the nature of organisations during the past 60 years, there has been little innovation in the design and implementation of cost and management accounting systems. Spicer (1992, p. 2) argued that:

> "Practitioners have generally failed to keep pace with the significant changes taking place in the manufacturing and competitive environment.....and management accounting researchers know little about how these changes in manufacturing and the competitive environment are actually affecting management accounting practice, particularly in those companies that are experimenting with change in their practice."

Scapens (1990) argued that there is a considerable difference between the theory of management accounting as described in current textbooks and management accounting practice. Many of the techniques recommended by the textbooks writers were not widely used in practice. Otley (1985, p.20) argued that the recommended management accounting techniques have not been used in practice because they may be inappropriate to the manager's needs. So, he suggested that " there is a need to get to grips

with what is actually happening in practice... more intensive research methods that study situations 'in the round' will yield better grounded theories for subsequent testing". Scapens & Theobald (1992) indicated that this gap between theory and practice might attract many researchers to explore the nature of management accounting practice. Many academic accounting researchers have become interested in exploring the differences between management accounting practice and management accounting textbooks. A series of articles by Kaplan and Johnson during the 1980s encouraged researchers to study management accounting practices. Ferreira & Merchant (1992) listed 82 studies in management accounting and control which have been published since 1984. A questionnaire survey is often considered as a first step in exploring management accounting practices because it can only provide a broad description of practice. Drury, Braund, Osborne & Tayles (1993, p.1) suggested that:

> "Further studies are needed to examine more closely exactly how management accounting information is used, why specific techniques are, or are not, employed and other issues arising from this study."

Accounting researchers are often now more interested in using case studies as a research method for studying management accounting practice. In this regard, Scapens (1990, p. 264) stated that:

> "Case studies offer the possibility of understanding the nature of management accounting in practice: both in terms of the techniques, procedures, systems, etc. Which are used and the way in which they are used."

Major gaps between theory and practice in some management accounting areas such as allocation of overhead costs and overhead cost management have been mentioned in the literature. Overhead costs have been a major issue for management accounting researchers and practitioners in recent years. Overhead is increasing as a percentage of total product cost while direct labour is decreasing (Johnson & Kaplan, 1987; Innes & Mitchell, 1992). In fact, some companies have placed their direct labour costs into overhead because direct labour represented such a small portion of total manufacturing costs (Cornick, Cooper, &Wilson 1988). Many surveys have found that accounting for overheads is one of the major areas of dissatisfaction with management accounting methods in practice. Overhead allocation and control has always been seen to present major challenges for cost accountants (Bromwich & Bhimani, 1989).

Generally speaking, the amount of empirical data on management accounting practices and costing in particular in the Gulf Co-operation Council Countries (GCC Countries)[1] is very limited. Specifically, Management Accounting practices and overhead have not been investigated in-depth in the GCC Countries. This encouraged the researchers to design this study in such a way as to identify the most important issues related to management accounting in the GCC Countries that needed more in-depth study.

The petrochemical industry in the GCC Countries was chosen as the industry to be studied. This was motivated by the fact that this industry has become a very significant sector in the GCC Countries. After the oil crisis of 1973 and the enormous increases in the price of oil, GCC governments made great efforts to change the structure of their economies. They did not want to remain only as an exporter of crude oil, but they wished to diversify their economic resources and expand their export earnings away from the oil sector.

It was necessary that the GCC Countries looked towards the downstream petrochemicals sector. They intended to take maximum advantage of their abundant natural resources and surplus capital to develop export-oriented hydrocarbon-based chemical industries. The GCC region contains more than 450 billion barrels of crude oil and 720 trillion m^3 of natural gas, representing more than 45 per cent and 14.5 per cent respectively of world reserves.

As a result, the petrochemical industry in the GCC Countries has become an important sector in the development process. Actually, the availability of large quantities of hydrocarbon feedstocks in most

GCC Countries represented one of the most important criteria for establishing a petrochemicals industry. Along with the oil sector, the petrochemical sector plays a vital role in the national economy. This industry has become an important export industry. About 20 percent of the total GCC Countries non-oil exports were petrochemical products (Al-Sadoun, 1997). According to a study by Dubai Chamber of Commerce and Industry, petrochemical industry was considered a major factor because of its contribution to investment, capital attraction, diversification of sources of income and creation of employment opportunities[2]. In 2005, only 55 petrochemical companies operated in the GCC Countries employing 153, 000 people with a total an estimated production of 36 million tons. GCC production contributed 7% to world petrochemical output in 2005. Saudi Arabia has the most shares of this production capacity with 76 present of the GCC industries followed by Qatar with about 11 percept, Kuwait and UAE are next with 5.8 prevent each and Bahrain only with 1.1 present.[3]

RESEARCH METHODOLOGY AND METHOD

There is no public information about the current management accounting techniques used by these GCC petrochemical companies. Specifically, although the petrochemical industry is a very important sector in the GCC Countries, no prior study has investigated overhead costs and cost allocation in these companies. Generally speaking, there is little public information about current management accounting practices in the GCC companies in general (Al-khater & Innes,2003; Al-khater & Sabia,2003; El-Ebaishi, Karbhari, & Naser 2003; Joshi, AL-mudhaki, & Bremser 2003; Mclellan & Moustafa, 2013). The background information about management accounting and overhead costs in the GCC Countries are insufficient to formulate statistically testable hypotheses. Blumer (1978) indicated that when it is not possible to develop theoretical models prior to the empirical work, researchers need to apply a more naturalistic approach based on exploratory study.

As a result, the researchers decided that this research project should be an exploratory study and that hypotheses should be allowed to emerge from the data rather than be imposed upon it from outside. This research project was undertaken from the perspective of qualitative research. Tomkins & Groves (1983) recommended researchers apply naturalistic research approaches (qualitative) in order to gain more understanding of accounting practices in their natural setting. Also, one of the main reasons for conducting a qualitative study is that the study is exploratory and there are many approaches to qualitative research and one of them is grounded theory (Creswell, 1994; Sutton, Reinking & Arnold,2011).

Grounded theory is a qualitative research method which can be used to uncover and understand what lies behind any phenomenon about which little is yet known. This approach allows the researcher to go into the field of study without constructing any hypothesis and offers the researcher a wide range of flexibility to understand the phenomenon under study and to explain the reasons for particular practices (Strauss & Corbin, 1990 and 2008; Parker & Roffy,1997; Bulawa, 2014). Researchers begin with an area of study and allow the theory or hypotheses to emerge from the data. Accordingly, the researchers decided that the grounded theory approach as outlined by Strauss and Corbin (1998 and 2008) was the most appropriate approach for conducting this study. The Strauss and Corbin approach suggests that, firstly, the researcher should first have "theoretical sensitivity" about the subject under study. Theoretical sensitivity refers to researchers' ability to give meaning to the data, and their capacity to determine what important issues to investigate are, and what is not. So, researchers have a background of information that sensitises them to explore and explain the phenomenon being studied. Secondly, the researcher should identify a specific research problem prior to selecting the research site. The reason for defining the research questions in at least broad terms prior to selecting the research site is to focus on the main issues and to identify the kind of data to be collected (Vedd & Kouhy, 2005). Without a research focus, it is easy to become overwhelmed by the volume of data and "theoretical sensitivity" will help the researcher to concentrate on a specific phenomenon to be studied. As a result, this research was informed by the general guidance of the Strauss and Corbin approach. This approach involves specific coding procedures which provide a systematic method to deal with the huge amount of data associated with the case study approach.

Two case studies were used to investigate overhead costs and cost allocation in terms of product costing and cost management in these companies. These case studies were exploratory and the data were collected and analysed based on a grounded theory approach. Although the researchers are influenced by prior research and the issues that were being investigated were predetermined, the grounded theory approach encouraged the researcher to approach the research setting with an open mind**.** This open-mind was important in the early stages of research process. Ferreira & Merchant (1992, p.5) argued that "field researchers should be open to learn from their field observations and not just impose a preconceived and immutable framework on them". Inside the research site, the questions began in an open and broad manner about the area of investigation. According to Strauss & Corbin (1998, p.41) "the researcher questions begins as an open and broad one, but not so open, of course, as to allow for the entire universe of possibilities. On the other hand, it is not so narrow and focused that it excludes discovery." These questions gave the researchers the flexibility and freedom to explore the phenomenon in depth (Elharidy, Nicholson, & Scapens 2008).

This study is exploratory in nature and the goal is to understand how these petrochemical companies in the GCC region account, manage and control overhead costs. For these reasons, the researcher used the case study method as primary research method. This study used two case studies which provided a research opportunity to compare and contrasts the findings of these two cases. The researchers employed two case studies to explore in depth the phenomenon under investigation. The researchers employed a structured set of coding procedures to organise many ideas which emerged from the analysis of the data in order to formulate hypotheses. Based on Strauss & Corbin (2008), hypotheses which were highlighted at each case study would be considered as substantive hypotheses. These hypotheses were compared and contrasted in detail in order to formulate formal hypotheses.

As a result, the issues that were being investigated were predetermined before going to the two sites, being overhead costs and cost allocation in terms of product costing and cost management. Relevant data were collected on these issues, and then analysed to discover whether any theory or at least hypotheses could be developed directly from the patterns found in the data.

TWO CASE STUDIES

Company A

In company A, fifteen interviews were conducted with different levels of management. This company produces three kinds of products. There are two main products, which are ethylene and low density polyethylene (LDPE), and a by-product, which is sulphur. Its petrochemical plant was the first of its kind in the Middle East. This company was established in 1974. It is a joint venture company between the parent which holds 80% of the shares and two foreign companies which holds the remaining 20% of the shares.

The fifteen interviews were conducted over a period of one month. Some interviewees were interviewed twice in the course of the case study. The interviews lasted between one and two hours. The interviews were recorded on tape and the recordings were transcribed. In addition to the transcriptions, notes were taken during the interviews.

During the interviews, questions began in an open and broad manner about the topics of overhead cost and cost allocation. These questions gave the researchers the flexibility and freedom to explore the phenomenon in depth. Then, the following questions focused on important points depending on the response given. For example, the researchers opened the discussion by asking questions such as, "How does your company calculate production costs?" or "can you describe your existing cost system?" Respondents were allowed to talk openly about the topic and then the researchers guided the discussion by asking open-ended questions on the topics raised by the respondent. The very first interviews were analysed before going on the next interviews. This gave guidance for the next interviews. Table 1 shows the positions of the interviewees who participated in this case study and the number of interviews.

Each interview was analysed by identifying and summarising the main points made by the respondent. Relationships between these points were noted in order to facilitate and develop coding procedures.

TABLE 1
INTERVIEWEES

Interviewees	Number of interviews
1- General Manager	2
2- Finance Manager	2
3- Head of General Accounting and Costing	2
4- Head of Financial Accounting	1
5- Head of Information System	1
6- LDPE Superintendent	1
7- Maintenance Superintendent	1
8- Safety and Environment Superintendent	1
9- Assistant Marketing Manager	1
10- LDPE Marketing Manager	1
11- Public Relations Manager	1
12- Manpower Manager	1
Total	15

The points that were raised in different interviews were compared. The most important aim of coding and comparing data is to organise many ideas which emerged from the analysis of the data. Related points were grouped and given a label. There are several ways of approaching the process of labelling, the researchers decided to begin by coding each sentence by asking, 'what is the major idea brought out in this sentence'. Then, the researchers gave this idea a label which usually was the one that seemed most logically related to the data it represented. The aim was to produce labels or concepts that were suitable for the data. For instance, the General Manager pointed out some points such as: Cost reduction is one of the most important objectives; training Qatari employees is costly in short run, but in long run is cost-reducing; and operating the plant by Qatari employees will reduce costs. Similarly, the Finance Manager mentioned that the expansion of the plant will reduce fixed costs; in addition, since the company has a variable cost advantage, it should concentrate on reducing fixed costs. Cost-reduction was one issue raised by the interviewees. Consequently, the researchers decided to assign to these points a label named "cost reduction" which represents these points.

This method of analysis was applied to all points that were raised by the interviewees. Then, the researchers put those data back together in new ways by identifying relationships among labels and making connections between the main phenomenon and these labels. Labels are related to the phenomenon in terms of causal conditions, context, intervening conditions, action/interaction strategies, and consequences.

Company B

In company B, there were originally two companies but the administrative and support departments of these two companies have been consolidated and the production departments remained separate

departments. The first company produces four main products: ammonia, urea, sulphuric acid, and melamine. Ammonia is mainly used in manufacturing fertilisers. It is also used in the textile industries, paper, medicine, cleaning products, insecticides, leather, rubber, plastic materials and industrial solvents.

The second company was established in 1985 as a 50%-50% joint venture. It was created to produce various chemical products. In 1987, the company started to produce ammonia with a capacity of 500,000 metric tons per year. In 1991, this company began to produce urea, ammonia, nitrogen phosphate potassium (NPK), triple superphosphate (TSP), diammonium phosphate (DAP) and liquid fertiliser.

In January 1994, these two companies signed an agreement to consolidate the management and operational activities of these companies. This meant that the companies had the same top management and they had common support departments. Support departments included Finance, Personel, Information Technology, Safety and Security, Maintenance, Stores and Purchasing. However, the consolidation had no impact on the legal entity of either company. The previous President summarised the main objectives of this consolidation: "Regarding management organisation, these two companies were consolidated which will result in achieving better development, co-ordination, use of diversity of expertise, use of national workforce and cost reduction. In accordance with the Board of Directors' guidance, the national experienced and specialised staff were assigned to various management positions and we benefited from the consolidation of many support departments through enriching our experience, reducing cost and extending the responsibilities to qualified Saudis."

The seventeen interviews were conducted over a period of one month. Some interviewees were interviewed twice and the researcher followed the same approach used in the first case study. Questions in the first interviews started out broadly and then narrowed and become more focused depending on the points by the interviewees. Table 2 shows the positions of the interviewees who participated in this case study and the number of interviews.

TABLE 2
INTERVIEWEES

Interviewees	Number of interviews
1- The Previous President (before the consolidation took place)	1
2- General Manager of Operations Departments	1
3- General Manager of Finance & Information Technology	2
4- The Finance Manager	3
5- Operations Manager 1	1
6- Operations Manager 2	1
7- The Maintenance Manager	1
8- Information Technology Manager	1
9- Total Quality & Organization Planning Manager	1
10- Product Handling Superintendent	1
11- The Head of General Accounting and Costing	3
12- Marketing Superintendent	1
Total	17

CROSS-CASE ANALYSIS

The cross case analysis of the two companies is undertaken to offer insight, enhance understanding, and provide meaningful information about these companies overhead costs in relation to product costing and cost management by comparing in detail the similarities and differences of the findings of these two case studies. Based on Strauss & Corbin (1990), hypotheses which were highlighted at the end of each case study were considered as substantive hypotheses. The objective of this section is to formulate formal hypotheses by developing a theoretical framework through links with the existing literature. Specifically, substantive hypotheses will be compared and contrasted in detail in order to formulate more formal hypotheses which are the main findings of this research project.

The Similarities Between the Two Cases

High Overhead Costs and the Traditional Cost Allocation Method

One of the finding was that the two companies plan and account for overhead costs by using traditional cost allocation methods. The common bases for overhead cost allocation included number of employees in plants, cost of establishing the plant (investment value), direct labour costs in plants, and planned expended efforts.

These two companies did not employ cost techniques such as Activity-Based Costing (ABC). However, in case two, the company applied a Maintenance Work Order System as a basis to allocate maintenance, spares purchasing, and storage costs to plants. Some managers considered this basis as the right base for these costs. They believed that by adopting this base, the company would not only improve the accuracy of product costing, but also control and manage costs by understanding activities which drive costs. For example, the General Manager of the Operations Department said that the Maintenance Work Order System helped to control and to reduce fixed costs and he wished that the company could implement this approach in all departments.

In both companies, the finance managers indicated that the existing cost allocation method has been approved by top management. In case A, the company used the percentage cost allocation method which meant that overhead costs were allocated to products based on specific percentages. These percentages were determined according to various bases which have been mentioned above. The Head of the General Accounting and Costing Division said, “Up to the present time, the company still faces some difficulties in specifying and distributing the overhead costs. In 1980 the percentage method was used, and has been continually revised.”

In case two B, after the consolidation, the finance department was asked to install a new cost allocation method and the aim was to separate the direct costs from the indirect costs, allocate indirect costs between the two companies, and to select an accurate basis for allocating the indirect costs to the two companies. The Finance Manager indicated that the main objectives of allocating the indirect costs are: a) to determine the cost of the products, b) to compute the unit costs for the purpose of evaluating inventories, c) to determine the profitability of each company. The above objectives of the existing cost allocation method raised questions about the adequacy of this method for providing information for decision making and cost control.

In addition, some managers raised questions about the adequacy of this method to achieve the current objectives. For example, the General Manager of the Operations Departments said that “Still I do not know how much a ton of Urea costs”. Also, the Maintenance Superintendent in case A indicated that the finance department is applying the percentage methods which is easy and costs are allocated in a random way, which favours only the finance department.

This supports the argument that the traditional cost approach is still used in today’s competitive environment. This traditional cost approach emerged in the early part of this century to determine product costs (Kaplan, 1984). The traditional cost method is a volume-based cost system and this method was developed at a time when direct labour was a large percentage of total product costs. This method is simple and easy to understand. It has been developed to satisfy financial accounting requirements. For example, this approach was used by many companies to value inventory and supply data for the profit and

loss statement. The change in proportion of the elements of product cost may require a change to the traditional cost method for calculating those costs.

This finding (the traditional cost allocation method) seemed to confirm what Emore & Ness (1991) said that traditional cost systems are not only common but still well accepted, and changing them does not seem to be a high priority. According to Drury (1996), direct labour hours and costs were the most frequently used allocation bases in practice. Eiler & Campi (1990) studied the costing procedures at a chemical company and they pointed out these were not much different from those at many processing companies. Managers in this chemical company indicated that the present cost system was adequate for financial reporting. However, there were many questions about the adequacy of the company's cost information for decision making. As a result, they decided to use an activity-based costing system (ABC). Miller & Vollmann (1985) indicated the changes in the cost structures and environments of manufacturing firms. They mentioned that overhead costs have become the most important component of total costs.

In both cases in this research project, fixed costs were found to represent a high percentage of total costs. According to the General Manager in case A, fixed costs were more important than variable costs because fixed costs destroyed many of the existing companies in the market and these costs represented a high percentage of the product cost. Actually, the company operated on a fixed cost basis. For example, fixed costs represented 83% of production costs for the Ethylene product. The most important elements of fixed costs were depreciation and maintenance costs. The General Manager said, "With regard to the fixed costs like salaries of employees, the company has a better position than that found in Europe and USA, but the maintenance cost is very high due to the equipment and tools used". With respect to salaries in case A, they only represented 4% of production costs. Also, the Head of General Accounting and Costing indicated that the cost structure varied between products. The reason was there were three types of petrochemical products: basic, intermediate, and final products. The company produced basic and intermediate products. Basic petrochemical products were the initial products of steam feedstock such as Ethylene. For example, the company produced ethylene which was considered as a basic product. This product depended on Ethane as feed stock which was very cheap in the GCC Countries. Variable costs for ethylene product represented less than 17 % of production costs and fixed costs represent more than 80% of production costs.

In case B, the company had high fixed costs and salaries and depreciation were the most important elements of fixed costs. Some managers indicated that before the consolidation, the fixed costs represented a high percentage of total costs and the main goal of the consolidation was to reduce fixed costs. The head of general accounting mentioned that salaries' costs were very high because this company provided many benefits for its employees. Also, the company had a higher number of employees than it needed because the government asked the company to employ more employees. These relatively high salary costs in case B compared to case A accounted for most of differences in the cost structure between the two companies. According to the Previous President in case B, maintenance costs were controlled more effectively in the company than in the other petrochemical companies in the GCC Countries. He pointed out that the reason was that some companies made agreements with special maintenance organisations and this agreement led these companies to have high maintenance costs.

This increasing importance of overhead costs will make these companies examine more closely their overhead costs. Kammlade, Pravesh, & Ozan (1989) mentioned that manufacturing overheads account for a third of total manufacturing costs in a typical company. Eiler & Campi (1990) studied the cost structures between (1978 and 1988) in a chemical company. They reported that production overhead costs had risen from 25 present to 35 percent of production costs.

Different Perceptions Between the Finance and Operations Managers Regarding the Existing Cost Allocation Method

Another consistent finding between the two cases was that important differences did exist between operations and finance managers regarding the existing cost allocation method. One advantage of using the case study as a research method and the grounded theory approach is to find such a result. For

example, if the researcher only used a questionnaire, it would be difficult to find this result because questionnaires can give only a very superficial view of management accounting practices (Scapens, 1990, Sulaiman, Ahmad, & Alwi, 2004). The different perceptions between the finance and operations managers regarding the existing cost allocation method was perhaps the most important finding of this research, particularly, as this finding emerged from both cases.

In both cases, the operations managers believed that the existing cost allocation method was misleading and distorted product costs. They indicated there was no cause and effect relationship between the product and the consumption of overhead. They asked why the finance department applied the traditional cost allocation method for overhead costs. They expressed their dissatisfaction with the existing cost allocation method and supported changing it. For example, the Maintenance Superintendent in case A said, "The present situation is incorrect and not accurate. The percentage method has been in existence for a long time and it has been discussed with the finance department, but all our discussions are in vain". He added that the existing cost allocation was serving only the finance department and did not serve the maintenance department. Also, the General Manager of the Operations Departments in case B said, "We knew that there was some problems regarding cost allocation and we always discuss these issues with the finance manager and we asked him to change this method and also top management is aware of this problem". He was not satisfied with the existing cost allocation and he mentioned that questions were raised why the finance department applied the traditional allocation method. The operations managers required a more accurate cost allocation method and they indicated that both top management and the finance department had to change this existing method. They argued that such a change would improve the accuracy of information. This finding seemed consistent with O'dea & Clarke (1994), who mentioned that the engineering and production managers knew that overhead cost allocation was wrong and that the existing costing system distorted product costs.

On the other hand, finance managers believed that the existing cost allocation provided accurate information and they seemed to be satisfied with the existing cost allocation method and hence considered that no change was required. According to the Head of General Accounting and Costing in case A, although the cost allocation was based on the percentage method, it was accurate because the company always revised these percentages and adjusted them when necessary. The Finance Manager in case B said that the existing cost allocation method was approved by the top management and the company would continue to apply these bases to allocate the common costs between the two companies. This view expressed by the finance managers seemed inconsistent with Kaplan & Johnson (1987), who believed that traditional cost allocation had become irrelevant and could cause managers to make decisions which might be harmful to their companies. They suggested that these companies needed to change the traditional cost allocation method.

This finding with the different perceptions between the finance and operations managers regarding the existing cost allocation method was contrary to Howell, Brown, Soucy & Seed (1987) who studied management accounting in the new manufacturing environment. They found that both financial and operations managers were generally dissatisfied with the product cost information. Also, Seed (1988, p.45) mentioned that "Cost accounting practices have lagged behind the evolving manufacturing environment to such an extent that neither operating executives nor management accountants are satisfied with the current state of affairs".

Misunderstanding between finance and operations managers may be considered the most important reason for this difference between them. This point has been mentioned in both cases and was considered the main factor which affected these companies' attempts to reduce and manage fixed costs. For example, the finance manager in case B asked how could the company reduce its fixed costs if there was a misunderstanding between managers regarding fixed costs. He also said, "Operations staff believes that the cost allocation method was not accurate and they were not satisfied with this method which used to allocate common costs. Besides, they were not aware of indirect costs and that each plant must be charged part of these costs". Another reason for the different perspectives was that finance managers who were responsible and had the right to change the cost systems preferred to keep the cost system simple. For example, the Head of the Financial Accounting Division believed that only top management and finance

department had the right to change the existing cost allocation method. Moreover, Finance Managers in both companies believed that it was necessary to consider the cultural differences when the company tried to apply new methods which originated in developed countries. They argued that that they were more familiar with cost allocation methods and cost management techniques in their companies and they would decide which methods were not relevant for the company.

Also, in case A, there were different perceptions between the finance and operations managers regarding an Activity Based Costing system (ABC) as a method for cost allocation. Finance staff believed that it was difficult to implement an ABC system in their company and they did not have any plan to apply this system in the future. For example, a Finance Manager pointed out that ABC might be a more accurate method, but it was very difficult to implement and the company has to look at the cost-benefits of such a method. On the other hand, the operations managers mentioned that ABC was a better method and would like the company to shift to ABC. For example, the Safety and Environment Superintendent said, "We need a cost allocation method which helps us to understand and manage costs such as ABC". This finding was consistent with the finding in case B. The finance managers indicated that ABC was not only difficult, but also it is not practical. However, the operations managers stated that although ABC system was difficult, it was better for the company to implement it. In both cases, the operations managers believed that ABC would provide a greater understanding of product costing and help these companies to manage high overhead costs. Seed (1988, p. 52) stated that "Managers frequently resist change, and operating executives and management accountants often have different ideas as to how their systems should be changed." However, in these two cases, the operations managers wanted to change the existing cost allocation method.

The Effect of Management Position in the Organization on Perception of the Importance of Overhead Cost Allocation Methods

Similar findings emerged in both cases regarding the effect of the management position in the companies on the perception of the importance of overhead cost allocation methods. The presidents of the companies believed that the specific type of overhead cost allocation method was not an important issue and they perceived this issue from an overall perspective. Specifically, they did not recognise the importance of the cost allocation. For example, the president in case B argued that the finance department was fully responsible for the existing cost allocation method and the existing cost allocation method was accurate and the finance department always seeks to select the right bases for cost allocation. Also, the General Manager in case one pointed out that "the interest in percentage calculation and cost allocation method is not great, the concentration is directed to costs in general". This gave an indication that top management perceived that cost allocation method was only for producing information for financial reporting.

On the other hand, operations managers (for example) had direct involvement with costs and faced the cost allocation problems. In particular, they were more concerned about cost allocation and they wanted to know that their plants were not being overcharged. As a result, the presidents of the companies were satisfied and would like to continue to use the same method which the finance managers applied and they believed that change is not necessary at the present time. However, as has been mentioned, operations managers were dissatisfied with the existing cost allocation method and they argued that developing alternative bases was the most important area for improving product cost systems.

The Differences Between the Two Cases

The fact that only two cases were studied may be considered one of the limitations of this research. As a result, some differences in the findings between the two cases, which will be presented later, might have become similarities and not appear as differences if more case studies had been conducted. Also, these differences may provide the opportunity for further research to examine whether any of these differences appear in new cases.

Major Cause for High Overhead Costs is Governmental Intervention

In case B, the Government provided much assistance to the company such as cheap raw materials and utilities. In spite of that, governmental intervention was considered a major cause for high overhead costs in the company.

The most important element of fixed costs for ammonia products is the salaries which represent 44% of fixed costs. The fixed costs for this product represent 56% of the total costs. With respect to urea, salaries are the most important element of fixed costs (50% of fixed costs). The fixed costs for this product represent 45% of the total costs. This company is paying a high salary to its employees. Some interviewees mentioned that over-employment was a major cause for increasing fixed costs in the company. One reason for this over-employment was the government and the government encouraged the company to increase its number of employees.

In case A, salaries represented a relatively insignificant percentage of the total costs. The interviewees did not mention the governmental intervention as a reason for high fixed costs. However, the Finance Manager stated that the previous agreement with a foreign partner caused high fixed costs in the company, but this had nothing to do with the government.

The Shortage of Employees in Finance Department and Their Qualifications are Reasons for not Using New Techniques for Product Costing and Cost Management

Shortage of manpower in the finance department was a barrier for the company in case A in terms of changing the traditional overhead cost allocation and cost management methods. For example, the Head of General Accounting and Costing Division in case A said "There is a shortage of employees and employees have no time to think of new methods of cost allocation, and some methods require well qualified employees. Therefore, it is difficult to improve and change the existing methods". Also, the Safety and environment superintendent in case A argued that there are insufficient employees in the finance department to apply new methods. The assistant marketing manager argued that the company has to change its policy for selecting employees and the company needs well-qualified employees. He added that the higher education system fails to provide the graduate with adequate knowledge so that they will be sufficiently qualified to perform their job effectively. However, this reason was not mentioned by the interviewees in case B for not changing overhead cost allocation and cost management methods. This finding is consistent with Chiu & Chang (1979), who found that lack of knowledge about management accounting techniques is one of the reasons that prevents the company from using them. They indicated that shortage of qualified accounting staff knowledgeable in the use of these techniques is the most important reason for failure to adopt them. Also, Higgins & Watts (1986) indicated that one of reason to explain the gap between theory and practice in management accounting was that accounting staff were not aware of the importance of these techniques.

LIMITATIONS

The case study method was the primary research method in this research project. A case study represents only a small sample which cannot be generalised statistically (Scapens, 1990, and Atkinson & Shaffir 1998). In fact, there were only two case studies in this research project which may be considered one of the limitations. Therefore, it is inappropriate to make a statistical generalisation about the petrochemical companies in GCC Countries. However, this research project is a first attempt to investigate overhead costs and cost allocation in these companies. These two case studies enabled the researcher to generate general hypotheses about the phenomenon under investigation. These hypotheses can be tested in larger scale studies in the future. As has been mentioned, the data from the case studies were collected and analysed within the grounded theory approach. Based on this approach, the researcher cannot be completely considered as a neutral independent observer. As a result, these two cases were analysed and interpreted based on the researcher's judgement. This highlights the problem of researcher bias.

CONCLUSIONS AND FUTURE RESEARCH

The aim of this paper was to investigate overhead costs and cost allocation in terms of product costing and cost management in these companies. Two case studies were used to investigate the main issues which have been identified. These case studies were exploratory and the data were collected and analysed based on a grounded theory approach.

In both cases, the researchers started with a description of the company background and discussed product costing and the existing cost allocation method. Then, a more in depth analysis was conducted in which a relationship among the different labels was identified and the result of this analysis suggested some substantive hypotheses.

The substantive hypotheses from the two cases were compared and contrasted in a cross-case analysis in order to formulate general hypotheses. As a result of conducting these two cases and this cross analysis, six general hypotheses emerged which are the main findings of this research project

> *Hypothesis one: Traditional overhead cost allocation methods are still common and well accepted and changing these is not seen to be a high priority for top management and finance managers.*
>
> *Hypothesis two: Different perceptions exist between the finance and operations managers regarding the existing overhead cost allocation methods.*
>
> *Hypothesis three: Operations managers have different perceptions from top management on the importance of the existing overhead cost allocation methods.*
>
> *Hypothesis four: External factors such as governmental intervention are a major cause for high overhead costs in the company. For example, the government asked the company in case two to maintain a specific rate of employment.*
>
> *Hypothesis five: Internal factors such as a shortage of employees in the finance department and their lack of qualifications were considered as important factors that hinder the development of the existing overhead cost allocation methods and cost management techniques.*

The above hypotheses, grounded in the data from the two cases, hopefully provide meaningful information about these companies overhead costs in relation to product costing and cost management. In particular, hypotheses, one and two have caught the researcher's interest and have motivated him to investigate in much greater depth at least some of these in the near future starting probably with hypothesis two about the different perceptions between the finance and operations managers regarding existing cost allocation methods.

ENDNOTES

1. the Gulf Cooperation Council (GCC) was founded on 26 May 1981, the aim of this collective is to promote coordination between member states in all fields in order to achieve unity. GCC countries include Saudi Arabia, Kuwait, Qatar, Bahrain, Oman and United Arab Emirates.
2. APS Review Downstream Trends, Petrochemicals Become Key to GCC Growth, 18 Dec. 2006
3. Arab News, Petrochemical Companies Need a New Strategy, 12 Sep. 2005.

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