

**The Implementation of Activity-Based
Costing at Norwich Union Life Insurance
(NZ) Limited and Nelson Marlborough
Health Services Limited: A Comparative
Analysis**

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Abstract

Since the introduction of activity-based costing (ABC), researchers have identified situations where its implementation is deemed appropriate. Furthermore, a framework for implementation has been recommended. Additionally, it is suggested that the likelihood of installation failure increases when accounting staff sponsor the implementation of ABC, but Cotton (1994) did not find evidence to support this prediction. This indicates that the body of knowledge concerning the successful implementation process of ABC is incomplete. Consequently, two case studies on organisations that implemented ABC, Norwich Union Health Insurance (NZ) Limited (Norwich) and Nelson Marlborough Health Services Limited (NMH), were conducted to expand the existing body of knowledge of the implementation of ABC. The behavioural issues relating to individuals' reactions to the implementation of ABC were also examined.

A number of anomalies between the existing body of knowledge and these practical examples of the implementation of ABC were found. In both cases, the decisions made prior to implementation and the installation processes used at these firms deviated from those recommended. Additionally, a number of previously unspecified symptoms indicating that a firm's costing system required alteration were identified. Similarly, additional reasons for implementing ABC were detected. Furthermore, the recommended methods for minimising individuals' reactions to change did not appear to be effective at NMH.

Despite the lack of generalisability and other limitations of this research, the body of knowledge concerning the implementation of ABC has been expanded and areas for further research have been recommended.

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Chapter 1: Introduction

“It must be remembered that there is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new system. For the initiator has the enmity of all who would profit by the preservation of the old institutions and merely lukewarm defenders in those who would gain by the new ones.”

Machiavelli - “The Prince”
Published in 1513

To ensure the long-term survival of a firm, it is essential that the cost system used in decision-making disclose accurate product costs (Johnson, 1992a). As manufacturing becomes less labour intensive and more machine oriented, labour costs decrease and overhead costs increase. Manufacturers have become concerned about the ability of traditional costing systems to accurately allocate overhead costs to products. Thus, in the early 1980s, activity-based costing (ABC) was welcomed as a costing system that could accurately allocate overhead costs.

Since the introduction of ABC, researchers have identified situations where its implementation is deemed appropriate. Once ABC has been deemed appropriate to implement, it is necessary to consider how it will be installed. Cooper (1990a) has determined two distinct phases in the implementation of ABC; the decisions that must be made prior to installation, and a suggested structure to be followed during installation.

Additionally, researchers have commented about the commitment and sponsorship necessary for successful implementation of ABC, including the recommendation that finance and accounting staff not sponsor its installation (Cotton, 1994; Kleinsorge and Tanner, 1991). However, Cotton (1994) found that sponsorship of ABC by finance and accounting staff did not appear to hinder successful implementation. Thus, there appears to be an anomaly between theory and practice regarding successful implementation of ABC.

This anomaly indicates that knowledge about the implementation of ABC is incomplete. Consequently, the implementation process is investigated and in doing so the reasons for implementing an ABC system are also examined, as well as the behavioural issues associated with changing a cost system to ABC. Two case studies on the implementation of ABC have been conducted at Norwich Union Life Insurance (NZ) Limited (Norwich) and Nelson Marlborough Health Services Limited (NMH). These case studies add to the body of knowledge already established and challenge some of this existing knowledge concerning the implementation processes used in practice and suggestions for further areas of research are offered.

Chapters 2 through 6 review the literature about the reasons for changing a costing system, ABC, the situations where it is appropriate to implement ABC, the installation of ABC and the reactions of individuals to change. Chapter 7 presents an examination of the case study method and why it is used in this research. Next, the implementation of ABC at Norwich and NMH is documented, in Chapters 8 and 9 respectively. Chapter 10 contains a comparative analysis of the implementations and finally Chapter 11 presents the limitations and recommendations for further research.

Chapter 2: Cost System Change

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I. Introduction

To ensure the long-term survival of a firm, it is essential that the cost system used in decision-making is disclosing accurate product costs (Johnson, 1992a). As Barnes (1992, p20) states:

“Managers have to make decisions: how to allocate limited resources; how to price products; when to drop a product line; how to organize the product and process. Information is the basis for these decisions; generally, the better the information, the better the decision.”

To determine when it is appropriate to change the cost system of an organisation, it is essential to define a cost system. Therefore, this chapter defines cost systems and examines their role in organisations. It then reviews when it is appropriate to change the cost system. Finally, the reasons for any distortions in product or service costs are discussed.

II. What are Cost Systems?

A. Definition

Hilton (1991, p7) states that a cost system accumulates cost data. This is an inadequate definition as it does not explain what cost data is gathered, nor does it indicate what is done with the data once it is accumulated. Therefore, the next step in defining a cost system is to determine what cost data is gathered. The data accumulated is the historical cost information relating to the sacrifice made, in monetary terms, to acquire goods, services or other future economic benefits (Robb, 1981; Thacker and Ellis, 1981).

Once the data is accumulated, the main purpose of the cost system is to attach costs to the individual goods and services produced, as well as allocating costs for periodic financial statements (Johnson, 1992a). The design of the cost system dictates how costs are assigned to the goods and services produced.

For the purposes of this study, a cost system is the process that gathers historical costs and then attaches those costs to the individual goods and services produced.

B. Traditional Cost Systems

There are two types of traditional product costing systems; variable (or direct) and absorption costing (Shillinglaw, 1989, p33).

1. *Variable Costing*

Robb (1981, p26) defines variable costing as:

“A method of assigning only variable manufacturing costs to the units produced or other output. Fixed costs are excluded from the unit cost under this method and are classified as period costs as incurred.”

Variable manufacturing costs alter in direct proportion to changes in the level of activities performed (Hansen and Mowen, 1992, p48). Fixed costs remain constant as the level of activities performed varies within a relevant range (Hansen and Mowen, 1992, p46).

Accountants have argued that variable costs represent “the relevant costs which should be used for product decisions” (Drury, 1989, p60). However, a survey conducted in the United States of America found that full absorption costing also had widespread use (Govindarajan and Anthony, 1983).

2. *Absorption Costing*

Robb (1981, p7) defines absorption costing as:

“A product costing method which assigns all necessary manufacturing costs, direct and indirect, to the units produced.”

Direct costs can be clearly traced to a particular cost object¹ (Hansen and Mowen, 1992, p34). Indirect costs are common to several cost objects and cannot be directly traced to any particular cost object (Hansen and Mowen, 1992, p34). Full absorption costing

¹ For example, direct materials and direct labour.

includes all support department costs² as part of a good's or service's indirect costs (Hansen and Mowen, 1992).

A critical element of absorption costing is the use of overhead rates³ to assign indirect fixed costs to goods and services produced (Cotton, 1987). The first step in determining an overhead rate is to identify the costs to be allocated. The next step is to establish an allocation base⁴, normally volume-related⁵ (Cooper, 1988a). The most commonly used allocation base is direct labour hours, however, machine hours are also used (Cotton, 1987; Hansen and Mowen, 1992; Hilton, 1991). The allocation rate is found by dividing the overhead costs by the allocation base. For example;

Total Annual Indirect Costs	<u>\$526,000</u>
Total Annual Direct Labour Hours	20,000
Allocation Rate	\$26.30 per Direct Labour Hour

Once the allocation rate is determined, indirect product cost can be calculated by multiplying the allocation rate with the amount of the activity consumed by the product (or the quantity of a particular physical or economic characteristic of the product). Total product cost can then be found by adding direct costs and the allocated portion of indirect costs.

In many cases, firms will only use a single volume-related allocation rate (Hansen and Mowen, 1992; Cotton, 1987). The difficulty with this is that when product diversity increases, the accuracy of product costs decline (Cooper, 1988a). Thus, management decisions may be adversely influenced by this incorrect data (Cohen and Paquette, 1991).

² For example, selling and administration costs.

³ This element also causes problems for absorption costing, such as product cost distortions (Shillinglaw, 1989).

⁴ An allocation base is a measure of "activity, physical characteristic, or economic characteristic" associated with the cost object (Hilton, 1991, p458).

⁵ A volume-related allocation base is closely associated with the number of goods and services produced, such as direct labour hours (Hilton, 1991).

C. Cost System Information Applied

Judgements made by management are focused on planning, controlling and evaluating the organisation's activities (Clemens, 1991; Cohen and Paquette, 1991). Emore and Ness (1991) have identified nine specific areas where management use cost system information:

1. Cost control decisions.
2. Pricing decisions.
3. Investment justification.
4. Sourcing decisions, such as whether to make or buy product parts, or to change suppliers of materials.
5. Performance measurement.
6. Market strategy decisions.
7. Product change, such as altering the design of products, or introducing or discontinuing a product line.
8. Process change, such as altering set-up routines.

Cost information is also used for inventory valuation (Borden, 1990). The variety of decisions that cost system information influences indicates that the cost system plays an influential role in the organisation.

D. The Role of the Cost System in an Organisation

The cost system is a part of the organisation's accounting system (Thacker and Ellis, 1981). The accounting system is part of the formal control mechanisms, the technostructure⁶ of an organisation (Gibson et al. 1991; Colignon and Covalleski, 1988; Burchell et al, 1980). The firm's "control systems serve to maintain a relatively stable existing set of relations between organisational groups" (Dermer and Lucas, 1986, p472), as well as between the organisation and its owners (Edwards and Newell, 1991; Hayes, 1983). These relationships require groups to negotiate and interact to produce

⁶ Technostructure is an organisation's formal structure and authority relationships, policies and practices (Gibson et al, 1991).

the best possible performance of organisational activities (Hayes, 1983). To facilitate communication between these groups, it is necessary that there be a common language, and accounting systems are seen to provide this communication tool (Roberts and Scapens, 1985; Cooper et al, 1981; Hayes, 1983; Ouchi, 1979;).

Accounting provides a common language, as it is viewed as “the smallest set of symbols which conveys information that is relevant to all organisational subunits” (Ouchi, 1979, p839). As Roberts and Scapens (1985, p448) state, accounting “provides members with a set of categories ... in terms of which they can make sense of what has happened, anticipate the future and plan and assess action.”

However, due to accounting being used as the common language, it also defines the reality within which members make decisions (Colignon and Covaleski, 1988; Roberts and Scapens, 1985; Hayes, 1983; Cooper et al, 1981; Ouchi, 1979). The accounting system defines a reality or image of the firm, as it determines the boundaries between what is relevant to the organisation and what is irrelevant (Colignon and Covaleski, 1988; Roberts and Scapens, 1985; Hayes, 1983; Cooper et al, 1981; Ouchi, 1979).

“Accounting facilitates the negotiation of a shared reality by providing the various actors with a common language and framework for such negotiations. The boundaries of negotiation, the language in which it is discussed, and the set of phenomena to be incorporated into negotiation are all provided by the existence of accounting and budgetary systems in organisations” (Cooper et al 1981, p183).

Therefore, the accounting system:

“is used in both a relational manner, providing analytical order and coherence through which people negotiate and discuss objective properties of the problem at hand, and also in a ‘naturalistic’ manner, in the sense that accounting can be seen to provide categories through which individuals order and interpret problems” (Dent 1990, p16).

Furthermore, Burchell et al (1980, p5) states:

“what is accounted for can shape organisational participants’ views of what is important, with the categories of dominant economic discourse and organisational functioning that are implicit within the accounting

framework helping to create a particular conception of organisational reality.”

As organisational functioning is implicit within the accounting framework, the accounting system maintains the organisation’s power networks (Colignon and Covalleski, 1988). Thus, accounting systems provide a common language for negotiation, a reality in which members operate and provide the necessary information to operate the organisation’s power structure (Roberts and Scapens, 1985).

One of the central assumptions of the above discussion is that managers use accounting information and logically analyse reports to make decisions, as well as to determine what decisions need to be made (Hayes, 1983). The world view is that rationality is important, so, to perpetuate the myth that decisions are not intuitive, accounting is used to represent events in order to prevent the examination of why phenomena occur (Hayes, 1983). Accounting systems give a ready and easy explanation as to why a phenomenon occurs, so saving people from the effort of seeking explanation for themselves (Hayes, 1983). In other words, accounting upholds the myth of the analytical manager (Hayes, 1983). Furthermore, the accounting system can be used *before*, or *after*, an event to rationalise decisions and actions taken (Hayes, 1983).

Therefore, the cost system, as part of the accounting system, contributes to the defined reality or image of the firm, can be used to rationalise decisions, and is also part of the language and power structure of the organisation. So, if the cost system was to be altered, then this may change the language, redefine the reality and even modify the power structure of the organisation. These consequences of altering a cost system make it vital that cost system change is only implemented when the situation indicates that such a change is necessary.

III. Cost System Change Considered

A. When Organisations Should Consider Changing their Cost Systems

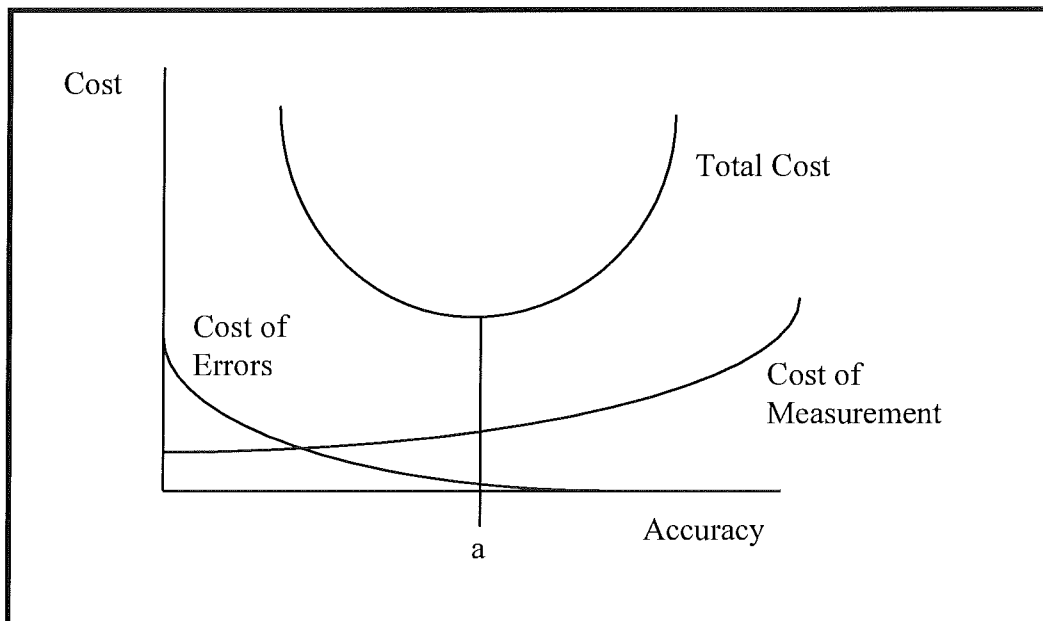
Cooper (1991a, p71) states that:

“a cost system is obsolete and should be changed when the net present value of the benefits of having improved product costs exceeds the net present value of redesigning a new costing system.”

However, this approach has a number of difficulties. The main problem is that all future benefits and costs must be expressed in monetary terms. This quantification may not be possible, yet should be attempted.

Another method of determining when a cost system should be changed is displayed in figure 3-1.

Figure 3-1. The Optimal Cost System (Cooper, 1988b, p42)



Cooper (1988b) states that the cost system encounters two types of costs; the cost of errors and the cost of measurement. The cost of errors are costs to the firm when the

information system gives inaccurate product costs⁷ (Cooper, 1988b). The cost of measurement is the cost the firm encounters to obtain and use information in the cost system (Cooper, 1988b). The optimal cost system is the system with minimal total cost⁸, point 'a' in Figure 3-1 (Cooper, 1988b).

The cost system should be changed when the cost of errors exceeds the cost of measurement (Cooper, 1988b). The cost of measurement can alter for a number of reasons, including technological improvements which allow for more efficient data gathering methods (Cooper 1991a; Cooper, 1989a). However, this method also encounters measurement difficulties when attempting to quantify the cost of errors. For example, the cost of providing unprofitable products must also include the opportunity cost of products it could have produced profitably, as well as the cost of customer dissatisfaction when the profitable product cannot be obtained from the company.

Regardless of the method used to determine when a cost system should be changed, there remains a quantification problem. This difficulty renders the outputs of these methods questionable.

However, a number of researchers have found a variety of other symptoms that indicate a cost system is in need of change (Cooper, 1991a; Cooper, 1989a; Raffish, 1991; Eiler et al, 1982).

1. When functional managers wish to drop a seemingly profitable product line (Raffish, 1991; Cooper, 1989a). Functional managers know when a product is time consuming, difficult and expensive to produce (Raffish, 1991; Cooper, 1989a). Thus, if functional managers wish to drop a seemingly profitable product line, it is because they know that the product is not profitable to produce, indicating that the cost system is inaccurate (Raffish, 1991; Cooper, 1989a).

⁷ For example, selling unprofitable products.

⁸ Total cost is the cost of errors and measurement added together.

2. There is little integration of manufacturing and costing systems, indicating that information on the resources consumed by each product in the production process, is not used in the cost system (Eiler et al, 1982).
3. Control methods are not extended to indirect departments, indicating that the cost system cannot estimate support department costs, as it does not have information on how products consume support departments' resources (Eiler et al, 1982).
4. Audit reports cite poor inventory controls, meaning, the total number of finished goods used to determine volume-based overhead allocation rates may be inaccurate (Eiler et al, 1982). If inventory controls are poor, then the number of finished goods produced in a year may not be correctly recorded. As an allocation rate is determined by overhead costs being divided by the allocation base, then, when the allocation base is volume-related, the denominator will refer to the number of goods produced. If the denominator has not been correctly recorded in the firm's records, the allocation base will be incorrect, therefore the allocation rate will not be correct and product costs will be inaccurate.
5. There are large and poorly analysed manufacturing variances, which indicates that standard costs are not accurate, nor the cost components of products understood (Eiler et al, 1982).
6. There are delays in getting answers to fundamental business questions concerning costs (Eiler et al, 1982). This indicates that the cost system is not tailored to the business's requirements (Eiler et al. 1982).
7. Costs are reported on bottom line profits and not on critical success factors, nor on business processes (Dale, 1991a). This indicates that the cost system was built for financial reporting, not cost management, and systems built with one objective generally do not adequately accomplish a second goal (Cooper, 1989a).
8. Middle management are unable to explain in-depth how the cost system works, indicating that costs are not attached to products in a manner similar to the

- physical progression of products. This suggests that there are a number of arbitrary allocations of costs, which can lead to product cost distortions (Eiler et al, 1982).
9. There is a lack of interest from plant management in the budgetary process, indicating that this process cannot be relied upon for accurate information concerning production costs (Eiler et al, 1982).
 10. There is little, or ineffective, use of predetermined budget allowances, indicating that they are not reflective of the 'true' situation faced by management (Eiler et al, 1982).
 11. The cost structure of the business has changed dramatically since the cost system was implemented. A business may move from a highly labour intensive operation to a machine orientated operation. This alters the cost structure from high labour costs, to low labour costs (Lee, 1990).
 12. Production decisions are often based on capacity absorption considerations, indicating that cost information is so inaccurate as to seriously impair production decisions (Eiler et al, 1982).
 13. The separation between direct and indirect costs is unclear, and there is too much aggregation of general ledger data or improper naming of cost elements (Eiler et al, 1982; Dale, 1991a). This seriously impairs the ability of the cost system to assign direct costs to individual goods and services.
 14. Profit margins are hard to explain (Cooper, 1989a; Eiler et al, 1982). Managers should be able to easily identify why their firms are making profits, such as a certain percentage mark-up on cost (Cooper, 1989a, p77).
 15. Results of bids are hard to explain (Cooper, 1989a). "Unless the market is chaotic, managers should be able to estimate the competitiveness of their bid" (Cooper, 1989a, p79).

16. Transfer pricing is awkward or difficult to explain, indicating that the 'true' cost of a good is unknown (Eiler et al, 1982).
17. Products that are difficult to produce show big profits (Raffish, 1991; Cooper, 1989a). "Such products will have higher than average costs and, unless they are priced at a premium, will have low margins" (Cooper, 1989a, p78).
18. Vendor bids are lower than expected when accepting bids for outsourcing (Cooper, 1989a). "If the bid price varies widely from the cost of making the product, the cost system may be at fault" (Cooper, 1989a, p79).
19. Competitors' prices are unrealistically low (Raffish, 1991; Cooper, 1989a). "When other successful companies, especially smaller ones, charge less for items you produce in high volume, your cost system is suspect" (Cooper, 1989a, p79).
20. Customers do not seem to mind price increases (Cooper, 1989a). This implies that they perceive the product to be of a greater value than the company's costing system indicates.
21. You have a high margin niche all to yourself (Raffish, 1991; Cooper, 1989a). Unless barriers of entry exist, you should expect competition (Raffish, 1991; Cooper, 1989a).
22. Departments have their own cost systems (Raffish, 1991; Cooper, 1989a). "When functional managers have completely lost faith in the official cost system, they may develop systems of their own" (Cooper, 1989a, p78).
23. The accounting department spends a large amount of time on special projects⁹ (Cooper, 1989a; Eiler et al, 1982). The cost system "should provide managers with much of the information they need. If its failure to do so makes lengthy special studies routine, the cost system is probably obsolete" (Cooper, 1989a, p79).

⁹ Special projects are designed to obtain information required for particular decisions (Cooper, 1989).

24. Reported costs change due to new financial regulations: “systems designed with one goal in mind generally do not do a good job of meeting others” (Cooper, 1989a, p79).
25. Increased automation, more advanced manufacturing technology, simplification of the manufacturing process, or improvement of the production process (Cooper, 1989a, 1991; Hayde, 1990a, 1990b). These will modify the resources that goods and services consume, and the previous cost system will not take those modifications into account when determining cost.
26. The use of support functions by products has been changed (Cooper, 1989a). “If a new product requires different kinds of support from existing lines - more detailed inspection, for example, or longer setups - the amount of overhead allocated to it will likely be incorrect” (Cooper, 1989a, p80).
27. There have been changes in product market strategy, such as moving from targeting a high-volume, low quality market, to targeting a low-volume, high quality market. As most “cost systems are designed with one type of production in mind and do not differentiate well between overhead consumption by high- and low-volume products”, any move, such as the one suggested, would result in product costs being inaccurate (Cooper, 1989a, p80).
28. Products have been unbundled or new products introduced (Cooper, 1989a).
29. There have been changes in managerial philosophies regarding strategy and behavioural goals, so different goals are encouraged and rewarded, and the cost system does not adapt to these changes (Heerema and Rogers, 1991; Hayde, 1990a, 1990b; Cooper, 1989a).

This is not an exhaustive list of symptoms indicating that a cost system should be altered, nor should it be assumed that an organisation displaying one or more of these symptoms should change its cost system. Rather, it is an indication of when a cost system should be examined to determine if it is adequately performing its designated purpose, that of correctly attaching costs to the individual goods and services produced

(Johnson, 1992a). If it is found that costs are inaccurate, then the reasons for distortion must be examined before change can be contemplated.

B. Reasons for Distortion of Product/Service Costs

Distorted product costs are primarily caused by using a single volume-related allocation base for apportioning fixed overhead costs (Cooper, 1988a). Volume-related allocation bases assume that input costs will increase in direct proportion to the number of goods produced (Cooper, 1988a). However, when using volume-related allocation bases and:

“when the quantity of volume-related input that a product consumes does not vary in direct proportion to the quantity of volume-unrelated input consumed, volume-based cost systems will report distorted product costs” (Cooper, 1988a, p48).

There are many instances of non-volume-related costs, for example, batch set-up or order processing costs for orders of various sizes. When allocation rates are volume-based, these non-volume-related costs can cause product cost distortions in the following situations:

1. *Production Volume Diversity* (Cooper, 1988a). When production volume increases, the volume-related allocation rate assumes that all costs also increase proportionately. However, this ignores economies of scale and batch expenses. This results in high-volume products being allocated more volume-unrelated costs than they consume, and low-volume products being allocated less costs than they consume (Cooper, 1988a). Thus, the high-volume products subsidise low-volume production (Cooper, 1988a).
2. *Size Diversity* (Cooper, 1988a). When larger products consume a greater quantity of volume-related inputs than smaller products, the use of a volume-based allocation rate assumes that these larger products will also

consume more volume-unrelated inputs¹⁰ This may not be the case.¹¹ Thus, product costs are distorted so that larger products are subsidising smaller products (Cooper, 1988a).

3. Complexity Diversity (Cooper, 1988a). The greater the complexity of a product, the greater the production time to produce each good, thus incurring more volume-related costs (Cooper, 1988a). The use of a volume-related allocation rate is based on the assumption that volume-unrelated costs will also increase with greater complexity, but this may not be true.¹² This results in product costs being distorted, as complex products will be allocated more costs than they are incurring and simple products will be allocated less costs than they incur (Cooper, 1988a).
4. Material Diversity (Cooper, 1988a). Different materials may take longer to machine, which results in those materials consuming more volume-related inputs than volume-unrelated inputs (Cooper, 1988a). For example, it will take more time to cut steel on a lathe than brass¹³, all other variables held constant. Hence, a steel version of a brass product will consume more volume-related costs, yet the same volume-unrelated costs. Therefore, a volume-based allocation rate would allocate more of the volume-unrelated costs to the steel product than it actually consumed, thus distorting product cost.
5. Set-up Diversity (Cooper, 1988a). Set-up time varies for products, resulting in different proportions of volume-unrelated and volume-related input costs. For example, one product may require three hours of set-up

¹⁰ For example, if larger products are consuming three times the volume-related inputs, then, using a volume-related allocation rate, they will incur three times the non-volume-related costs (Cooper, 1988a).

¹¹ For example, order processing costs incurred for large and small goods may be the same.

¹² For example, a product might have a greater number of parts, requiring a larger amount of time to construct the product. However, the set-up and inspection times may be the same as for other, less complex, products.

¹³ Due to brass being a softer metal and easier to cut.

time, while another product may only need ten minutes. The total set-up cost will be averaged over the total number of goods produced, regardless of the product. Therefore, the good requiring only ten minutes of set-up will have more volume-unrelated costs attached to it than it actually incurs.

If it is apparent that the cost system is disclosing distorted results, then there are a number of cost methods that the firm may decide to change to.¹⁴ ABC is one such alternative (Cooper, 1990b).

IV. Conclusion

The cost system of an organisation has many uses, and plays an important role in communication, the creation of reality and the distribution of power amongst organisational participants. However, if cost systems are not producing accurate information, and this results in poor decisions being made, then it may be necessary to change the cost system.

There are a variety of symptoms suggesting inaccuracies in the costing system, such as functional managers wishing to drop seemingly profitable lines, little integration of manufacturing and costing systems, or delays in getting answers to fundamental business questions concerning costs. These symptoms indicate that a cost system should be examined to determine whether it is accurately costing products/services.

Product cost distortions can be caused by production diversity in volume, size, complexity, materials and set-up requirements. Once it is apparent that the cost system is disclosing distorted results, the decision to change the cost system can be made. There are a number of options available to firms, ABC being one of them.

¹⁴ For example, life cycle costing, target costing, back-flush costing and activity-based costing.

Chapter 3: Activity-Based Costing

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I. Introduction

To ensure that correct decisions pertaining to products or services are made, it is essential that the cost system used in decision-making discloses accurate product/service costs (Johnson, 1992a). In a number of cases ABC has improved the accuracy of product costs (Nicholls, 1992; Bhimani and Pigott, 1992; Clark and Baxter, 1992; Dale, 1991b; Hayde, 1990a; Innes and Mitchell, 1990).

“[M]anagers may know even before an ABC system is introduced that their existing cost system understates the unit-costs of low-volume products, but they often do not realize how much the unit costs are understated” (Cooper, 1990b, p11).

This chapter defines ABC. It then examines the process of ABC and finally, the assumptions of ABC are discussed.

II. ABC Systems

A. Definition

The purpose of an ABC system (and other cost systems) is to allow managers to determine a more accurate product or service cost (Turney, 1990b; Cooper, 1988a). However, the uniqueness of ABC is embedded in how it accomplishes this task. ABC is:

“an information system that maintains and processes data on a firm’s activities and products. It identifies the activities performed, it traces cost to those activities, and then uses various cost drivers to trace the cost of activities to the product. These cost drivers (such as the number of part numbers or the number of setups) reflect the consumption of activities by the products” (Turney, 1990b, p40).

Where:

1. **activities** are those repetitive tasks and operations required to produce the goods and services necessary to achieve the goals and objectives of the firm’s business functions (Berliner and Brimson, 1988). “Activities are seen as a collection of

- tasks that consume resources and for which there is a definable output” (Russell and Hitch, 1993, slide 21).
2. **Activity accounting** is “the collection of financial and operational performance information about specific activities of the business” (Berliner and Brimson, 1988, p6).
 3. **Activity centres** are segments of the production process for which management report activity costs (Beaujon and Singhal, 1990; Cooper, 1989b). They are a collection of activity cost pools which typically have a clear physical meaning that corresponds with managed segments of the production process (Beaujon and Singhal, 1990).
 4. **Activity drivers** are measures “of the frequency and intensity of the demands placed on activities by cost objects” (Maguire and Spicer, 1993, slide 6). In other words, it is a factor that can be used to trace the cost of the activity to the cost object.
 5. **Resources** are the economic elements, or inputs, that have been committed to the production and delivery of goods and services to the customer, such as the labour or machinery provided to produce goods and services (Cooper and Kaplan, 1992; Raffish and Turney, 1991).
 6. **A resource driver** is a measure of the quantity of resources consumed by an activity (Maguire and Spicer, 1993; Raffish and Turney, 1991). It is used to allocate a portion of a resource to an activity (Maguire and Spicer, 1993; Raffish and Turney, 1991).
 7. **Cost drivers** are activities or transactions which cause changes in the consumption of the firm’s resources, the costs of production (Babad and Balachandran, 1993; Maguire and Spicer, 1993; Turney, 1990b). “Conceptually, cost drivers represent the cause-and-effect relationship between some activity and a set of costs” (Beaujon and Singhal, 1990, p57). An activity or transaction

may have multiple cost drivers associated with it (Babad and Balachandran, 1993; Maguire and Spicer, 1993; Turney, 1990b).

8. **Cost objects** are the final outputs that are being costed, whether it be the individual products or services, a batch of products, a product line or even the production process itself (Cooper, 1990b).
9. **Cost pools** are groupings of similar resources, in monetary terms, that are consumed in a similar manner by the various activities or cost objects of a firm (Russell and Hitch, 1993).

B. ABC Examined

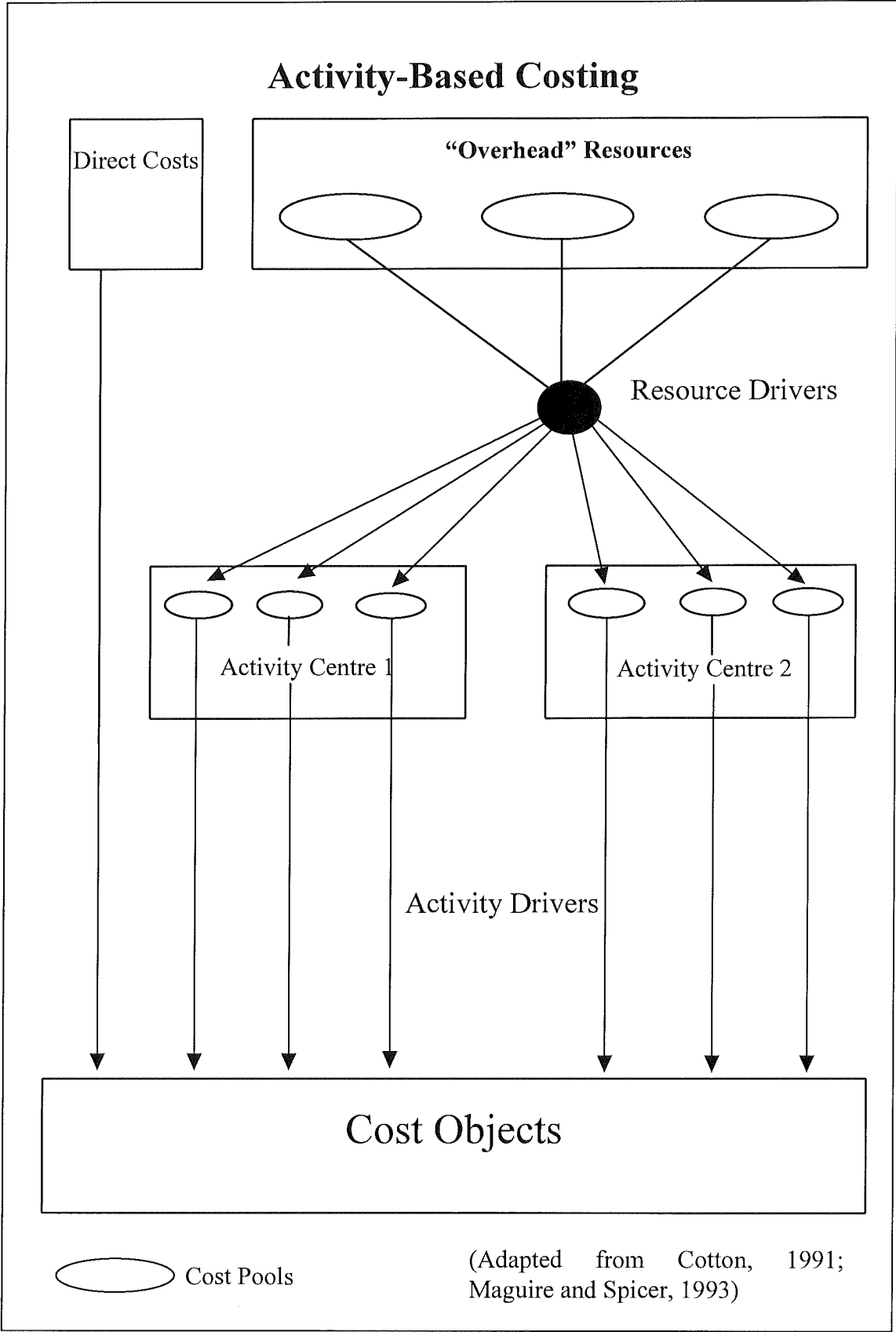
Figure 2-1 provides a diagrammatic representation of ABC. Costs that can be directly traced to a cost object are identified and allocated accordingly. The remaining resources provided by the firm for the production and delivery of goods and services are then traced to the cost objects. This is generally considered to be a two stage process, allocating costs from the resources to the activity, and then from the activity to the cost object (Cotton, 1991; Beaujon and Singhal, 1990; Cooper, 1988a; Cooper, 1987). However, Keys (1994, p34) states:

“In addition to the two stages that have been widely discussed in the ABC literature, there is another stage that precedes these two and has not been discussed. In this “real” first stage, costs are assigned to the appropriate year. The appropriate year is the year in which the cost produces benefit.”

If this stage is ignored, the costs assigned to products may be distorted, as costs will include items not related to the cost objects produced in that particular period (Keys, 1994).

Once the resources available for the period being examined are identified, they are allocated, using resource drivers, to the activities that consume the resources (Maguire and Spicer, 1993). When the cost pool for each activity has been determined, these cost pools are traced to the cost object using activity drivers, that is, those actions required by the cost object which drive the use of the activity (Maguire and Spicer, 1993).

Figure 2-1 Activity-Based Costing



To understand why ABC uses this two stage process requires an understanding of the following assumptions.

C. ABC Assumptions

1. Activities Consume Resources

One underlying concept of ABC is that the goods and services produced by an organisation do not cause costs; rather it is the work carried out that causes the resources to be consumed (Johnson, 1988). As Hardy and Hubbard (1992, p27) state, “ABC recognises that, in the manufacturing of a product, different rates of use of manufacturing activities for each product may occur.” Based on this premise, costs are traced from activities to products on the basis of the products’ demands for the activities during the production process (Cooper, 1988a). However, a common misapprehension of ABC is that activities cause resource costs to be incurred by the organisation (Hayde, 1990a and 1990b). Piper and Walley (1990) challenged ABC, as they believed that it is not the activities that generate cost, rather it is the decisions behind the activities which drive cost. Nevertheless, Cooper (1990c, pp58, 59) argues that:

“While decisions clearly precede activities, the number of decisions that can be made in a practical setting is so large that it is not possible to report decision-relevant costs economically for even a few of the potential decisions managers face Recognising this reality, the designers of ABC ... have wisely chosen a more realistic objective, namely to help managers to know where best to focus their attention.”

Furthermore,

“there is no flaw in the logic of ABC. It is based on two premises: first, ABC is a model of resource consumption, not spending and, second, ABC systems are designed to focus managerial attention not provide decision relevant costs” (Cooper 1990c, pp58, 59)

Therefore, as ABC is a model of resource consumption, activities cannot cause cost, as the activities are consuming the resources that have already been provided. It is the burden of management to determine the decisions that were responsible for making those resources available, and thus incurring the corresponding costs (Cooper, 1990c).

2. *Costs are Traceable to Cost Objects*

The idea that all costs are traced to cost objects embodies two assumptions, namely, that costs can be traced to the cost objects, and all costs of the firm are the result of providing resources to produce the firm's goods and services (Noreen, 1991; Dugdale, 1990b; Cooper and Kaplan, 1988b). The first assumption implies that resource and activity drivers can be identified for all resource and activity consumption (Maguire and Spicer, 1993). The second assumption has further implications.

Cooper and Kaplan (1988b, p96) stated:

“The theory behind our method is simple. Virtually all of a company's activities exist to support the production and delivery of today's goods and services. They should therefore all be considered product costs.”

This explains why all costs are included in the ABC model. However, it must be pointed out that when product cost includes all costs, it is assuming that all resources are variable over the medium- to long-term (Dugdale, 1990b). This is a form of full absorption costing, the validity of which is questioned by Hirsch and Nibbelin (1992). To justify the use of full absorption costing, it is necessary to examine the uses of ABC data.

The primary use of ABC data is in making strategic decisions concerning products (Sharman, 1991; Turney, 1990b). These include make-or-buy decisions, pricing decisions, product introduction or deletion decisions, product design or change decisions, and even process change decisions (Christensen and Sharp, 1993; Sharman, 1991; Turney, 1990b). As these decisions create long-

term commitments to the customer, managers require that the costs considered are also of a long-term perspective (Cooper and Kaplan, 1988a). When costing over the long-term, it is anticipated that management will have the ability to alter all resource constraints, thus rendering all costs variable (Christensen and Sharp, 1993). Therefore, for the purposes of strategic decisions, the ABC style of absorption costing is valid. However, for decisions that require more detailed information, such as a one-off decision to provide a special order, ABC can also provide the necessary data in a useful form.

ABC can not only supply the traditional short-term variable costs, but it can also provide cost information that varies in proportion to batches produced (Cooper, 1990c). ABC can provide expense data on five levels; the unit, batch, product, process and plant levels (Cooper, 1990c; Beaujon and Singhal, 1990).

Unit level costs are those costs that vary in direct proportion to the number of units produced, while batch level costs are those costs that vary in proportion to the number of batches produced, for example, set-up costs (Cooper, 1990c). Product level costs are those expenses incurred to develop or permit the production of individual product lines (Cooper, 1990c). Costs incurred to support the individual processes, such as the maintenance cost of an oven used in a baking process, are process level costs (Beaujon and Singhal, 1990). Plant level costs are those expenses incurred to maintain the general facilities of the plant, for example, security and general administration (Beaujon and Singhal, 1990).

The provision of five levels of cost information has a variety of benefits, such as improved insights into managing the activities (Cooper, 1990c). It also implies that ABC decision-making data is not restricted to full absorption costs (Cooper, 1990c). Therefore, the question of validity relating to ABC and absorption costing is moot, as ABC is not solely concerned with full absorption costing.

3. *Cost Pools and Drivers*

Another assumption of ABC is that the costs in each pool are strictly proportional to the activity or resource driver applicable to that cost pool (Noreen, 1991; Roth and Borthick, 1991). In other words, there is a perfectly correlated linear relationship between the driver and the cost pool. If this assumption is violated¹⁵ then the product costs will be distorted (Cooper, 1988a; Keys, 1994).

It is important to note that the distortion incurred will be dependent upon the degree of accuracy the installers of an ABC system are willing to tolerate (Beaujon and Singhal, 1990). While it may be theoretically possible to determine all cost pool drivers, in practice, time and measurement costs will limit the degree of accuracy achieved (Cooper, 1989a).

4. *The Production Process can be Separated Into Activities*

It is also assumed that the production processes of goods and services are separable into identifiable tasks (Noreen, 1991; Cooper, 1988b). If this requirement cannot be met, then the situation is not amenable to implementing an ABC system.

III. Conclusion

ABC is a two stage cost allocation process, whereby overhead costs are allocated to activity centres using resource drivers, and these cost pools are then distributed to the cost objects using activity drivers. It is assumed that activities are the consumers of resources and the drivers must reflect this consumption. Furthermore, it is assumed that all costs can be traced to cost objects and there is a perfectly linear relationship between the driver and the cost pool.

¹⁵ Some costs may have multiple cost drivers.

It is also assumed that the production process of the good/service is separable, and this is necessary for the successful implementation of ABC. However, as ABC can be time consuming and expensive to implement (Bailey, 1991), organisations must first determine whether they should change their costing systems to ABC.

Chapter 4: Why Change to Activity-Based Costing?

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I. Introduction

Once it has been determined that the costing system should be changed, an appropriate replacement must be found and ABC may be considered as an option. ABC proponents have claimed that it provides greater product cost accuracy (Merchants and Shields, 1993), however organisations may find this increased accuracy unnecessary or that ABC is not an appropriate costing system for them (Merchants and Shields, 1993; Cooper, 1988b). Therefore, it must be determined whether ABC should be installed, which can be done by examining the reasons and situation surrounding the decision to change the cost system (Cooper, 1988b).

This chapter documents the reasons for installing an ABC costing system and then discusses the limitations of ABC. Finally, the benefits of ABC are examined.

II. Why Change the Costing System to ABC?

A. Appropriate Reasons for Installing ABC

A firm should have a reason for installing ABC (Shanahan, 1994). One prominent reason for installing ABC is that firms require increased product cost accuracy (MacErlean, 1993; MacArther, 1993; Cooper, 1992; Nicholls, 1992; Smith and Leksan, 1991). Firms found it necessary to determine the 'true' cost of a product (Nicholls, 1992). As one manager stated:

“[i]t used to be a bit like the election of a new Pope in the Vatican. There would be a puff of smoke and the finance people would have agreed on a new product cost” (MacErlean, 1993, p40).

If the existing cost system was designed when measurement costs were high, competition was weak and product diversities were low, then, if any of those circumstances have altered, greater product cost accuracy may be necessary for corporate survival (Cooper, 1992; Sharman, 1991; Sephton and Ward, 1990; Cooper, 1988b). This was demonstrated by Digital Audio Disc, as they found that ABC was more suitable to the current market conditions than their previous cost system, which had been designed for different production and market conditions (Clemens, 1991).

Additionally, at Bertch Cabinet Mfg., Inc. (Bertch) it was found that ABC was an improvement on the old costing system where competitive pressures had increased, complexity had risen and there had been a rapid growth in product lines (MacArther, 1993).

However, a significant increase in product cost accuracy may not be gained where a product's volume-related inputs vary in direct proportion to the quantity of non-volume-related inputs (Cooper, 1988a). If the relationship is of this nature, a single volume-related allocation base is all that is necessary, as ABC would give no added benefit with regard to product costing (Sephton and Ward, 1990; Cooper, 1988a;).

When information on activity costs and the sources of costs are required to help control activity operations, ABC is also an appropriate choice (Cotton, 1994; Drumheller, 1993; Northcott et al, 1991). Tycos Instruments found that ABC was appropriate where overheads were 50% of total costs, as they believed that more could be learnt from analysing activities and how people spent their time, than the previous cost system (Drumheller, 1993).

Furthermore, ABC is appropriate when asking questions regarding why managers are incurring overhead, where labour costs are falling and overhead costs are a large proportion of total costs (Drumheller, 1993; Schiff, 1993; Nicholls, 1992; Raffish, 1991; Cotton, 1991; Smith and Leksan, 1991; Sephton and Ward, 1990; Lee, 1990).

Further reasons for implementing ABC are:

1. that improvements in production processes are not being financially recognised (Nicholls, 1992),
2. for make versus buy decisions (Nicholls, 1992), and
3. that the source of an erosion in profits cannot be identified (Montgomery, 1992).

Interestingly, Shanahan (1994) found in the Australian Postal Corporation one person identified the reason for ABC being implemented as:

“the manager of product and service costing was given a trip around the world with the consultants to investigate it (ABC) and decided to go with it” (p3).

Four others believed that ABC was chosen because of outside consultants being brought in (Shanahan, 1994). Shanahan (1994) does not endorse this, recommending instead that overheads should be critically evaluated to determine whether volume-unrelated activities are significant enough to justify implementing ABC.

A condition of installing ABC is that the production processes must be able to be separated into identifiable tasks (Noreen, 1991; Cooper, 1988b).¹⁶ When determining whether ABC is an appropriate costing system for them, firms should also consider ABC benefits and limitations.

B. Limitations of ABC

A number of researchers¹⁷ have identified the following problems:

- the behavioural consequences of implementing ABC (Nicholls, 1992; Innes and Mitchell, 1990);
- the lack of knowledge, training and direction on how to implement ABC (Nicholls, 1992);
- the reluctance to change, departmental resistance and lack of understanding of ABC that hinder management's acceptance and use of the system (Hardy and Hubbard, 1992; Nicholls, 1992; Bailey, 1991; Innes and Mitchell, 1990);

¹⁶ Service industries, as well as manufacturing firms, can use ABC, as the production process of a service can be separated into distinct activities necessary to provide the service to customers (Rotch, 1990).

¹⁷ See Bailey, 1991; Hardy and Hubbard, 1992; Innes and Mitchell, 1990; Nicholls, 1992 and Roth and Borthick, 1991.

- the gathering of data also appears to present difficulties, as it may not be available, may lack adequate detail or the resources required to gain the data may be lacking (Nicholls, 1992; Bailey, 1991);
- installing ABC puts undue pressure on managerial time (Bailey, 1991);
- the information used is historical and internal, which is similar to traditional systems in this respect, so care must be taken when making strategic decisions to include external factors (Innes and Mitchell, 1990);
- a causal relationship between an activity and a cost object may not always be determinable (Hardy and Hubbard, 1992);
- there will be distorted costs if the costs in a cost pool are driven by two or more not-highly-related drivers, and not all these drivers are used to allocate the cost pool (Roth and Borthick, 1991). The likelihood, in a practical situation, of costs and cost drivers being highly correlated is slim (Innes and Mitchell, 1990);
- if costs in a cost pool are not strictly proportional to the activity level, costs will be distorted (Roth and Borthick, 1991). The likelihood, in a practical situation, of costs being proportional to the activity level is small, due to plant-level and joint costs (Innes and Mitchell, 1990);
- it is unlikely that arbitrary allocations can be eliminated, as facility or plant sustaining costs cannot be traced to activities (Cooper, 1990b).

Despite the above problems associated with ABC, the cost system is used by a number of firms who wish to gain the benefits that it offers (Innes and Mitchell, 1990).

C. Benefits of ABC

There are six major benefits to be derived from ABC.

1. *Greater product costing accuracy*¹⁸

With greater product cost accuracy, firms have been able to improve their decision making and reduce the risk of poor decisions (Cooper, 1990b). Some specific examples are:

- improved make or buy decisions (Russell and Hitch, 1993; Bailey, 1991);
- improved product pricing strategy (Barnes, 1992; Nicholls, 1992; Bailey, 1991);
- improved bidding for contracts (Barnes, 1992);
- improved investment decisions (Bailey, 1991); and
- improved product mix decisions (Nicholls, 1992; Haedicke and Feil, 1991).

Not only are decisions improved with increased product cost accuracy, but profitability analysis is also enhanced (Barnes, 1992; Nicholls, 1992; Hayde, 1990a). There is a greater understanding of customer, product family and market segment profitability (Nicholls, 1992). Furthermore, when dealing with customers that require 'open book' costing, there is increased justification for the overhead charges assigned to that customer (Nicholls, 1992).

Increasing product cost accuracy also quantifies what people in production already know, or suspect, about the 'true' cost of various products (Bhimani and Pigott, 1992; Cooper, 1990b). This has aided in improving communication.

¹⁸ See Bailey, 1991; Bhimani and Pigott, 1992; Clark and Baxter, 1992; Dale, 1991b; Hayde, 1990a; Innes and Mitchell, 1990; Nicholls, 1992.

2. *Improved communication*

As the cost information confirms department or production managers' knowledge, the credibility and perceived usefulness of costing information is enhanced (Innes and Mitchell, 1990). Management's comprehension of the cost data is also improved, as it reflects the business processes (Barnes, 1992; Innes and Mitchell, 1990). This has contributed towards improving communication between accounting and manufacturing functions (Bailey, 1991; Borden, 1990).

The process of implementing the ABC system has also encouraged greater interaction between financial and operational departments. Interaction is improved as it is necessary for production staff to have greater involvement in determining the activities and drivers necessary to install the ABC system than in traditional costing systems (Bailey, 1991). As production staff are more involved with the costing process, this enhances the feeling of ownership towards the cost system amongst these employees (Bailey, 1991). Furthermore, involving staff in the costing process of ABC has helped to increase the cost awareness of department managers (Bailey, 1991).

3. *Improved Cost Awareness*

An improved cost awareness has a number of associated benefits. One benefit is the impact on product design, as an increased cost awareness from an ABC system highlights the cost of design (Barnes, 1992; Haedicke and Feil, 1991; Innes and Mitchell, 1990). The cost system recognises the cost impact of decisions on design trade-offs, with cost penalties for non-standard, unique solutions (Barnes, 1992).

4. *Ease of Determining Relevant Costs*

Synonymous with increased cost awareness, is the decision makers' demands for relevant cost information pertaining to a particular decision (Bhimani and Pigott, 1992). The ABC system design allows for relevant cost information to be easily obtained, thus reducing the need for special studies (Cooper, 1990b).

Furthermore, when determining a decision's impact on the firm, ABC information aids in producing a more detailed view of the impact than traditional cost data (Bhimani and Pigott, 1992; Innes and Mitchell, 1990).

The ease of attaining relevant cost information is also beneficial in the budgeting process, as it helps to improve budget estimates (Haedicke and Feil, 1991; Hayde, 1990b). As budget estimates have improved, managers now have greater budget accountability (Bhimani and Pigott, 1992; Bailey, 1991), which has given them the incentive to improve cost management (Bailey, 1991).

5. *Improved Cost Management*

Improved cost management is possible as ABC enables insights into the relationship between costs, activities and products (Clark and Baxter, 1992; Bailey, 1991; Cooper, 1990b). In other words, ABC improves the visibility, and highlights the control opportunities of overhead costs (Innes and Mitchell, 1990).

Some benefits derived from improving cost management are:

- reduction in costs (Bailey, 1991; Borden, 1990; Nicholls, 1992);
- improved profitability (Bailey, 1991);
- enhanced business opportunities (Bailey, 1991); and
- improved managerial control (Bailey, 1991; Innes and Mitchell, 1990).

Improved cost management achieves these benefits because the cost system reflects the production processes. The cost information enhances the usual process control information, enabling trends, and non-value-adding and high-cost activities, to be identified (Barnes, 1992; Nicholls, 1992; Bhimani and Pigott, 1992; Hayde, 1990b). Furthermore, the cost data can be used to compare the efficiency of different plant facilities (Haedicke and Feil, 1991).

6. *Opportunity to Implement Further Management Techniques*

A further benefit of ABC is that it provides an opportunity to introduce further management techniques, for example, activity-based management¹⁹ and total quality control.²⁰ ABC is seen as a component of a number of initiatives aimed at improving organisations' world-class status (Campi, 1992).

As Campi (1992, p6) states:

“ABC is to advanced cost management what a windshield is to an automobile. It allows us to see our surroundings and/or direction, but it's not the vehicle itself.”

As ABC allows the situation before management to be clarified, it can help identify opportunities where the introduction of advanced management techniques would be beneficial to the organisation.

The potential benefits of implementing ABC have influenced a number of firms to change from their existing cost systems to ABC (Lamond, 1992).

¹⁹ Maguire and Spicer (1993, slide 1) define activity-based management (ABM) as:

“the process of identifying and analysing the activities performed in an organisation in order to gain new insights about business dynamics and assist in decision making processes.”

ABM has two goals; one, improving the value received by customers, and two, improving profits by providing this value (Turney, 1992). To achieve these goals, ABM “focuses on activities within a process, decision-making and planning relative to those processes, and the need for continuous improvement of all organisational activity” (Clark and Baxter, 1992, p55).

ABM takes an operational view of the firm; it views a business through the process of providing the good or service to the final consumer (Russell and Hitch, 1993). The business process is analysed in terms of the activities performed by a firm to produce the output (Clark and Baxter, 1992). The activities are analysed in terms of whether each activity adds value or customer satisfaction to the final good or service (Sharman, 1993b). Once all value-adding and non-value-adding activities are identified, the aim of ABM requires that the non-value-adding activities are eliminated, or minimised if they cannot be removed, and that the value-adding activities are operated at maximum efficiency (Ostrenga, 1990).

To achieve the aim of ABM requires the re-education of the entire organisation (Campi, 1992). All employees, management and line staff alike, must change their attitude from accepting constraints placed upon them, to continuously striving to move those constraints (Hiromoto, 1991).

To improve business processes and move constraints in accordance with the aims of ABM, opportunities for improvement are identified, the factors that cause waste are sought, and the things that an activity should be doing well are measured, and this is a continuous process throughout the life of the organisation (Turney, 1992). Once this has been accomplished, goals and actions are established and executed (Russell and Hitch, 1993).

²⁰ Fowler (1994, p2) defines total quality control as:

“a philosophical change in the management of an organisation that emphasises the need to focus on customer satisfaction and the quality of products. It involves all of the employees of the organisation, both line and staff positions, and entails continuously improving the organisation's performance in pursuit of quality. It aims to produce the right things, right first time.”

III. Conclusion

A number of reasons and conditions for installing ABC have been discussed. The processes of production must be separable, increased product cost accuracy desired and product and/or process diversity altered.

When determining whether to install ABC, firms must also consider the benefits and limitations of implementing ABC. ABC has been shown to improve communication and cost management, and to increase cost awareness within organisations. However, drawbacks have included resistance to implementing cost system change, data collection difficulties and a lack of understanding of ABC.

All these factors; the reasons, conditions, benefits and limitations, must be carefully considered before deciding to implement ABC. Once it is determined that ABC should be installed, the process of implementing this system occurs.

Chapter 5: Implementing Activity-Based Costing

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I. Introduction

Once ABC has been identified as the appropriate costing system for the organisation; it is necessary to determine how it will be implemented. Although ABC is viewed “as ‘simple’ by many of the authorities on the subject,” others have found it difficult to implement (Nicholls, 1992, p22). Additionally, ABC system implementation has not been widely discussed in the literature, leaving installers with limited guidelines on how to successfully install ABC (Cooper, 1990a).

However, Cooper (1990a) has identified two distinct phases in the implementation process; the decisions that must be made prior to installing ABC, and an installation agenda. This chapter first examines these decisions and, secondly, reviews this general implementation plan. Finally, other implementation issues are discussed.

II. Decisions to be Made Prior to Implementation

A. Integrated or Stand-Alone?

One of the first decisions to be made concerns whether an ABC system should be integrated with the existing accounting system, or if it should be implemented as a stand-alone system (Cooper, 1990a). Cooper (1990a, 1991b) found this decision was influenced by:

- 1) the approval process necessary to alter the existing system to incorporate ABC data;
- 2) the cost of developing software that would integrate with existing software;
- 3) the ability to manage the repercussions when the existing and the stand-alone systems’ results were dissimilar;²¹
- 4) the necessary approval from external auditors when integrating;

²¹ The repercussions are embedded in deciding which action suggested by the results is preferable, and managing the internal conflict and debate which arises in such situations.

- 5) the cost of re-entering and storing redundant data when it is duplicated in both systems;
- 6) the cost of maintaining the stand-alone database; and
- 7) the added time necessary to integrate the system.

Kaplan (1990b) identified the benefits of a stand-alone system as:

- 1) a lower cost for development and installation;
- 2) having a greater flexibility;
- 3) being easier to modify; and
- 4) greater “opportunities for organizational learning and acceptance with the new approaches” (p26).

These benefits led Kaplan (1990b) to encourage cost system implementers to develop and refine a stand-alone or experimental cost system before considering integration with other accounting systems. In Superfaucet, a firm manufacturing plumbing parts, this method was successful, as a fully integrated system was implemented after a prototype demonstrated the benefits attainable with an ABC system (O’Guin, 1990a). In contrast, at Lederle Laboratories Manufacturing it was found that a stand-alone system adequately satisfied managements’ requirements, as it was used as an analytical tool in the business planning process (Schiff, 1993). Therefore, in determining whether an ABC system should be integrated or stand-alone, the purpose(s) and expectation(s) of the system should also be considered (Greene and Flentov, 1990). Furthermore, both Cotton (1994) and Bailey (1991) found a trend towards fully integrated ABC systems.

Once the choice between an integrated or stand-alone ABC system has been made, it is necessary to determine whether the ABC system be custom built or bought ‘off-the-shelf’ (Cotton, 1994). Cotton (1994) found the majority of survey respondents “designed their own ABC software, almost exclusively spreadsheet based” (p9). Drumheller (1993) found in Tycos Instruments that management favoured building their

own ABC system, as they would have more confidence in data provided from a custom built cost system compared to an 'off-the-shelf' system.

Following the decision to develop a custom built ABC system, it is necessary to determine whether the implementation of ABC should be firm-wide or on a pilot site (Menzano, 1991). A pilot program is advantageous as:

- 1) it helps "managers determine the worth of ABC with a minimum investment of time and other resources" (MacArther, 1993, p46);
- 2) it quickly produces results (MacArther, 1993);
- 3) it demonstrates the benefits which the whole firm could attain (Kleinsorge and Tanner, 1991; Maier, 1988);
- 4) early results "generate early momentum in support of ABC and encourage further adoption of ABC by other divisions" (MacArther, 1993, p46);
- 5) it presents an early opportunity to refine the design and data collection methods (Raffish, 1991); and
- 6) it creates a model for other sites to follow (Helmi and Tanju, 1991).

The benefits offered by pilot studies have resulted in the recommendation that, when implementing ABC, a pilot project should be conducted (Sharman, 1993a, 1991; Flentov and Shuman, 1991; Helmi and Tanju, 1991). This approach has been successful for a number of firms, including Lederle Laboratories Manufacturing, SuperFaucet, and Tycos Instruments (Drumheller, 1993; Schiff, 1993; O'Guin, 1990a).

It is also necessary to determine whether the ABC system will be an in-house project, or if consultants will be bought in (Cotton, 1994). Cotton (1994) found that survey respondents favoured designing their own systems rather than employing consultants. However, Nicholls (1992) found that 58% of survey respondents used, or intended to use, outside expertise as "they were unclear of the best way" to implement an ABC system (p22). This lack of direction should also be considered when determining

whether there should be formal design approval before implementing ABC (Cooper, 1990a).

B. Should There be Formal Design Approval Before Implementation?

In determining whether there should be formal design approval before implementing the ABC system, the designers knowledge of:

- 1) ABC design;
- 2) the organisation; and
- 3) the organisation's activities;

must be considered (Cooper, 1990a). Cooper (1990a) found, where there was incomplete knowledge about designing an ABC system and the firm's activities, it was preferable to forego formal design approval before implementation. It was thought:

“a formal design document up front would prematurely restrict the ability of the design team to change the system design as they gained experience” (Cooper, 1990a, p34).

If members of the design team know the business activities and understand how to design ABC systems, then formal design approval may be appropriate. However, the choice of who to include in the design team is directed, in part, by the decision as to who will take “ownership”²² of the ABC system (Cooper, 1990a).

C. Who Will Own the System?

When determining who should take “ownership” of the system management must consider:

- 1) the intended purpose of the system (Scapens and Roberts, 1993; Cooper, 1991b, 1990a);

²² Ownership refers to those employees who will identify themselves with the system and be committed to it (Cooper, 1990a).

- 2) who will use the ABC system (Harry, 1993);
- 3) who it is going to effect (Carlson and Young, 1993); and
- 4) the expectations of the system (Scapens and Roberts, 1993; Greene and Flentov, 1990).

Cooper (1990a) found that when the ABC system was intended to be regarded as a management system, rather than a financial accounting system, it was necessary for all functional groups within an organisation to take “ownership” of the system.

To facilitate this, Cooper (1990a) believes that a multi-disciplinary implementation team²³, comprised of production and engineering staff, was required for installing the ABC system.²⁴ The use of multi-disciplinary teams is also recommended where financial staff do not have sufficient knowledge of business processes, or access to non-financial data (Sharman, 1991).

“Engineers, logistics and other operations people provide essential process insight as well as access to all-important non-financial data” (Sharman, 1991, p23).

However, to implement desirable ABC systems, these teams must first be informed on how precise²⁵ the systems they develop should be (Cooper, 1990a).

D. How Precise Should the System Be?

When determining how precise the ABC system should be, management must consider:

- 1) the availability of data (Cooper, 1991b, 1990a; O’Guin, 1990a);

²³ The selection criteria also required candidates to be intelligent, flexible problem-solvers and knowledgeable about the plant (Cooper, 1990a).

²⁴ Furthermore, Innes and Mitchell (1991) found that 64% of survey respondents used multi-disciplinary teams to implement ABC.

²⁵ Precision refers to the level of desired product cost accuracy, such as costing to the nearest dollar or \$5 (Cooper, 1990a).

- 2) the type of decisions the system will be used for and the information that would provide the most useful data for these decisions (Cooper, 1991b, 1990a; Brunton, 1988);
- 3) the costs of obtaining data, including the time, expense and resistance by employees to providing additional detailed information (Cooper, 1991b, 1990a);
- 4) product diversity (Cooper, 1990d; Cooper and Kaplan, 1988a); and
- 5) relative costs of the firm (Cooper, 1990d; Cooper and Kaplan, 1988a).

Additionally, when considering the accuracy of an ABC system Turney (1992, p22) found “that 20% of the activities cause 80% of the cost - and those activities are the ones worth analyzing.” The ABC system accuracy level may also be dependent upon the system’s desired complexity level, as some accuracy may be lost with the decision to adopt a simpler ABC system (Cooper, 1989b).

E. Initial Design Complex or Simple?

When management fail to determine whether the ABC system should be simple or complex, difficulties can arise (Shanahan, 1994). For example, at Australia Postal Corporation, when this decision was not addressed, the resulting cost system was too complex for the firm’s available technology (Shanahan, 1994).

The literature suggests that simpler ABC systems are preferable (Cotton, 1994). However, research indicates a variety of both complex and simple ABC systems have been successfully implemented (Cotton, 1994; Innes and Mitchell, 1991; Bailey, 1991; Innes and Mitchell, 1990). Innes and Mitchell (1990) suggested that ABC systems installed in the United States appeared to be more complex than those systems installed in the United Kingdom. Furthermore, Innes and Mitchell (1991) found in a United Kingdom survey that ABC systems were not “elaborate in scale” (p28). However, in a New Zealand survey, it appeared that simple and complex systems have been implemented (Cotton, 1994).

For management to determine the optimum level of complexity for an ABC system, they should consider the:

- 1) available technology (Shanahan, 1994);
- 2) degree of product diversity (Cooper, 1990d);
- 3) relative costs of resources (Cooper and Kaplan, 1988a);
- 4) risk of overwhelming users with details (Cooper, 1991b, 1990a);
- 5) risk of getting “bogged down in detail” when implementing the ABC system (MacErlean, 1993, p41);
- 6) required accuracy level (Cooper, 1990d);
- 7) the intended purpose of the ABC system (Cooper, 1991b, 1990a);
- 8) costs of measuring and gathering additional data (O’Guin, 1990a);
- 9) costs of implementing and maintaining a complex system (Cooper, 1991b, 1990a); and
- 10) degree of product volume diversity (Cooper, 1989b).

Once management specifies an appropriate level of complexity, it is necessary to decide which costs should be used in determining product costs: historical or future²⁶ cost data (Cooper, 1991b, 1990a).

F. Historical or Future Costs?

When choosing between future or historical costs for use in the ABC system, management should consider:

- 1) the availability of cost data (Cooper, 1990a);
- 2) the credibility and reliability of cost data (Cooper, 1991b, 1990a);

²⁶ Future costs are those costs estimated for the following period (Cooper, 1990a).

- 3) the purpose and uses of the system (Cooper, 1991b, 1990a; Horngren and Sundem, 1987);
- 4) the ability of cost data to “capture all the economics of production” (Cooper, 1990a, p35);
- 5) whether the costs reflect the actual production processes used by the organisation (Cooper, 1991b, 1990a);
- 6) the behavioural effects of using future versus historical costs (Cooper, 1991b, 1990a);
- 7) whether production processes and product mix is changing or constant (Cooper, 1990a); and
- 8) the volatility of the external environment (Hilton, 1991; Kaplan and Atkinson, 1989; Smith et al, 1989).

Having determined whether the ABC system will use historical or future costs, installation of the system can begin (Cooper, 1990a).

III. A General Implementation Plan

A. Seminar on ABC

The first step in implementing an ABC system is to hold a seminar on ABC for all management (Cooper, 1991b, 1990a). This education phase is critical to successful implementation, as it introduces management to ABC concepts and benefits, as well as communicating the reasons for, and uses of, an ABC system in the organisation (Glad, 1993; Kleinsorge and Tanner, 1991; Eiler and Campi, 1990; Greene and Flentov, 1990). This aids in increasing management acceptance of the ABC system (Glad, 1993).

Shanahan (1994) found that when this step was omitted from an implementation plan at Australia Postal Corporation, management did not understand why ABC was being implemented. This impaired the ability of implementers to install the system, as there was no commitment to the project. Furthermore, at Pennsylvania Blue Shield, management were educated about ABC before its implementation, one of the critical

success factors of the installation plan (Norkiewicz, 1994). This education process also helped to identify managements' requirements and expectations of the ABC system for designers to satisfy (Norkiewicz, 1994). The demands are examined for any implications on ABC system design in the design seminar (Cooper, 1990a).

B. Design Seminar

The design seminar should be aimed at those involved with designing and implementing the ABC system (Cooper, 1991b, 1990a). The purpose of the seminar is to ensure that participants understand ABC concepts and managements' requirements of the system (Cooper, 1991b, 1990a). It is also essential that both designers and implementers are given training on identifying activity centers and potential cost drivers, as well as data collection through interviews and documents (Norkiewicz, 1994; Cooper, 1991b, 1990a).

The design seminar can also help create a strong team identity (Cooper, 1991b, 1990a). Cooper (1990a, p37) found this team identity "proved to be a major factor in the successful implementation of the new cost system." In Australia Postal Corporation, where designers were not given a design seminar, a team spirit had not been created (Shanahan, 1994).

Once the design preparation is completed, designers and implementers must start collecting data and designing the ABC system (Cooper, 1991b, 1990a).

C. Design and Data Gathering

In the design phase, Cooper and Kaplan (1988a) recommend that designers focus on expensive resources and those resources that vary significantly by product and product type. Cooper (1990a) and Romano (1990) have identified five steps in designing an ABC system:

- 1) identify and aggregate actions into activities;

- 2) determine and report the cost of those activities (work out resources and resource drivers, then determine the quantity of each resource driver that each activity consumes);
- 3) identify what drives activities (the activity drivers);
- 4) determine the quantity of each activity driver associated with every product; and
- 5) compute the activity-based product costs.

Gathering the information necessary to accomplish this task may require interviewing²⁷ organisational employees (Cooper, 1990a; Romano, 1990). Cotton (1994) found the interview technique to be prevalent over examining time sheets and work studies. Other sources of data were also identified as: computer records, system audits, educated estimates, statistics kept in computer systems, annual productivity reviews, and data from sampling tests (Cotton, 1994).

D. Progress Meetings

Throughout the process of collecting data for, and designing the ABC system, it is essential that progress meetings be held to ensure that the ABC system meet users' and managements' requirements (Schiff, 1993; Harry, 1993; Brausch, 1992; Cooper, 1991b, 1990a). Progress meetings allow "management to develop some "ownership" of the system's design" (Cooper, 1990a, p40).

In these meetings, problems and possible solutions should be discussed, as well as errors and deadlines (Schiff, 1993; Cooper, 1990a). Furthermore, the future of the ABC system can be evaluated, that is whether it is viable to continue to implement it or not (O'Guin, 1990a).

²⁷ Interviews should be conducted by first explaining why the information is wanted and then asking for the information and, finally, interviewees should be given feedback to determine if they agree or disagree with the results of the interview (O'Guin, 1990a).

Once it can be shown in progress meetings that managements' requirements are satisfied by the design of the ABC system and it is viable to continue implementing the system, an executive seminar on the organisation's ABC system should be held (Norkiewicz, 1994).

E. Executive Seminar

The objectives of the executive seminar are to:

- 1) describe the ABC design to top management (Cooper, 1991b, 1990a);
- 2) prepare them for the results of the project (Cooper, 1991b, 1990a); and
- 3) suggest types of actions they should consider once results are available (Cooper, 1991b, 1990a).

Furthermore, the executive seminar helps build top management commitment to the ABC system, and gives management the chance to discuss how the results of the ABC system should be distributed (Cooper, 1991b, 1990a).

Once the activity-based products costs are obtained, those who are to receive the activity-based product costs and designers should hold a results meeting (Cooper, 1991b, 1990a).

F. Results Meeting

The purpose of the results meeting is to discuss the overall impact of the changes in product costs, based on a comparison of the 'old' costing system versus the ABC system (Cooper, 1991b, 1990a; Eiler and Campi, 1990). Those products that require further attention can then be identified to investigate the reasons for the differences in product costs (Cooper, 1991b, 1990a; Eiler and Campi, 1990).

Once these 'high priority' products have been identified, the reasons for the differences should be examined in interpretation meetings (Cooper, 1991b, 1990a).

G. Interpretation Meetings

Interpretation meetings are used to report the results from in-depth analyses of ‘high priority’ products to determine reasons for the ABC product cost (Cooper, 1991b, 1990a).²⁸ These meetings are also used to focus on how to interpret the activity-based product costs and the actions that should be taken based on this interpretation (Norkiewicz, 1994; Cooper and Kaplan, 1991; Cooper, 1991b, 1990a). This process is illustrated by a firm manufacturing automobile parts that had foregone sales because the customer had demanded a price reduction, and the old cost system had shown that those reduced prices would not be profitable (Troxel and Weber, 1990). However, when ABC was implemented, it clearly indicated that those sales would have been profitable, and so management focused their efforts on recapturing the customer (Troxel and Weber, 1990).

To ensure actions identified from this process are carried out, it is essential that the compensation packages of employees be linked to ABC measures (Shanahan, 1994; Kleinsorge and Tanner, 1991).

“ABC must become integral to performance measurement. Failure to include ABC measures and to link them visibly to valued outcomes sends the message that ABC is unimportant and can be assigned to a low priority without consequences” (Kleinsorge and Tanner, 1991, p85).

However:

“[i]f a company uses data about misallocations of resources as a stick that is used to beat people, employees are unlikely to give their heartfelt commitment to creating and implementing improvements, or to producing accurate estimates of activity costs” (Carlson and Young, 1993, p56).

Therefore, employees should be rewarded for positive outcomes of actions taken as a consequence of using ABC information, but not punished for negative outcomes;

²⁸ In particular, costs are checked to see whether any major mistakes have been made in determining the various proportions of the activities consumed by the products under examination (Cooper, 1991b, 1990a).

otherwise employee commitment to ABC will be low (Shanahan, 1994; Carlson and Young, 1993; Kleinsorge and Tanner, 1991).

IV. General Implementation Issues

A. Commitment

For successful implementation of an ABC system it is essential that users of ABC information, as well as ‘owners’ of the system, are committed to ABC (Carlson and Young, 1993; Cooper, 1991b; 1990a).²⁹

Top management commitment to ABC is also critical to the successful implementation of an ABC system (Harry, 1993; Kleinsorge and Tanner, 1991; Eiler and Campi, 1990; Shields and Young, 1989). Employees must see that top management are committed to implementing ABC before they will accept changing to ABC (Kleinsorge and Tanner, 1991; Lammert and Ehram, 1987). Acceptance of ABC by employees is also influenced by the sponsor(s)³⁰ of the ABC system (Cotton, 1994).

B. Sponsorship

When changing the cost system to ABC, it is advisable to have a sponsor of this change (Shields and Young, 1989). However, although cost system change involves altering accounting systems, it is recommended that accounting and finance staff do not sponsor this alteration (Cotton, 1994; Kleinsorge and Tanner, 1991). The reason for this recommendation originates from the historical reputation of accountants as being “cold, aloof, nonsociable, submissive, shallow, weak, passive and lacking sensitivity” (DeCoster et al, 1971, p661):

“Unfortunately, cost accountants are not respected by manufacturing because many manufacturers see cost accountants as “bean counters”

²⁹ One method of increasing commitment to ABC is the use of multi-disciplinary implementation teams, as employees can identify themselves with their function’s or division’s representative, thus perceiving that their interests have been considered (Cooper, 1990a).

³⁰ A sponsor is a person who legitimizes the change to ABC, they have the power to authorise the change, they drive the change (Connor, 1988).

more in tune with pleasing corporate accounting staff and following their own agenda rather than dealing with the intricacies of manufacturing” (Brausch, 1992, p43).

Furthermore:

“[c]ost accounting’s unwillingness to keep pace with manufacturing changes has led to a deep distrust of cost accounting by manufacturing personnel” (Brausch, 1992, p43, 44).

Woods (1992, p53) also found cost accounting personnel to be distrusted, as “people considered cost accounting allocations to be tricks of ‘those bean counters’.” Therefore, if the sponsors of changing to ABC were accounting personnel this change could be viewed with distrust and suspicion by other employees, thus impeding acceptance of the ABC system (Cotton, 1994; Jefferies, 1993; Kleinsorge and Tanner, 1991; Lammert and Ehram, 1987). Therefore, as Cooper (1990a) stresses the importance of all functional groups within the organisation being committed to the ABC system for implementation to be successful, accounting sponsorship would increase the likelihood of implementation failure (Cotton, 1994).

Cotton (1994) hypothesised that survey respondents, who indicated that finance and accounting staff sponsored the development of an ABC system, may have faced difficulty in gaining acceptance of the system from other non-accounting personnel. However, when respondent replies were examined, this did not appear to be the case (Cotton, 1994). Cotton (1994, p10) found these results to be “somewhat surprising and a topic worthy of more in-depth research.” Additionally, this anomaly indicates that knowledge about the implementation of ABC is incomplete. Consequently, the implementation process is investigated in this thesis by conducting two case studies in companies that have implemented ABC systems, and, in doing so, the reasons for implementing an ABC system are also examined, as well as the behavioural issues associated with changing a cost system to ABC.

V. Conclusion

There are a number of decisions that management must make before an ABC system is implemented and Cooper (1990a) specifies these as:

- 1) Should the system be integrated with the existing accounting system, or should it be a stand-alone system?
- 2) Should there be formal design approval before implementation?
- 3) Who should take “ownership” of the ABC system?
- 4) How accurate should the system be?
- 5) Should the initial design be simple or complex? and
- 6) Should the system use historical or future costs?

Once these decisions have been made, there is an implementation agenda the should be followed. Comprised of:

- 1) an introductory seminar on ABC;
- 2) a design seminar
- 3) design and data collection;
- 4) progress meetings;
- 5) an executive seminar;
- 6) a results meeting; and
- 7) interpretation meetings (Cooper, 1990a).

Employee commitment is also necessary to successfully install ABC. Furthermore, it has been determined that when accounting personnel sponsor ABC, employees’ commitment to, and acceptance of, the system will be lowered, thus impeding implementation. However, Cotton (1994) found that implementation did not appear to be impeded when sponsored by accounting staff indicating that knowledge about the implementation of ABC is incomplete. This thesis examines this anomaly and the

implementation process of ABC. To aid this investigation, the literature surrounding individuals' reactions to change must be reviewed to determine what factors influence their acceptance of, and commitment to change.

Chapter 6: Individuals and Change

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I. Introduction

Change is prerequisite for corporate survival, yet it is exceedingly difficult to accomplish (Smith, 1993). Senior management can activate all the:

“...right strategic buttons at the top of the organization to initiate required changes, but at the bottom nothing happens” (Leathem, 1989, p39).

Often managers overlook the fact that successful implementation of change is dependent upon the responses of individuals implicated in the change (Williams, 1989). Management must ensure that individuals adapt to the change in the required manner, however, this can be exceptionally difficult to achieve (Dumaine, 1990, p131).

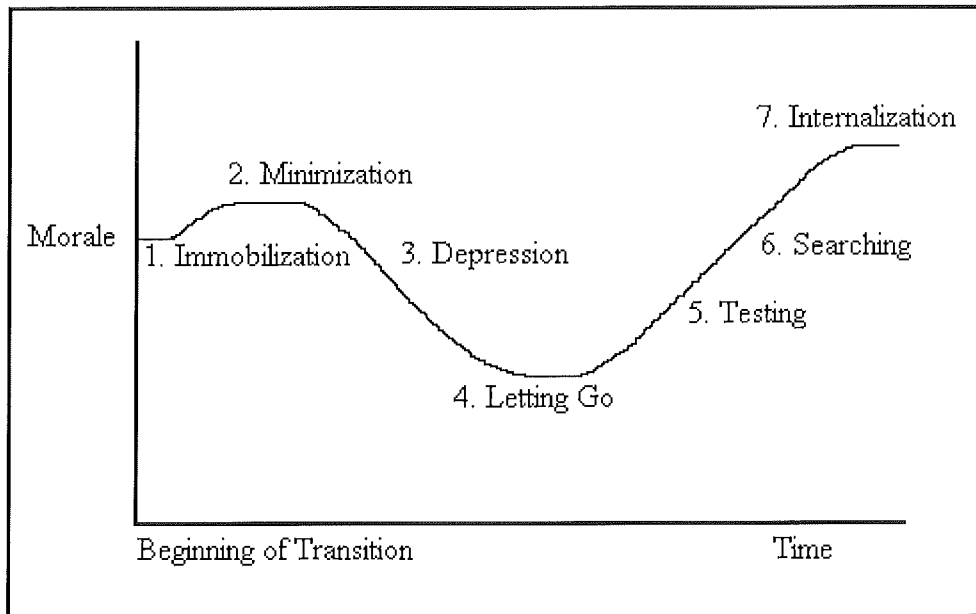
This chapter examines the responses of individuals affected by the implementation of change. It then reviews why people may resist change. Finally, the techniques available to minimise individuals’ resistance are discussed.

II. How do Individuals React to Change?

A commonly held view is that individuals will resist change (Strauss, 1992; Huszco, 1991; Joshi, 1991; Pryor, 1987). However, generally there are a number of changes that individuals readily adopt, such as pay rises or promotions (Joshi, 1991). The existence of these willingly accepted changes indicates that individuals do not automatically resist change, especially where they perceive the results are positive, such as a pay rise (Joshi, 1991). Indeed, research indicates that reaction to change “is a complex psychological event” composed of a number of phases (Elliott, 1990, p40). It is believed that individuals experience seven stages when adopting change³¹ (figure 5-1).

³¹ The process of adapting to change has also been examined by Lewin, who developed a commonly cited model of change; unfreezing, movement, and refreezing (Berger, 1992). For change to be successful, the affected individual must first decide to change (Levasseur, 1992).

“When this happens the current situation unfreezes or opens up. The effort to change or to move to a new state can then begin. Finally, for the change to last, it must become accepted practice. In effect the situation must be refrozen” (Levasseur, 1992, p115).

Figure 5-1 Self-Esteem Changes During Transitions (Cooper and Makin, 1984, p138).

The first stage is characterised by *immobilisation*, where individuals have “a sense of being overwhelmed; of being unable to make plans, ... a feeling of being frozen up” (Cooper and Makin, 1984, p137). Immobilisation is a function of individuals’ familiarity with, and expectation of, the change. For example, if the change is not novel³² and is expected³³, then the degree of immobilisation experienced by individuals will not be high (Cooper and Makin, 1984).

The individual then *minimises*, or even trivialises, the intended change (Cooper and Makin, 1984). This stage can also be referred to as the *denial* phase (Coleman et al, 1987).

Lewin’s first step of unfreezing the current situation can be likened to the first four steps of the transitional model, where the past situation is ‘let go’ or the need for change has been accepted. Lewin’s movement phase is similar to testing and searching for understanding of the change, as testing and searching the change moves it closer to being accepted. Refreezing is similar to internalising the change into everyday life, as refreezing and internalisation both require that the change becomes incorporated into routine practice.

³² That is, the individual is familiar with the concepts involved in the change (Cooper and Makin, 1984).

³³ The individual has been expecting the change to occur and the consequences of the change are likely to be positive, such as increased remuneration (Cooper and Makin, 1984).

“[M]any quietly nurture a false hope that we won’t need to address how to cope with the change taking place, and that things will soon “calm down and get back to normal” ” (Cartor, 1993, p68).

Once it becomes evident that change can no longer be denied, individuals may progress through a *depression* phase (Cooper and Makin, 1984). At this point, the realities of the change and the resulting stresses become apparent (Cooper and Makin, 1984). This realisation enables individuals to evaluate whether the change is favourable (Joshi, 1991):

“Changes that are considered favourable are not resisted and may even be sought after and welcomed, while changes considered unfavourable are likely to be resisted” (Joshi, 1991, p229).

To determine whether the change is favourable, individuals use an equity-implementation model, where the change is examined in terms of the inputs and outcomes, and the fairness of this exchange is evaluated (Joshi, 1991):

“To assess the change in equity, users are viewed as evaluating their net gain based upon changes in their inputs and outcomes and comparing their relative outcomes with that of other users/user groups and the employer” (Joshi, 1991, p238).

For change to be considered favourable, the net gain must be positive and as good as, or better than, the perceived net gains of others³⁴ (Joshi, 1991).

However, it is often contended that people *do not* rationally analyse all available information before implementing an appropriate action (Hayes, 1983; Morgan, 1978; Simon, 1978, 1955). An opposing view to the rationally analytical person is that individuals act in an intuitive manner, dependent upon the forces being imposed upon them (Hayes, 1983):

“Imagine that every person has a set of forces that influence him or her to change in a given situation. Imagine also a set of opposing forces that resist change. The net effect of these forces produces the person’s current state” (Levasseur, 1992, p116).

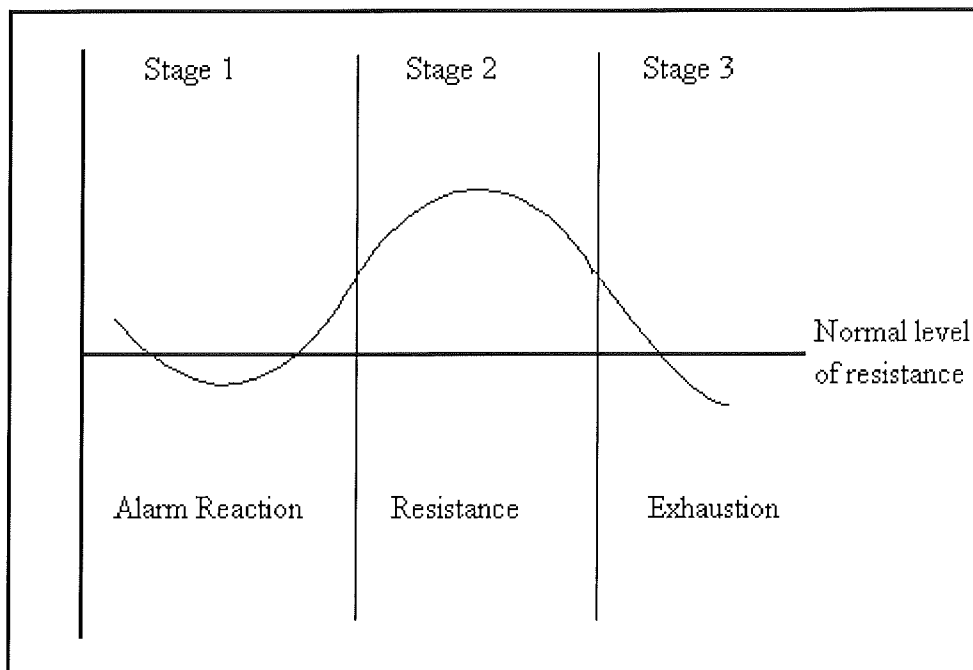
³⁴ This includes other individuals or groups affected by the change, as well as the employer (Joshi, 1991).

In a situation of change, one of the most important forces influencing the current state of individuals is the feeling of self-control (Rosenberg, 1993). Control is important, as people wish to believe that they are in command of their own destiny; that they have the ability to act as they see fit (Rosenberg, 1993). Change can threaten individuals' sense of self-control, as it "reinforces the feeling of being a pawn in someone else's game" (Rosenberg, 1993, p20).

"Depression is usually the consequence of feelings of powerlessness, of aspects of life out of one's control" (Cooper and Makin, 1984, p137).

To combat this threat, individuals actively and/or passively resist³⁵ the change taking place (Coleman et al, 1987). However, resistance will eventually start to diminish once continued exposure to the change exhausts the resistance efforts (figure 5-2).

Figure 5-2 Seyle's General Adaptation Syndrome (adapted from Gibson et al, 1991, p225).



³⁵ Passive resistance is where the individual simply refuses to comply with the change. Active resistance is where individuals deliberately act in such a way as to hinder the change being implemented. Examples of active resistance include industrial sabotage, disclosing incorrect information, and continually relegating tasks relating to the change to the lowest priority (Lindo, 1988).

If individuals' resistance to change does not begin to diminish, there are two possibilities:³⁶

- 1) individuals will eventually resign from the situation which requires them to change, or
- 2) the change effort itself will be aborted (Strauss, 1992; Lindo, 1988; Coleman et al, 1987; Gibson et al, 1991).

Once the resistance effort diminishes, individuals will begin *letting go* (Cooper and Makin, 1984); individuals release the past, or 'disidentification' occurs (Tichy, 1980). This is the psychological process that "requires employees to untangle their old loyalties and relationships with that which has ended" (Tichy, 1980, p306).

Individuals then start *testing* themselves in, or experimenting with, the new situation (Cooper and Makin, 1984). When dealing with the unfamiliar in the new situation, individuals experience stress and may respond to this by becoming irritable and angry (Williams, 1989; Cooper and Makin, 1984).

Once individuals are familiar with change, a *search* for the meaning of change occurs (Cooper and Makin, 1984). Understanding is sought for why change occurred, and the effect of the change is examined retrospectively to determine the difference between the past and the current situation (Cooper and Makin, 1984). This process has also been called "disenchantment", as individuals must first determine what was so appealing about the past that caused change to be resisted, then they must "sever themselves from the "enchantment" with the past" (Tichy, 1980, p306).

Finally, *internalisation* occurs, where the results of the change are incorporated into everyday life (Cooper and Makin, 1984). At this stage individuals have successfully adapted to the change physically³⁷, intellectually and emotionally³⁸ (Spiker, 1994).

³⁶ It must be remembered that this is the extreme resistance case, where there is no possibility that the individual will stop actively or passively resisting the change.

³⁷ Physically, the change is in place and being used by individuals (Spiker, 1994).

Until the change is internalised by individuals, there remains the possibility that the change will be unsuccessful (Levasseur, 1992). If, at any stage, individuals cannot progress to the next phase, or are unwilling to do so, then resistance to change can occur (Spiker, 1994).

The change models examined here are *general* models (Cooper and Makin, 1984). The degree to which each stage influences the behaviour exhibited by individuals will depend upon their own attitudes, beliefs, perceptions, abilities, values, temperament, personality, previous experience, environment, and sense of control (Elliott, 1990; Greenberger et al, 1988; Petre and Sims, 1987; Coleman et al, 1987; Dawson, 1986; Byrt, 1971; McMurry, 1947). Furthermore, the type of change that is being examined will also influence individuals' responses to the change (Yuill and Steinhoff, 1975).

“Whether people are likely to be resistant, indifferent or supportive of change obviously relates, *inter alia*, to the extent to which the change process is seen to alter the content and the structure of their jobs and terms of employment” (Dawson, 1986, p203).

When dealing with individuals' indifference to, resistance to, or support of change, managers must understand the feelings and reasons behind each individual's reaction (Lindo, 1988). Once these feelings and reasons are understood, supervisors can then act accordingly to promote the acceptance of change (Leathem, 1989). It must be noted, however, that when change is progressing satisfactorily, managers generally have little need to intervene in the change process to promote acceptance (Levasseur, 1992; Pryor, 1987; Yuill, 1966).

Nevertheless, when necessary, management must respond to resistance to change before implementation can be successful. To do this, the reasons behind the individual's resistance to change must first be understood (Leathem, 1989).

³⁸ Intellectually, it is understood why the change was beneficial, and emotionally, individuals are comfortable with the change (Spiker, 1994).

III. Why do Individuals Resist Change?

A. Lack of Control

It is commonly cited that resistance is caused not by change itself, but by individuals being forced to change (Spiker, 1994; Smith, 1993; Rosenberg, 1993; Cartor, 1993; Strauss, 1992; Beynon, 1992; Terez, 1990; Lindo, 1988; Pryor, 1987). The basis for this argument comes from the belief that individuals perceive themselves as being in command of their own destiny (Odiorne, 1981). When a person's self-control is threatened by change, individuals tend to view themselves as victims of change (Beynon, 1992):

“Most employees tend to see themselves as victims of forces over which they have little or no influence” (Beynon, 1992, p28).

Therefore, as people value their autonomy:

“[they] support what they help to create and resist what is forced upon them” (Spiker, 1994, p45).

For example, a survey of 172 managers found that managers generally liked the changes they helped to create, but disliked changes that were imposed upon them (Odiorne, 1981). If individuals dislike, or feel victimised by change, there tends to be a lack of ownership or commitment to the change, resulting in inertia that can impede its successful implementation (Ringlein, 1994; Beynon, 1992).

When change has first been introduced or forced upon individuals, they are in the first stages of the transition process. Therefore, individuals cannot be committed to change at this point, as they are immobilised by the change, or are in denial of a need for, and existence of, change.³⁹

³⁹ In cases where the individual has been involved in creating the change, the adaptation process has taken place during the creation, so has moved past the 'letting go' phase (Odiorne, 1981). Therefore, individuals will have committed to the change and will not see the change as a threat to their self-control, as they are involved in the control process itself (Terez, 1990). In other words, they have retained the important element of control over their own destiny (Terez, 1990).

People deny change because it implies that previous actions, or decisions made before the change was introduced, were wrong (Nilakant, 1994; Strauss, 1992; Dunsing and Matejka, 1989; Zaltman and Duncan, 1977). Any implication that individuals' actions were inaccurate will be met with a defensive reaction, usually resistance, as the implication is viewed as a personal attack⁴⁰ (DeLisi, 1990).

“Perception is everything” (Terez, 1990, p19).

When individuals' previous actions are seen as incorrect, they may feel that they have lost face or respect (DeLisi, 1990). There may also be further losses in terms of power, authority, professional integrity, money, intrinsic job qualities and status (Yuill and Steinhoff, 1975). Individuals respond to these perceived losses by resisting the change effort, as they believe this to be the cause of the losses (Yuill and Steinhoff, 1975).

Furthermore, the considerable time and effort invested by individuals to accomplish tasks using the 'old' systems is viewed as an investment by many people (Strauss, 1992). Therefore, the 'best' return on this investment can be gained from “continuing it essentially intact” (Strauss, 1992, p64). When the 'old' system is changed, the optimal benefits of this investment are forfeited (Strauss, 1992). Thus, individuals will resist changing to a new system, as it would result in the loss of time and effort invested in the 'old' system (Nilakant, 1994; Cartor, 1993; Elliott, 1990; Kotter and Schlesinger, 1979).

Not only does change imply a loss, it also implies that the familiar will be removed, or altered, requiring individuals to deal with the unfamiliar (Dunsing and Matejka, 1989). Contact with the unfamiliar can cause individuals to leave their 'comfort zone', which may result in resistance (Strauss, 1992).

⁴⁰ Individuals' self-esteem is tightly bound to their job performance, and when a change implies that they have made job performance errors, their self-esteem is threatened (DeLisi, 1990).

B. Moving Away From the Comfort Zone

The 'comfort zone' of individuals is limited to the situations in which they are familiar with (Matejka and Julian, 1993).

“Many employees may be content with the present situation. Their comfort with the way things are currently done may lead to resistance to anything that threatens the status quo.” (Matejka and Julian, 1993, p10).

Similarly, Strauss (1992, p64) states:

“[m]ost people tend to resist any new way of acting or thinking because it makes them feel uncomfortable.”

Individuals are comfortable in situations where they understand, and are familiar with, the group norms, culture and traditions (Matejka and Julian, 1993; Strauss, 1992; Zaltman and Duncan, 1977).

Habits are also comforting to individuals as:

“[i]ndividuals tend to obtain satisfaction by responding to stimuli in their accustomed way” (Arnold et al, 1987, p17).

Therefore, people gain comfort from set patterns of behaviour and interactions (Dawson, 1986; Zaltman and Duncan, 1977). Any attempt to alter these patterns results in resistance (Myers and Robbins, 1991; Arnold et al, 1987; Dawson, 1986; Zaltman and Duncan, 1977). People are:

“...creatures of habit surrounded by a comfort zone of behaviours and interactions. Too much variation means leaving our comfort zone” (Myers and Robbins, 1991, p9).

For individuals to leave their comfort zones requires that they experience the unfamiliar or unknown (Matejka and Julian, 1993; Dunsing and Matejka, 1989). Many individuals

fear the unknown or are anxious to avoid making mistakes with the unfamiliar.⁴¹ This fear and anxiety can cause further resistance to change.⁴²

C. Fear and Anxiety

Fear is the “feeling of threat or danger related to a specific object or event” and anxiety is defined as “generalised feelings of fear and apprehension” (Coleman et al, 1987, p178). When people experience fear or anxiety, these emotions influence their stress levels (Rochester, 1990; Coleman et al, 1987), and increases in stress levels can result in resistance to the stressor⁴³ (Coleman et al, 1987; Gibson et al, 1991).

Stress is an adaptive response resulting from excessive physical and/or psychological demands placed upon a person (Gibson et al, 1991). During change, individuals are required to adapt to the new situation, and this necessitates a number of adjustments, or adjustment demands (Coleman et al, 1987). The level of stress experienced by individuals in a given situation is positively related to the number of required adjustments (Coleman et al, 1987). Likewise, there is a positive relationship between the duration of the adjustment demand and the level of stress experienced (Coleman et al, 1987). However, a negative relationship exists between the imminence or anticipation⁴⁴ of an adjustment and individuals’ levels of stress (Coleman et al, 1987). Stress is also negatively related to the predicability⁴⁵ of the adjustment demand; the less predictable an adjustment is, the greater the stress (Coleman et al, 1987).

These adjustment demand factors influence individuals’ levels of stress because they affect peoples’ feelings of fear and anxiety, the emotional components of stress (Gibson

⁴¹ Rosenberg, 1993; Matejka and Julian, 1993; Myers and Robbins, 1991; Kotter and Schlesinger, 1979; Yuill and Steinhoff, 1975.

⁴² Rosenberg, 1993; Matejka and Julian, 1993; Myers and Robbins, 1991; Coleman et al, 1987; Kotter and Schlesinger, 1979; Yuill and Steinhoff, 1975.

⁴³ The event or demand that caused stress levels to alter (Coleman et al, 1987; Gibson et al, 1991).

⁴⁴ Imminence or anticipation refers to the length of time between the idea of change being introduced, and the time that change is implemented; the shorter the time period, the greater the stress (Coleman et al, 1987).

⁴⁵ Predictability refers to the ability of the individual to predict the exact nature of the adjustments necessary to meet the change (Coleman et al, 1987).

et al, 1991; Coleman et al, 1987). The number and duration of the adjustment demands affect anxiety, as people question whether they are capable of making all the necessary adjustments (Kotter and Schlesinger, 1979). People fear that they do not have the knowledge or skills necessary to accomplish all that is demanded of them⁴⁶ (Matejka and Julian, 1993; Kotter and Schlesinger, 1979; Zaltman and Duncan, 1977).

“People are scared of making mistakes. Often when a new system or procedure is put in place, employees fight to retain the old system simply because they are apt to make mistakes on the unfamiliar one” (Rosenberg, 1993, p20).

Mistakes imply failure and criticism (Myers and Robbins, 1991). When this failure is unacceptable,⁴⁷ fear of failure increases, as individuals dislike its consequences, thus increasing resistance (Ringlein, 1994):

“People resist change when not allowed to fail” (Ringlein, 1994, p98).

Inadequate information on the exact nature of the adjustment demand(s)⁴⁸ means that individuals cannot accurately evaluate whether they are capable of the adjustment (Rosenberg, 1993). Fear of failure is heightened as individuals do not know whether they can accomplish the unspecified adjustment(s) (Rosenberg, 1993).

Furthermore, when an adjustment demand's requirements are unknown, fear, arising from individuals' general fears of the unfamiliar, influences the stress levels experienced and thus resistance to change (Matejka and Julian, 1993).

“Confronting the unknown makes most people anxious” (Arnold et al, 1987, p18).

⁴⁶ Making the required adjustments may involve a temporary or permanent lowering of the individual performance levels. As job performance is a source of self-esteem, change may result in lower self-esteem (DeLisi, 1990).

⁴⁷ The result of a mistake or failure is a criticism or some other form of negative feedback (Ringlein, 1994).

⁴⁸ That is, the adjustment demand is not predictable (Coleman et al, 1987).

This anxiety or fear of the unknown is also worsened when an adjustment demand is suddenly thrust upon people, as individuals do not have time to become familiar with the information, nor the adjustment requirements (Rosenberg, 1993).

When confronted with the unknown, uncertainties⁴⁹ are inevitable (Arnold et al, 1987). These uncertainties can cause resistance to change as people tend to be risk averse (Cartor, 1993; Abbasi and Hollman, 1993; Werner, 1990).

D. Risk Aversion

Uncertainties in change imply that there is an element of risk⁵⁰ involved in implementing change (Cartor, 1993; Werner, 1990):

“If people are fundamentally and immutably risk averse and also believe that the change is a risky strategy, they will always endeavour to resist it” (Werner, 1990, p28).

The risk attitude of individuals have been closely examined using prospect theory (Tversky and Kahneman, 1981; Kahneman and Tversky, 1979). Tversky and Kahneman (1981) presented two patterns to a group of experimental subjects. They found that “choices involving gains are often risk averse and choices involving losses are often risk taking” (Tversky and Kahneman, 1981, p453). However, both problems were effectively the same, yet they elicited different responses from the participants (Tversky and Kahneman, 1981).

Tversky and Kahneman (1981) propose that the reasons for the different choices:

“...arise from the conjunction of a framing effect with contradictory attitudes towards risk involving gains and losses” (Tversky and Kahneman, 1981, p453).

When a choice is framed so that individuals perceive the outcomes of choices as either:

1) the possibility of gaining more, or

⁴⁹ Uncertainties both in terms of what the exact nature of the change is, and whether the individual can accomplish the task.

⁵⁰ The greater the magnitude and number of uncertainties, the greater the risk (Werner, 1990).

2) a certain gain,

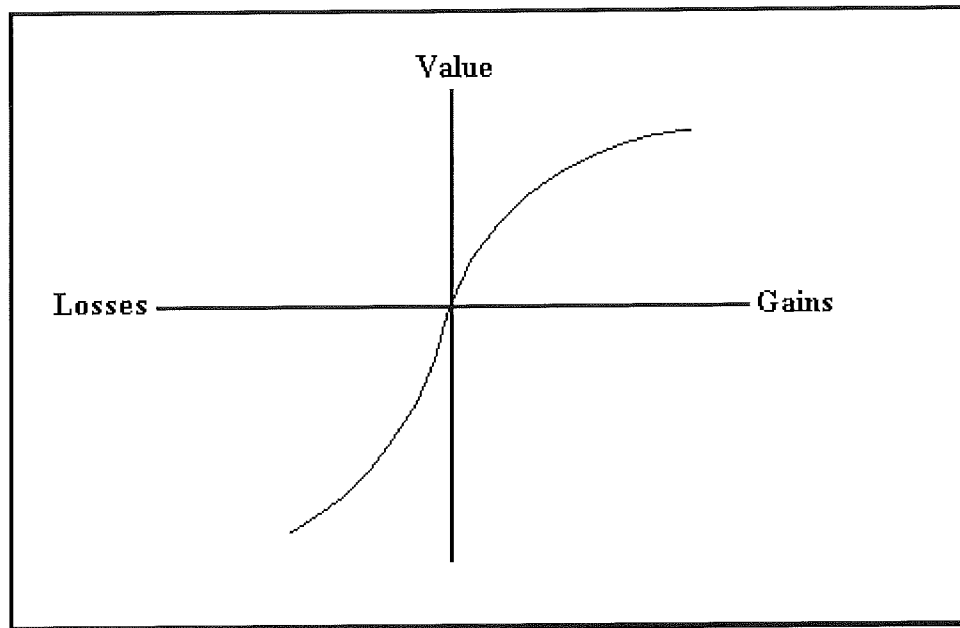
then the individual will be risk averse (Tversky and Kahneman, 1981; Kahneman and Tversky, 1979). The certain gain is valued more than the possibility of greater gain, as the possibility of gain also involves the potential of no gain (Tversky and Kahneman, 1981; Kahneman and Tversky, 1979). However, where individuals perceive the outcomes of choices as either:

1) a certain loss, or

2) a possible loss,

then the individual will be risk taking (Tversky and Kahneman, 1981; Kahneman and Tversky, 1979). The certain loss is valued less than the possibility of greater loss, as a possible loss has the chance of no loss (Tversky and Kahneman, 1981; Kahneman and Tversky, 1979). The result is an S shaped value function of outcomes, as shown in figure 5-3.

Figure 5-3 A Hypothetical Value Function (Tversky and Kahneman, 1981, p454 and Kahneman and Tversky, 1979, p279)



The essence of this theory is that:

“[m]ost people will take what is perceived to be major risks only in the face of certain loss. They will not be willing to undertake these same risks, however, for the purpose of potentially improving their situation” (Werner, 1990, p28).

Therefore, if change is perceived as possibly leading to a gain, the certainty of the status quo will be valued more highly than the risk of change, and there will be resistance to that change (Abbasi and Hollman, 1993; Werner, 1990). However, if change is perceived as avoiding loss, the change will be valued more highly than the certain loss that will result from the status quo; thus change will be accepted (Werner, 1990). Individuals' assessments of the risks, gains and losses involved in change are, therefore, important in influencing those peoples' acceptance of change. Hence, managers must be aware that differing perceptions can result in different assessments of change (Werner, 1990).

E. Different Assessments

Differing perceptions result in disparate assessments of the same situation (O'Connor, 1993; Kotter and Schlesinger, 1975). Individuals view change “from the standpoint of how [they] will be effected. Self preservation becomes a major concern” (Pritchett and Pound, 1993, p11). When people perceive that the proposed change will break the implicit or psychological contract that they have with an organisation or group, members will feel justified in placing their own interests before those of the organisation or group (Kotter and Schlesinger, 1979). Individuals may then work to frustrate the implementation of change (Kotter and Schlesinger, 1979).

Individuals may also impede change were they perceive that the things they value from their jobs may be lost or diminished (Dawson, 1986; Yuill and Steinhoff, 1975). People tend to value status, satisfaction, power, security and authority, therefore any perceived loss in these areas will be resisted (Dawson, 1986; Yuill and Steinhoff, 1975). Furthermore,

“[b]ecause money weighs heavily among individuals’ considerations, they usually resist changes that pose the possibility of lowering their income either directly or indirectly” (Arnold et al, 1987, p18).

These losses are compared to the benefits that the individual gains from the change (Matejka and Julian, 1993).

“Resistance is likely to be stronger if people think that the costs of the change far outweigh the benefits or that the proposed changes are unnecessary” (Dawson, 1986, p204).

Differing assessments of situations can also result in individuals considering the proposed changes to be of no benefit, unnecessary, or even costly, to the organisation (Shanahan, 1994; Kotter and Schlesinger, 1979; Zaltman and Duncan, 1977).

“To use a rough analogy, signs of resistance in a social organization are useful in the same way that pain is useful to the body as a signal that some bodily functions are getting out of adjustment” (Lawrence, 1954, p56).

Members of an organisation may have differing opinions about the suitability of change when *information asymmetry*⁵¹ is present between those who have recommended and designed the changes, and those whom the change affects (Cartor, 1993). Indicators of this type of situation are employee opinions, such as the belief that installers do not know what they are doing or are “out of touch”⁵² (Cartor, 1993, p68).

However, these indicators can also suggest that those implicated in change have misunderstood, or have not received all the information regarding the proposed change (Arnold et al, 1987). Partial or misunderstood information may lead individuals to “believe wrongly that the change is unwarranted or personally harmful”, resulting in further resistance to change (Matejka and Julian, 1993, p10).

F. Misunderstanding and Lack of Trust

As established, misunderstanding can result from information asymmetry (Cartor, 1993). Information asymmetry can be a consequence of individuals’ selective attention and retention abilities (Arnold et al, 1987). Selective attention and retention results from people:

- 1). tending to “read or listen to only those things that agree with their present views and way of doing things”;
- 2). tending to conveniently forget “any knowledge that would lead to opposite viewpoints”; or
- 3). “misunderstanding communication that would be incongruent with their pre-established attitudes” (Arnold et al, 1987, p17,18).

The results of past changes will also influence individuals’ retention of, and attention to, information, as changes that are similar to past instances of change will be expected to

⁵¹ Information asymmetry occurs where people do not have the same information about a particular event or object (Chalos and Haka, 1989).

⁵² This can also be termed a “we-they” perspective of the installers and initiators of change versus the individuals affected by change (Cartor, 1993, p68).

have the same outcome (Zaltman and Duncan, 1977). Therefore, if individuals have had bad experiences with past changes, any subsequent changes will probably be resisted (Zaltman and Duncan, 1977). Conversely:

“[p]eople are more willing to work toward and accept change when they have experienced success” (Doyle, 1991, p21).

However, if there has been a number of changes in the past, individuals may simply resist further change, as they are:

“so ‘fed up with all this change’ that they do not even consider whether the change is likely to be good or bad from their point of view before they adopt a hostile position to the proposals” (Dawson, 1986, p204).

Furthermore, when problems are solved without employees being given the opportunity to offer their own suggestions, they may lack trust in the solution offered (Ringlein, 1994). When people do not trust change, then resistance to change occurs (Ringlein, 1994).

Resistance to change can also be caused by distrust, dislike or lack of confidence in initiators of change (O’Connor, 1993; Myers and Robbins, 1991; Kotter and Schlesinger, 1979). This lack of confidence, distrust or dislike is because of past experiences with initiator’s actions and attitudes, or from individuals’ lacking knowledge about the initiator (Zaltman and Duncan, 1977).

“The champion of change must be credible. When he or she is a distrusted member of the organization, then it is likely there will be resistance” (Matejka and Julian, 1993, p10).

Paradoxically, trust can also be a cause of resistance to change, as when individuals trust the judgement of someone who resists change, they may follow this person’s actions and also resist change (Arnold et al, 1987; Zaltman and Duncan, 1977). This type of behaviour is apparent in group situations, where trusted leaders react to a situation and members of the group follow the leader’s behaviour (Berne, 1966).

In many instances, this trust is placed in individuals' superiors and managers. Hence, the leadership role of superiors or reference groups⁵³ may influence resistance; if a manager does not support change, subordinates also tend to be suspicious of change (Terez, 1990):

“If their managers show reluctance to accept the change, why should employees” accept the change? (Matejka and Julian, 1993, p10).

Therefore, to get individuals to accept change, ensure that leaders and/or reference groups support change (Zaltman and Duncan, 1977). However, members of reference groups and leaders are also individuals and hence their resistance to change must be eliminated or minimised before they can accept change (Nilakant, 1994).

IV. How can Resistance to Change be Minimised?

A. Participation

Involvement or participation⁵⁴ has often been considered a useful method of minimising individuals' resistance to change.⁵⁵ Coch and French (1948) studied a number of groups implementing change. The first group used a top-down⁵⁶ approach, while the second group used participation through representation, and the third and fourth groups used a participative approach for implementing change. The group using a top-down approach had 17% of the group resign within the first 40 days of change, and there was also a long term decrease in productivity (Coch and French, 1948). However, while the groups using a participative approach had an initial down-turn in productivity, their long term productivity increased (Coch and French, 1948). This implies that participation in the change process positively influences the results of that change.

⁵³ A reference group is the group that an individual identifies with; certain aspects or traits of the group are admired by the individual (Gibson et al, 1991).

⁵⁴ Participation refers to individuals being included in the decision-making process. This may involve providing information, ideas and suggestions, as well as being able to vote on alternative decision choices (Gibson et al, 1991).

⁵⁵ Ringlein, 1994; Spiker, 1994; Abbasi and Hollman, 1993; Cartor, 1993; Rosenberg, 1993; Myers and Robbins, 1991; Terez, 1990; Harper, 1989; Covin and Kilmann, 1988; Mann, 1988; Kotter and Schlesinger, 1979.

⁵⁶ Top-down refers to the dictation from higher levels within the organisation of what is going to take place; the individuals have no 'voice' or influence over the decision-making process (Johnson, 1992a).

Participation in decision-making relating to change⁵⁷ means individuals have a degree of control over the consequences of change; thus individuals' feelings of lack of control, which can cause resistance to change, are minimised (Rosenberg, 1993; Elliott, 1990). Instead of viewing themselves as victims of change, people consider themselves to be agents of change (Cartor, 1993; Beynon, 1992). Furthermore, "[m]ost people like those changes they have caused to happen, for they are adapting as they create the changes" (Odiorne, 1981, p28).

When individuals help to create change, "they feel that the change is partly theirs. They acquire a sense of ownership" (Terez, 1990, p19).

"To the extent that participation creates a sense of ownership in ideas and outcomes, commitment is increased and resistance to change is reduced" (Werther, 1989, p32).

However, if participation is not carefully managed, it can have detrimental effects on the successful implementation of change (Kotter and Schlesinger, 1979). For participation to be successful, participants must perceive that the ideas and suggestions they volunteer are being given due consideration (Govindarajan, 1986). It would seem pointless to disregard input from participants, especially in situations where information asymmetry exists between installers and participants, as this information is necessary for effective change results (Nilakant, 1994; Kotter and Schlesinger, 1979).

Additionally, participation can be impeded by misunderstandings, as when installers misinterpret information, and the resulting decisions are contrary to the logic of given data, participants may believe that the participation effort is not legitimate (Govindarajan, 1986). Misunderstandings can, however, be overcome by improving communication⁵⁸ (Cartor, 1993).

⁵⁷ Change decision-making is the process of selecting an appropriate solution to problems posed by the implementation of change.

⁵⁸ Communication refers to the verbal and written flow of information imparted from one individual or group to another individual or group.

B. Communication

Misunderstandings and distrust can cause resistance to change (Ringlein, 1994; Matejka and Julian, 1993). Therefore, understanding and trust are required to minimise resistance, and this can be accomplished by improving communication (Abbasi and Hollman, 1993; Cartor, 1993, Myers and Robbins, 1991; Kotter and Schlesinger, 1979).

To foster trust, it is necessary that individuals are given all information pertaining to the change (Pritchett and Pound, 1993). Furthermore, if people are told what to expect from change, this enhances the credibility and effectiveness of installers (Pritchett and Pound, 1993). Therefore, communication should be honest, direct and frequent (Elliott, 1990).

Frequent information flow is necessary so that individuals quickly know of decision results and how these results affect them; otherwise stress and resistance can result (Rosenberg, 1993). An advance warning of change gives people the time necessary to comprehend and evaluate the effects of change, thereby minimising stress and resistance caused by fear of the unknown (Coleman et al, 1987). This advance notice also signals respect for individuals, which in turn increases the trust they have in the installers (Rosenberg, 1993). The information communicated to individuals should be clear and concise so that they can fully comprehend it, and any misunderstanding is minimised (Matejka and Julian, 1993). Thus, when distrust, misunderstanding and fear of the unknown are minimised through communication, resistance to change is reduced (Ringlein, 1994; Kotter and Schlesinger, 1979).

It is also important that reasons for change are conveyed to people so that they do not consider the change to be unnecessary and therefore, resist it (Matejka and Julian, 1993; Strauss, 1992). The way in which these reasons are presented to individuals can be used to further minimise resistance to change (Werner, 1990).

C. Presentation

“By changing the way ... change is presented, it can become an acceptable, attractive alternative to the *status quo*” (Werner, 1990, p30).

To minimise resistance to change, it must be presented in terms of the loss it can avoid,⁵⁹ as opposed to what people will gain from it⁶⁰ (Werner, 1990; Harper, 1989), because “[t]aking a risk with change is motivated primarily by a reaction to the imminence of loss” (Werner, 1990, p30).

Furthermore, highlighting the negative aspects of the status quo will increase dissatisfaction with the current situation, thus motivating individuals to change (Beer, 1987). However, resistance to change may remain if the risks, in terms of failure, are too high (Rosenberg, 1993). Fear of failure and the unknown influence individuals’ perceived risks of failure, however, these fears can be reduced through education and training (Abbasi and Hollman, 1993).

D. Education and Training

“One of the most common ways to overcome resistance is to educate people about it beforehand” (Kotter and Schlesinger, 1979, p109).

Where individuals lack the knowledge or skills to adjust to change they resist it, rather than admit their ignorance (Matejka and Julian, 1993). Therefore, if people are provided with the training and education necessary to meet the knowledge and skill requirements of change, this cause for resistance to change will be minimised (Ringlein, 1994; Nilakant, 1994; Abbasi and Hollman, 1993). Furthermore, training and education extends peoples’ comfort zones, so change requirements are familiar, effectively minimising resistance caused by encountering the unfamiliar (Rosenberg, 1993).

Resistance to change resulting from fear of failure and the fear of making mistakes is also reduced by using education and training, because this allows individuals to become

⁵⁹ For example, if change does not occur, then the organisation may cease to be competitive, which puts the future of the organisation and the employees’ future employment in jeopardy.

⁶⁰ For example, if change is successful, employees may obtain increased job satisfaction or promotion.

more familiar with change requirements, or demand adjustments (Rosenberg, 1993; Matejka and Julian, 1993). As a result, fear is decreased, as people are more confident in their abilities to adapt to the impending change (Rosenberg, 1993; Matejka and Julian, 1993). Moreover, fear of failure can also be reduced by providing individuals with support⁶¹ (Ringlein, 1994).

E. Support

Resistance to change can also be alleviated by supporting individuals implicated in the change process (Ringlein, 1994; Nilakant, 1994; Myers and Robbins, 1991; Rochester, 1990; Kotter and Schlesinger, 1979). As support involves treating individuals with respect, this also heightens peoples' trust in the installers of change, thus minimising resistance to change influenced by distrust (Rosenberg, 1992).

Resistance caused by fear and anxiety can also be effectively overcome by using support (Kotter and Schlesinger, 1979). If individuals are permitted to make mistakes,⁶² and they have the support necessary to correct and learn from those errors, then the fear and anxiety associated with failure is reduced (Ringlein, 1994; Kotter and Schlesinger, 1979). By accepting mistakes made during the adjustment period, failure has no detrimental⁶³ consequences for individuals, which results in there being little reason to fear the failure (Ringlein, 1994).

The main problem with providing individuals with support, education, communication and the facilities to make mistakes, is that it can be very time-consuming and expensive (Kotter and Schlesinger, 1979). In cases where organisations do not have adequate resources to implement these actions, manipulation and coercion of employees must be resorted to (Kotter and Schlesinger, 1979).

⁶¹ Support can include providing individuals with time off work after a particularly demanding period, providing training and education, or simply listening and giving emotional support (Kotter and Schlesinger, 1979).

⁶² Mistakes are accepted in a learning period; there are no negative consequences of making the mistake (Ringlein, 1994; Kotter and Schlesinger, 1979).

⁶³ Detrimental in terms of receiving criticism, performance pay decreases, or, in the extreme, individuals being dismissed from their jobs.

F. Manipulation and Coercion

Resistance to change can be overcome by manipulating or coercing an individual into accepting the change (Nilakant, 1994; Kotter and Schlesinger, 1979). When individuals are powerful, it may be necessary to manipulate these people to accept change by offering them incentives,⁶⁴ or by the selective use of information⁶⁵ (Kotter and Schlesinger, 1979). However, given the power of these individuals, it may be necessary to negotiate⁶⁶ with them so that the incentive is one that is desirable (Kotter and Schlesinger, 1979):

“Negotiation is particularly appropriate when it is clear that someone is going to lose out as a result of change and yet his or her power to resist is significant” (Kotter and Schlesinger, 1979, p110).

Furthermore, if powerful individuals can influence the behaviour of others, then it may be beneficial to co-opt them onto the change design or implementation team (Kotter and Schlesinger, 1979). By being involved with the change, the leaders or reference people indicate to others that the change is acceptable; thus resistance to change by others is reduced (Kotter and Schlesinger, 1979).

Fortunately, not all individuals are powerful, and if change is required quickly, then coercion may be used to induce the less powerful people to accept that change (Nilakant, 1994; Kotter and Schlesinger, 1979). Essentially, coercion involves forcing people to change by implicitly, or explicitly, threatening them with the loss of their jobs, promotion opportunities, and other valued aspects of their positions (Kotter and Schlesinger, 1979).

The major drawback of using manipulation and coercion to influence individuals' acceptance of change, is that when people feel they have been tricked into not resisting,

⁶⁴ Incentives may include such things as increased pay or promotion.

⁶⁵ For example, individuals are informed of change's positive aspects on them, but information pertaining to any negative aspects are not passed on to them.

⁶⁶ A drawback of this tactic is that the powerful individuals can resort to blackmailing the managers (Kotter and Schlesinger, 1979).

or forced into accepting change, their response may be negative (Kotter and Schlesinger, 1979). A negative response can take the form of resentment, lack of loyalty, decrease in morale, or a decrease in trust in the installers and initiators of change (Nilakant, 1994). Ultimately, this 'bad experience' can result in increased resistance to future change (Zaltman and Duncan, 1977). It should be emphasised that, due to the possible negative consequences of employing manipulation and coercion, it is recommended only when other tactics have failed or are not feasible (Kotter and Schlesinger, 1979).

V. Conclusion

It is a commonly held view that individuals will resist change. However, the existence of some willingly adopted changes indicate that this is not the case. Individuals progress through a variety of psychological phases to adapt to change of any kind. If people experience stress at any point, or are unable to progress through the psychological stages, then resistance to change occurs.

There are a number of factors that can cause resistance to change, by increasing stress or preventing progress through the psychological phases of change. Some examples are: risk aversion, lack of control, distrust, fear and anxiety. However, there are also a variety of methods available to minimise resistance to change, such as education, communication, participation and support. Using these techniques can ensure that individuals accept and adapt to change.

However, the methods applied to minimise resistance to change must be appropriate to the source of resistance being encountered (Kotter and Schlesinger, 1979). As resistance to change is influenced by the effect that change will have on individuals, it is necessary for resistance to change to be examined with respect to the type of change being implemented, such as changing the cost system to ABC.

The implementation of ABC at Norwich and NMH are summarised in Chapter 8 and Chapter 9. The installation of ABC at these organisations was examined using the case study research method. Hence, Chapter 7 discusses the case study research method.

Chapter 7: The Case Study Method

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I. Introduction

There has been considerable debate regarding the merits of both qualitative and quantitative approaches to accounting research.⁶⁷ It has become apparent that the approach chosen must be appropriate for the research undertaken (Morgan and Smircich, 1980). The knowledge base used, and the aim of the research are particularly important. As Morgan and Smircich (1980, p471) explain:

“the choice and adequacy of a method embodies a variety of knowledge and the methods through which that knowledge can be obtained.”

This chapter examines the applicability of the case study method to the research problem under investigation and reviews the specific method used in the studies undertaken.

II. Case Study Method

A. Definition

Merriam (1990, p9) defines a case study as “an examination of a specific phenomenon such as a program, an event, a person, a process, an institution or a social group.” Yin (1984, p23) argues that a case study is:

“an empirical inquiry that investigates a contemporary phenomenon with-in its real-life context; when boundaries between the phenomenon and context are not clearly evident; and in which multiple sources of evidence are used.”

These definitions limit case research to a mere process of observation and description, but observation and description of phenomena can be used to generate and test theories (Mitchell, 1983).

The validity of case study research has been challenged (McKinnon, 1988) and this criticism needs to be addressed.

⁶⁷ For example, Bonoma (1985), Abdel-Khalik and Ajinkya (1983), Mitchell (1983), Morgan (1983), Willmott (1983)

B. Validity of Case Study Research

To assess the validity of a research method, it is necessary to question whether the technique is valid for developing knowledge. Caws (1965) write of knowledge:

"Whatever may be the subjective state of the mind of a man who is said to have knowledge, the only way of finding out whether he has it is to put him into a situation where it would make a difference. This is not to equate knowledge with a practical skill of some kind ... it is merely to assert that whenever one man has some knowledge which another man does not have, the first is able to do something which the second is not" (p14).

Knowledge in this sense can be seen as concrete facts and general ideas (Frank, 1957).

"The four matters of fact are:

- (1) that something exists;
- (2) that something can be known;
- (3) that there is something which matters; and
- (4) that something ... makes sense and can be reflected upon" (Caws 1965, p13).

The discovery of fact eventually leads to general ideas which are intellectual, conceptual and abstract (Michalos, 1974).

"There are three problematic steps to be examined: first the step from any experience at all to experience of a world of one's own, then the step from experience of that world to knowledge of it, and finally the step from knowledge of that world to knowledge of a world in common. It is the character of part of this latter knowledge which gives rise to scientific theory" (Caws 1965, p17).

Therefore, scientific theories are general ideas that are intellectual, conceptual and abstract, and which are derived from knowledge. As such, "[s]cience constitutes a knowledge of a special kind" (Bunge 1967a, p3).

Science uses a number of generally accepted research methods to acquire and test scientific knowledge (Bunge, 1967a). These techniques should be examined to determine if the case study is included. To determine the exact nature of the scientific process, the nature of science must first be examined:

"Science, from the Latin *scientia*, 'knowledge, science', from *sciens*, *scientis*, 'present part of science to know', which probably meant originally 'to separate one thing from another, to distinguish' and this

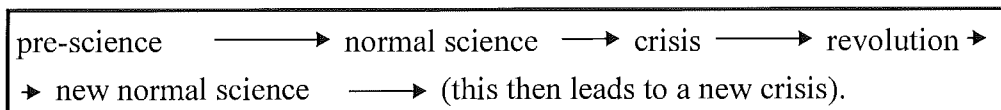
is related to sciendere, 'to cut, split, cleave' which is from the Greek root sek II 'cut, split, divide, part.' ” (Klein, 1971, p662)

Science is based on the discovery of facts (which are the basis of knowledge), and the distinguishing or parting of these facts from other phenomena. Science also deals:

“primarily, though not exclusively, with unobservable events unsuspected by the uneducated layman ... it invents and tries conjectures beyond common knowledge ... and it tests such assumptions with the help of special techniques ... which in turn require special theories” (Bunge 1967a, p3).

According to Kuhn (1970), scientific knowledge always develops according to the following sequence:

Figure 7-1 Development of Scientific Knowledge



In pre-science, there is no one commonly accepted paradigm⁶⁸ (Kuhn, 1970). Once a paradigm is commonly accepted, research is termed ‘normal science’ (Kuhn, 1970).

“[N]ormal-scientific research is directed at the articulation of those phenomena and theories that the paradigm already supplies” (Kuhn 1970, p24).

Normal scientific research is puzzle solving because the paradigm:

“provides rules that tell the practitioner of a mature specialty what both the world and his science are like, he can concentrate with assurance upon the esoteric problems that these rules and existing knowledge define for him” (Kuhn, 1970, p42).

When any fact or theory cannot be explained by using the paradigm, an anomaly occurs. When anomalies become so numerous, or critical, as to fundamentally challenge the paradigm in place, then this is called a crisis⁶⁹ (Kuhn, 1970).

⁶⁸ “A paradigm is a criterion for choosing problems that, while the paradigm is taken for granted, can be assumed to have solutions” (Kuhn, 1970, p37). In other words, a paradigm is a set of fundamental theoretical generalisations that form the basis of how a field of study views problems. The paradigm provides rules and conditions as to what the world and the field of research is like.

⁶⁹ A variety of ad hoc clauses, and the breakdown of normal puzzle solving activities also indicate a crisis (Kuhn, 1970).

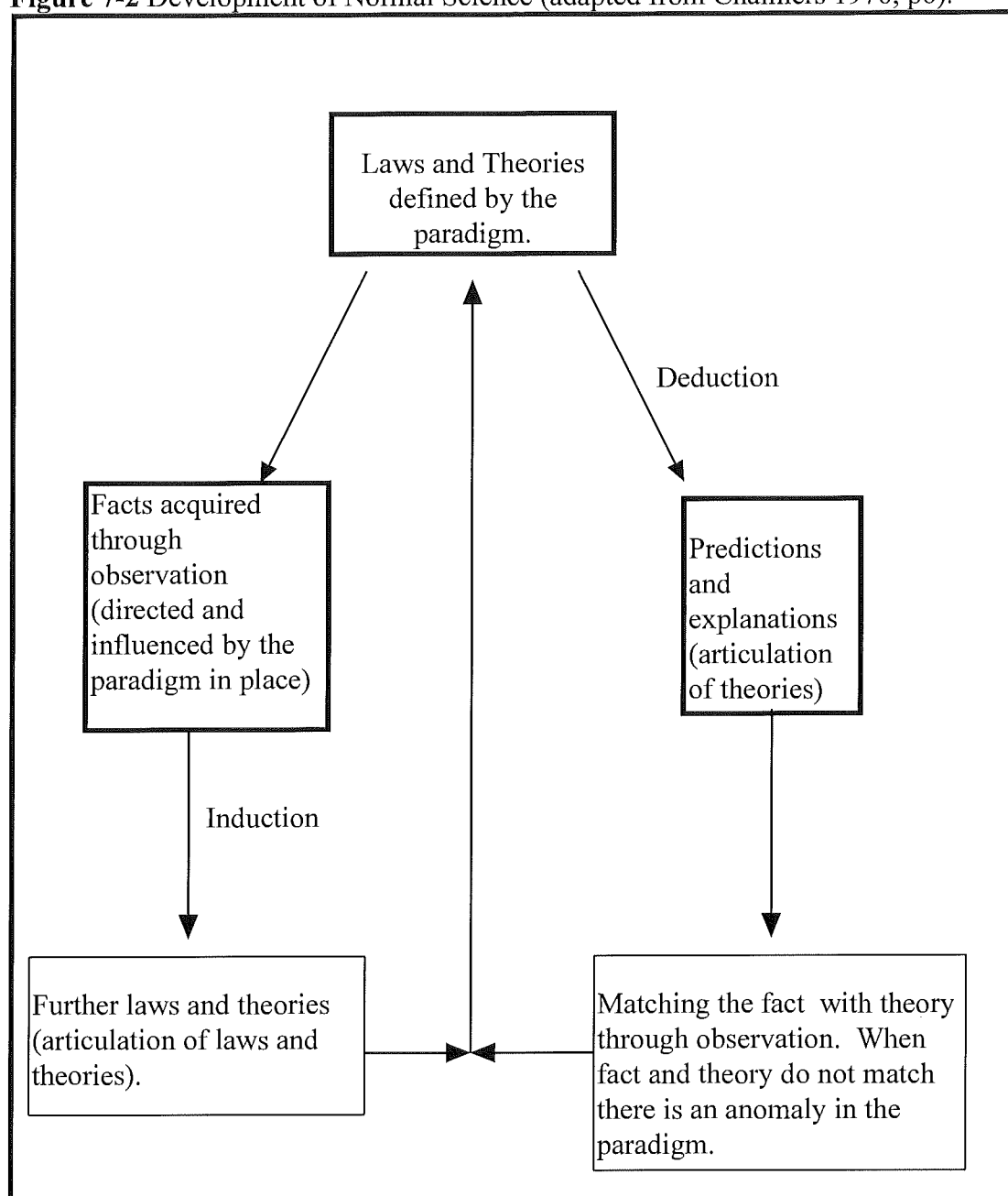
Crises can be solved by the emergence of a new paradigm that “must seem better than its competitors” by being able to explain the previous fundamental anomalies (Kuhn, 1970, p108). This is the process of revolution, and once a new paradigm has been accepted, there is a new normal science (Kuhn, 1970). Within the new normal science anomalies will appear, so there will be another crisis and the process of revolution will continue (Kuhn, 1970).

Within Kuhn’s (1970) normal science and Bunge’s (1967a) view of science, it is apparent that normal science has a theoretical background, or paradigm, that is commonly accepted by the researching community. Normal science concentrates on puzzle solving, which involves the “determination of significant facts, matching of facts with theory, and articulation of theory” (Kuhn, 1970, p34). Thus, the question arises as to whether the case study is a valid method for determining significant facts, articulating theory, or matching facts with theory.

There are two methods available for puzzle solving in a paradigm: induction and deduction, both of which are illustrated in figure 7-2. Induction is the process whereby generalised theory is inferred from observations; observation here is theory-dependent, as the knowledge, experience and expectations of the observer influence their interpretation of what they are observing (Chalmers, 1976). The laws and theories derived from induction are then used as inputs into the paradigm to expand the knowledge of the paradigm in place.

Deduction is based on a set of propositions in the form of premises, and a conclusion or proposition is inferred from those premises (Bunge, 1967a). Deduction claims that these premises are absolutely conclusive; the laws and theories of the paradigm in place are used as the premises. Once conclusions have been drawn, it is desirable that they be tested, through observation, experimentation or measurement (Bunge, 1967b). The results are then incorporated into the paradigm in place. Observation is a valid form of testing as, when a phenomenon is predicted, one way to determine if it occurs is to observe that it does happen (Bunge, 1967b).

Figure 7-2 indicates that observation is used in the process of puzzle solving by both inductive and deductive researchers. As Scapens and Roberts (1993, p3) state, “the role of theory is to illuminate... and explanation is an inter-related mix of theory and observation... theories are used to make sense of observations and observations are used to develop theory.”

Figure 7-2 Development of Normal Science (adapted from Chalmers 1976, p6).

The case study is a technique that observes and describes phenomena. In developing scientific knowledge, observation is seen as a valid method of research. Thus, the case study is a valid method of research in science. There may be difficulties⁷⁰ associated with using a limited number of observations, but observation is valid. However, for this study, it is important to assess whether the scientific method of research is applicable to management accounting.

⁷⁰ For example, it limits the ability of the researcher to confidently generalise to the whole population (Birnberg et al, 1990).

Accounting is:

“...the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character and interpreting the results thereof.” (AICPA, 1961, p9)

This definition has been criticised as being vague, due to the use of imprecise terms such as “significant manner” (Most, 1982; Mattessich, 1964). Furthermore, the use of a qualification⁷¹ contributes to the imprecision of the definition (Most, 1982). Yu (1976, p59) therefore argues that accounting is:

“a discipline which is concerned with the measurement and communication of certain aspects of the total environment relating to the interplay of man and his possessions and utilization of scarce means.”

Again, vague terms such as “certain aspects” must be specified before the definition can be considered adequate. However, accounting is concerned with the measurement and the communication of results, or as Robb (1981, p8) states:

“The process of identifying, measuring, and communicating economic information about an entity to permit informed judgements and decisions by users of the information.”

This definition highlights the purpose of accounting, that is, to inform and direct decision making (Laughlin, 1993).

Management accounting is concerned with informing and directing decisions made by internal members of the organisation (Garrison, 1991). Cowe (1988, p455) defines management accounting as the “provision of information required by management.”

The advent of the factory and mass production in the latter half of the nineteenth century gave rise to the development and expansion of management accounting, as costs, other than labour and materials, became a significant part of the total cost of production (Hendriksen, 1965). To measure the efficiency of production management accountants’

⁷¹ The definition used the phrase “in part at least” (AICPA, 1961, p9).

attention turned from cost ascertainment to cost control, through developing standards and using such standards for planning, controlling and evaluating performance (Hendriksen, 1965). The result is that management accounting is viewed as measuring and communicating information to internal decision makers for the purposes of planning, control and evaluation (Cohen and Paquette, 1991).

To determine if management accounting is a science, it must first be ascertained that accounting is a science, and there has been considerable debate concerning this question:

“Such debate demonstrates the intellectual immaturity of accounting because it indicates that accountants are uncertain of the subject matter of their discipline” (Gaffikin 1989, p8).

Accounting is not a science as described by Kuhn (1970), as it does not have a single commonly accepted paradigm on which it is practiced, or researched (Van der Linden, 1986; Peasnell, 1978). This is evident in terms of measurement, as there is no single commonly accepted valuation method; there are multiple methods of valuation and great debate as to what method is the best (Yu, 1976). As accounting is not a science, and management accounting is a branch of accounting (Clarke and Robb, 1994), then management accounting is also not a science.

This leads to the question of whether scientific methods can be applied to research in disciplines that are not scientific. Van der Linden (1986) indicates that if a scientific method can be applied to a particular problem in an area outside science, then it should be used, as it has been proven to be useful as a tool for developing knowledge. Therefore, the question arises as to the appropriateness of the case study method for the area under investigation. As Morgan and Smircich (1980, p491) state:

“the case for any research method, whether qualitative or quantitative ... cannot be considered or presented in the abstract, because the choice and adequacy of a method embodies a variety of knowledge and the methods through which that knowledge can be obtained, as well as a set of root assumptions about the nature of the phenomena to be investigated.”

When investigating the behavioural effects of implementing a new cost system, the case study is appropriate, as it studies phenomena in their social context. If it is accepted that a person's perception of a situation may differ from another person's perception of the same situation (due to past experiences, human interaction, and the interpretation process (Tomkins and Groves, 1983a)), then the ontological⁷² assumption that the social world is a concrete structure has been relaxed (Morgan and Smircich, 1980). The result is that "for social science there is no necessarily useful and enduring reality to be discovered: there are multiple realities, one held by each individual" (Tomkins, 1986, p455). Consequently, "social reality is not itself an object, but rather a flow of interrelated events and practices that is changed by the nature of our own and others' perceptions" (Roberts and Scapens, 1985, p455). Therefore, social processes can only be fully examined in the social context in which they occur, as to isolate a part of the social may distort the "true" situation, and vital information and inter-relationships may be omitted (McKinnon, 1988; Chua, 1988; Kaplan, 1986; Roberts and Scapens, 1985; Morgan and Smircich, 1980; Hagg and Hedland, 1979). Thus, when behaviour in an organisation is being examined, it cannot be separated from its social context without the possibility of distortions being introduced into the research. As this investigation is concentrating on the behaviour of individuals when a new cost system is being introduced into an organisation, to separate the phenomena from the organisation may introduce distortions into the research. Thus, the case study is appropriate for this investigation, as it studies the phenomena in their social context.

Furthermore, practitioners possess information on employees' behaviour, which they acquired whilst implementing the new cost systems (Kaplan, 1986). The case study allows this information to be extracted and documented, so it is publicly accessible (Kaplan, 1986). Once there is full documentation of all relevant information available on implementing cost systems, a comprehensive theory regarding implementation can confidently be developed and then employed by organisational managers and cost system installers.

⁷² Ontology is a branch of philosophy that deals with the nature of being.

An added argument for the appropriateness of the case study for this research becomes apparent when the factors and environment of the research are considered. As all the factors or the inter-relationships that influence cost system changes are unknown, as evidenced by the anomaly identified by Cotton (1994), these factors cannot be controlled in an experiment, nor information gathered in a survey. The case study is applicable in this situation, as it allows the researcher to include evidence on the environment and on all aspects of the company or social process examined. This leads to a more comprehensive understanding of results, in relation to the environment's influence on the phenomenon examined, than can be obtained using other methods (Ferreira and Merchant, 1992). Therefore, the case study is an appropriate method of research for this investigation.

A further issue is the use of multiple case studies in research. It has been established that the case study is a method for gathering useful information for research, but questions remain as to the merit of carrying out multiple case studies. A partial answer to these questions can be gained from the historical development of most social anthropological and sociological theorising,⁷³ where it can be seen that these theories were developed from a wide range of in-depth case studies (Mitchell, 1983). Once theories were developed from the case studies, the focus of research shifted from the qualitative to the quantitative, from theoretical generalisation to statistical generalisation (Mitchell, 1983).

When examining the behavioural issues pertinent to implementing accounting systems, the research is not considered to be advanced (Spicer, 1992; Young & Selto, 1991). It can be inferred that the advancement of research concerning cost system change should follow social anthropological and sociological development, with the result that multiple case studies do have merit in the current investigation. Chalmers (1976) argues

⁷³ These disciplines are relevant, as this research is focusing on the behavioural effects of cost systems on people in organisations, and when dealing with the behaviour of people in organisations, it is essentially a social process built from individuals' reactions to the perceived reality of given situations (Tomkins and Groves, 1983b). As sociology specifically researches the social processes of groups, which is precisely what is being investigated in this study, the research methods used in social science are equally valid for accounting research that is focused on the behaviour of actors in a given situation (Morgan, 1983).

that for generalisations to be considered legitimate by the inductivist,⁷⁴ there must be a large number of observations and the observations must be repeated over a wide variety of conditions. “A number of similar cases may be selected to replicate the theoretical explanation” (Scapens, 1990, p273). As Hakim (1987, p64) states, “confidence in the generalisability of the results of a case study design increases with the number of cases covered.” However, having established the validity of multiple case studies, the reasoning behind the use of a wide variety of studies must also be investigated.

As one is attempting to find a theoretical generalisation, one can build a general explanation that holds over a variety of situations (Yin, 1984). Therefore, the greater the number of in-depth case studies, the greater the ability to develop a generalisable theory. Thus, in this case multiple case studies are valid to increase the body of knowledge available for theory generalisation and to suggest areas for further research. Furthermore, in situations where there is complexity and a variety of actors, the multiple case study is an important alternative for obtaining relevant data on all possible inter-relationships (Hakim, 1987). As this research involves a number of actors and is complex,⁷⁵ multiple case studies are appropriate and necessary.

In summary, multiple case studies are applicable to the present situation as the subject matter is:

- 1) complex,
- 2) organisational, and
- 3) a social process.

C. Advantages of the Case Study Method

Case studies “investigate phenomena in naturally occurring settings” (Birnberg et al, 1990, p35). This allows an in-depth analysis that is realistic, has attention to the context and has the ability to cover an extensive range of variables.

⁷⁴ The inductivist generates theory using the process of induction, inferring from observations a generalisable theory, for example, all observed swans have been the colour white or black, infer from this the theory that all swans are either white or black (Bunge, 1967).

⁷⁵ For example, the inter-relationships of accounting and non-accounting staff.

Case studies can be used longitudinally (Emory and Cooper, 1991). The history of a case, in terms of the detailed processes and interactions of situations as they occur over time, can be gathered. This information may lead to insights previously overlooked by surveys, as the survey views the situation momentarily, without the benefit of known politics or occurrences which may affect the phenomena being examined.

The researcher has the ability to adapt to situations encountered (Yin, 1984). As more evidence is gathered that indicates different questions are required to extract the necessary information to fully explain occurrences, the data sources and questions can be altered to accomplish this.

The researcher can have access to sensitive or tacit knowledge that other methods, such as the survey or experiment, do not gather (McKinnon, 1988). This knowledge may be the source of explanation necessary for a more complete understanding of phenomena.

Case studies have the “ability to deal with a full variety of evidence, including documents, artefacts, interviews, observations, and even participant observation” (Bruns, 1989, p157). This ability results in high internal validity of case studies, as a more complete understanding of the situation can be gained. Despite this, critics remain sceptical of the internal validity of the case study (Lee, 1989). Therefore, attention must be directed towards this issue.

D. Criticisms of the Case Study Method

Not only do critics question the internal validity of case study research, but the external validity, replicability and ability to make controlled deductions are also questioned (Lee, 1989). Lee (1989) addresses these four requirements of scientific method, and shows how case studies can be designed so they meet those conditions.

1) Internal Validity

Internal validity includes:

- a. ability to make controlled observations;
- b. observer bias;

- c. observer-caused effects;⁷⁶
- d. data access limitation; and
- e. the complexities of the human mind, where the subject may seek to mislead, they forget things or their own bias influences the information that they give the researcher (McKinnon, 1988).

The use of multiple sources of data collection, increasing the amount of time spent on the case site, and observing social behaviour while in the setting overcome these problems (McKinnon, 1988). The controlled observation can be mastered by taking advantage of the “natural controls and treatments either already in place or likely to occur” (Lee 1989, p39). For example, the researcher can hold constant the human element “by focusing on just one person and ‘varies’ or ‘treats’ the situation external to the person by observing his move” (Lee 1989, p39).

2) *Replicability*

It is believed that a research method should be replicable for testing a theory and “as a means of assuring the objectivity of the research” (Lee 1989, p35). It is true that the situational factors of particular case studies cannot be replicated with any degree of accuracy, but the “case study’s findings (that a particular theory is confirmed or disconfirmed) would be replicable” (Lee 1989, p41). This satisfies the second condition of the scientific method (Lee, 1989).

⁷⁶ Including interviewer bias.

3) *Controlled Deductions*

The ability to make controlled deductions is normally considered in terms of mathematical propositions, but it is just as valid to use verbal propositions. A case that “performs its deductions with verbal propositions only deprives itself of the convenience of the rules of algebra; it does not deprive itself of the rules of formal logic, to which it may therefore still turn when carrying out the task of making controlled deductions” (Lee 1989, p40).

4) *External Validity*

External validity is the fourth requirement. It is generally believed that the external validity of case studies is low (Birnberg et al, 1990): As a case study represents only one observation, the ability to statistically generalise is very low. However, case studies can be used to make theoretical generalisations (Mitchell, 1983). To achieve this theoretical generalisation, the case study must be viewed as a method that allows inferred theories to explain observations. “The theories which provide convincing explanations will be retained and used in other case studies, whereas theories which do not explain will be modified or rejected” (Scapens, 1990, p270). This process is comparable with the experiment where the observation is examined to see whether it is explained by the theory. As such, the external validity of the case depends upon the theoretical reasoning and not on the representativeness of the observations (Mitchell, 1983).

E. Data Collection

As mentioned above, multiple sources of data can strengthen internal validity. McKinnon (1988) notes that direct observation, informant and respondent interviewing, and documents, such as memorandums, are all valuable sources of information. Additionally, Yin (1984) recommends systematic interviewing, as well as cultural and physical artefacts, as sources of important data. Bonoma (1985) expands this list, with some sources relating to accounting: competitive data, financial data, business plans, management interaction, business structure (both the formal and informal), performance

data and written communications. Therefore, these sources of data were used in the case studies conducted for this research. However, it must be noted that when the researcher is gathering information, it is done so through a particular theoretical lens. The result may be that the information collected may not be as complete as otherwise desired. It must also be recognised that the nature and amount of data collected will be dependent on the time frame of the case study.

F. Time Frame

The time frame of the case study will depend upon the nature of the research. A longitudinal study may be more appropriate in situations where symbolism or social interaction are present, or where there are systems that create, maintain or dissolve power (Pettigrew, 1979). However, there are a number of problems associated with longitudinal studies, including “going native”⁷⁷ and no longer noticing significant or surprising events.

Shorter studies are more appropriate where the researcher is interested in “the precise structural form” or “attempt[s] to codify distributions or power at one point in time” (Pettigrew, 1979, p570). However, these studies also have drawbacks, such as the difficulty in ensuring that the data collected is accurate. Problems can occur that will distort the results, such as observer-caused bias and other internal validity problems. In this situation it is essential that data triangulation is used for internal consistency (Jick, 1979). Data triangulation requires that several sources of data are used to verify each piece of information gathered (Jick, 1979).

The nature of the research undertaken here indicates that the case studies will be of a shorter duration. The reason for this is that the event examined has already occurred in each company, so a longitudinal study examining the event as it happens is not possible.

⁷⁷ This refers to where the researcher becomes involved in what is happening and cannot be objective any longer.

G. Summary

The case study is appropriate for this particular research project, as it is exploratory in nature. Furthermore, multiple cases are appropriate to increase the body of knowledge about the social process of implementing an ABC system for later theory generalisation and suggestions for further research.

The use of multiple sources of data and data triangulation can be used to overcome many of the criticisms directed towards the case study method. However, the difficulty of researcher bias will remain, as is true for most research methods.

The main advantage of the multiple case study in this area of research is the ability to adapt to problems encountered and to information gathered. Furthermore, it would be difficult to investigate this area without the benefit of interaction with the natural setting. However, the possibility of selecting a company at random and waiting to see if and when the costing system was changed to ABC was never seriously considered. The cases, NMH and Norwich, were selected because ABC had been experimented with or installed by these organisations, hence a retrospective perspective was adopted.

III. Norwich and NMH

A. Gaining Access

Yin (1984) indicated that selection of a case study can be based on prior contact, which may make site access easier. Employees from NMH and Norwich had positively indicated that Norwich and NMH could be the subject of a case study in a survey carried out by the author's former lecturer, Professor William Cotton. The contact's address, telephone and facsimile numbers were obtained from Professor Cotton. In an introductory letter, the author was presented as a student at the University of Canterbury working on a thesis, and the purpose of this research was explained, as was how it was known the contacts had expressed interest in allowing Norwich to be the subject of a case study.⁷⁸ Replies were requested on whether that interest remained. The replies

⁷⁸ As recommended by Yin (1984).

were positive and dates were arranged for site visits to the head office of Norwich in Wellington on Monday 1 August to Friday 5 August 1994 and to NMH on Monday 29 August to Friday 2 September 1994.

Following this initial contact, background information was gathered on both Norwich and NMH prior to the site visits. Upon arriving at Norwich, it was found that a number of interviews had been arranged with a variety of staff, including accounting, actuarial, and managerial personnel. Furthermore, when it became apparent that it was necessary to interview a number of other staff, this was willingly arranged. It was also necessary that a previous employee be interviewed, and a contact address was located. Once the interviewer was introduced and the purpose explained, the ex-employee was very accommodating about granting an interview.

Upon arriving at NMH, it was found that several interviews had been arranged and a list of further possible interviewees compiled, including accounting, clinical, service and administrative personnel. The possible subjects were informed by NMH staff that interviews were being conducted and that they may be contacted by the author; contact was made and interviews completed. Furthermore, when it became apparent that it was necessary to interview a number of other staff, these meetings were also arranged by the investigator.

B. Data Collection

Interviews were the major source of data. Whenever possible, complaints or statements about ABC, Norwich or NMH were verified or discussed with managers in other jobs or at other levels of the organisations. An example is where one employee at Norwich indicated that another had been confused with the ABC system, which resulted in the confused individual being asked if they had encountered any difficulties with understanding the ABC system. When conducting interviews, it was found that the focus differed somewhat according to the management level and time available.

Data was also collected from a number of other sources. Norwich's data sources are listed in table 7-1 and NMH's are listed in table 7-2.

Table 7-1 Norwich Data Sources

Data Sources
End of year statements
Interviews
Lists of names
Documented procedures of information collection
ABC summary reports
Organisational Chart
Statistical print outs on staff and agent numbers
Working papers on ABC
Information collection interview forms
Service Charter
Timesheets
Product costing documentation

Table 7-2 NMH Data Sources

Data Sources
Interviews
Lists of names
Documented procedures of information collection
Total Cost Management summary reports
Organisational Chart
Budget summaries distributed to managers
Working papers on ABC
Information collection interview forms
Recorded queries of the ABC allocations
Maps
Timesheets
Correspondence with outside consultants
Implementation plans
Seminar presentation notes
Service costing documentation

V. Conclusion

The case study is appropriate for this particular research project, as it is exploratory in nature. Furthermore, multiple cases are appropriate to increase the body of knowledge about the social process of implementing an ABC system for later theory generalisation and suggestions for further research.

The main advantage of multiple case studies in this area of research is the ability to adapt to problems encountered and to information gathered. Furthermore, it would be difficult to investigate this area without benefit of the interactions within the natural setting. Thus, two cases were selected; Norwich and NMH, with data triangulation and multiple sources of data used to help overcome the criticisms of the case study research method.

Chapter 8: The Implementation of Activity-Based Costing at Norwich Union Life Insurance (NZ) Limited

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I. Norwich Union Life Insurance (NZ) Limited and the Life Insurance Industry

Prior to January 1993, Norwich was the New Zealand branch of Norwich Union Life Insurance Society based in England. On 3 January 1993, the assets of the New Zealand branch of Norwich Union Life Insurance Society (New Zealand branch) were transferred to Norwich, a subsidiary company of the International Norwich Union Insurance Group. The holding company of this group is Norwich Union Life Insurance Society, United Kingdom. Norwich operates in the life insurance, investment and superannuation industries, employing 354 people, and holding a 100% interest in both Norwich Nominees Ltd and Norwich Superannuation Services Limited. The Head Office is situated in Wellington, with sixteen customer centres spread throughout New Zealand.

Until the late 1980s, when an actuarial department was installed in the New Zealand branch, all valuations and actuarial work were performed in England using the measurement system designed for the English environment. Now, both valuations and policy decisions, such as decisions on insurance policy prices, are the responsibility of New Zealand management.

Prior to Norwich becoming a subsidiary company, New Zealand branch dividend calculations were unnecessary as it was not considered a separate legal entity from the holding company. However, dividend calculations are now required by the Companies Act 1993 and the Life Insurance Act 1908, which strictly controls the division of life insurance profits between policy holders and shareholders.

The life insurance industry is characterised by the collection of contract premiums before the service is rendered. Contracts may last for a large number of years, such as ten, twenty or thirty years, and it is not known whether a policy is profitable until the policy's term has expired. Currently, the life insurance industry is undergoing

considerable change.⁷⁹ Competition is increasing as banks begin to sell life insurance policies. Cost controls, cost predicability and the accuracy of policy cost data are becoming increasingly important. As a result, Norwich management have initiated a number of changes since 1990.

- Cost centres have been developed;
- Budgets were introduced;
- A service quality program initiated;
- The organisational structure has been altered;
- There has been a turnover in staff; and
- The accounting department has been overhauled.

Changes in the accounting department were initiated following the appointment of a new accountant in 1990. Prior to this, the accounting department was largely a processing area, where bills were paid and recorded, and year-end statements produced. Accounting staff provided little information to management for use in daily operations. Furthermore, the level of general ledger aggregation was high, for example, the depreciation account contained corporate wide depreciation costs. The assistant accountant and the accountant believed that the general ledger aggregation caused a difficulty in determining the reason for the 30% increase in expenses in 1990. This problem influenced the accountant to initiate a review of the existing accounting systems, including the costing system.

⁷⁹ From interviews with Norwich employees which included the accountant, his assistant, the previous assistant Account, the client services manager, the business development manager, the assistant actuary and the superannuation services manager. Hereafter quotations will be in italics, inside quotation marks.

II. The Introduction of ABC to the Norwich Organisation

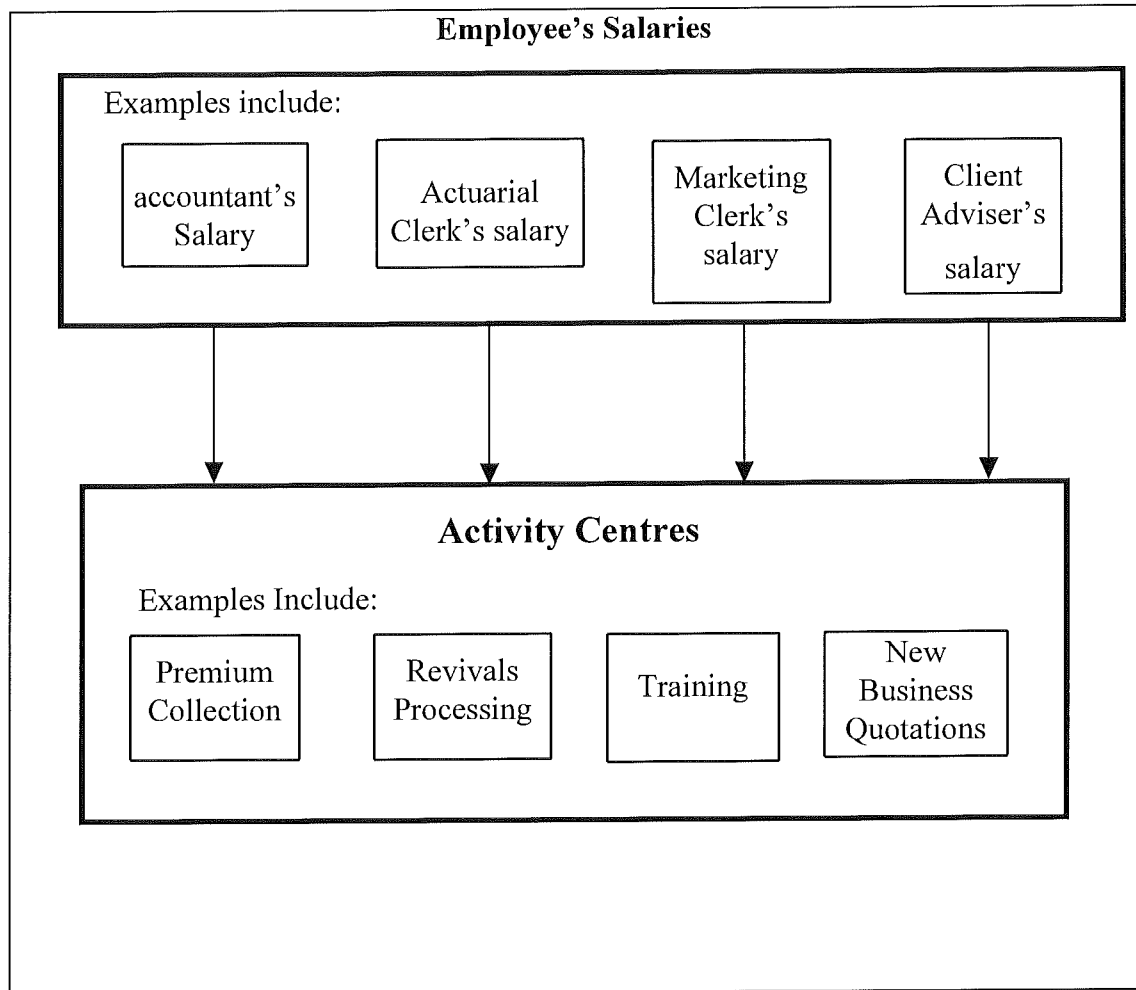
A. The Previous Costing System

Until 1990, the previous costing system was used at Norwich, although cost per policy data was not produced. Instead, activity centre costs were calculated, as shown in Figure 8-1. Biannually, all employees recorded, at fifteen minute intervals, their daily actions for a period of two weeks. Actions were not product actions, but action types, such as New Business Quotations, Revivals Processing, Premium Collection, Training and Team Meetings. This exercise was performed to determine the cost of administering the various functions⁸⁰ of Norwich's business. Function costs were calculated through the allocation of individuals' salaries to actions, based on the time sheets completed over the two week period. If, for example, 10% of a manager's time was spent on premium collection, then premium collection was allocated 10% of the manager's salary.

Both the previous assistant accountant, and the client services manager believed the results of this system to be inaccurate, as they did not consider a two week period to be representative of employees' activities over a full year. Furthermore, the diligence of employees in completing the time sheets was also in doubt because staff disliked completing the form. The client services manager, for example, had found that he would omit to record his activities for half a day, and consequently had to estimate the times taken to complete tasks.

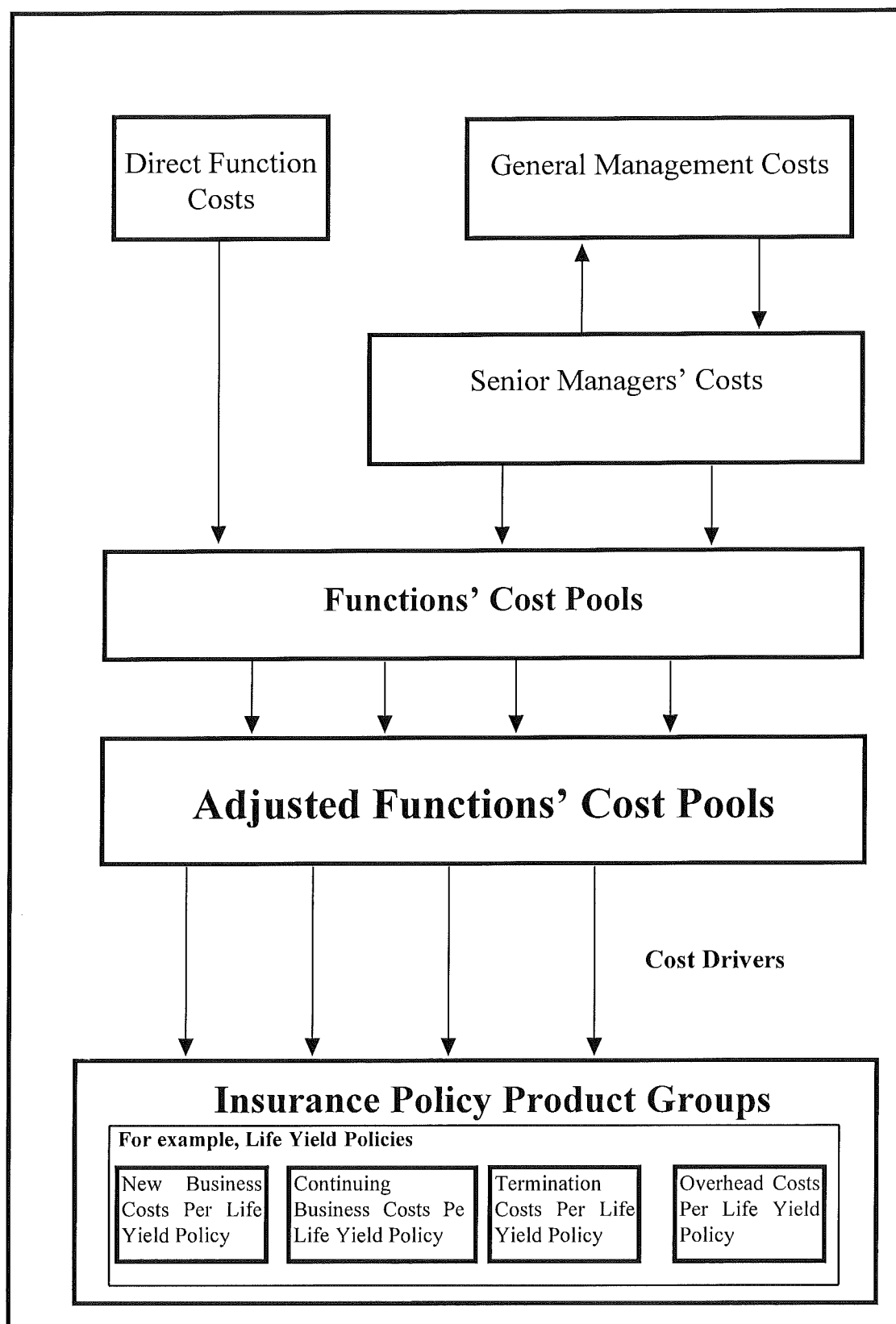
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⁸⁰ Functions are also considered to be departments or cost centres at Norwich.

Figure 8-1 The Previous Costing System

B. The Current Costing System

The current costing system at Norwich, initiated in 1990 and completed in November 1991, is an ABC system, as shown in Figure 8-2. As 60% of Norwich's costs are salaries, and 10% are rent, the majority of costs are directly traceable to functions, such as administration, accounts, actuary and cafeteria.

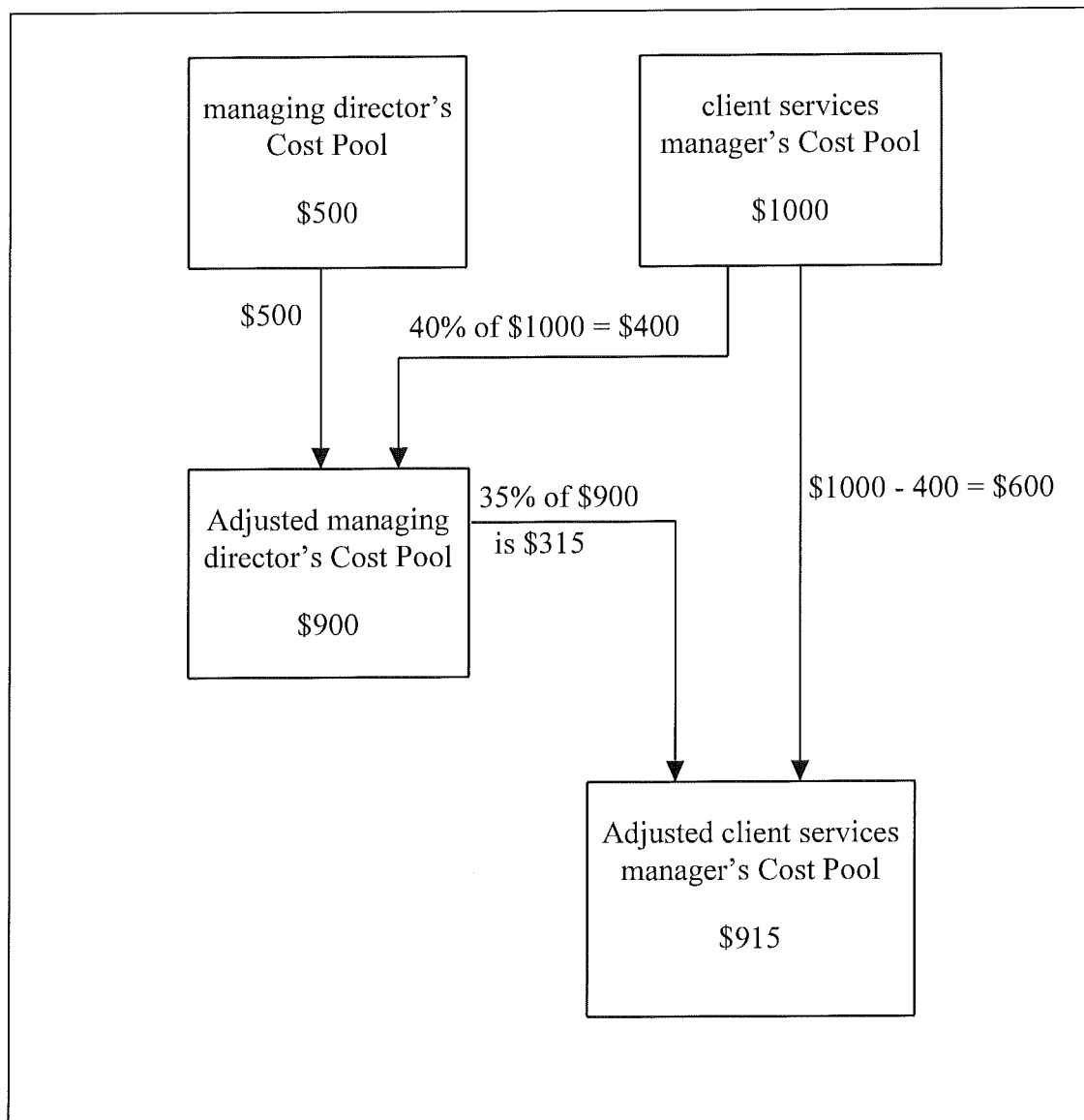
Figure 8-2 Norwich's ABC system

However, the salaries and associated costs of senior management⁸¹ and the managing director are not directly traceable to any single function. Initially, a portion of senior managements' costs are allocated to the managing director's cost pool based on the percentage of time spent with the managing director, or on the general management of Norwich. The client services manager for example, may spend 40% of his time with the managing director, therefore, 40% of his costs would be added to the managing director's cost pool.

The adjusted managing director's cost pool is then allocated to the adjusted senior managers' cost pools, based on time spent by the managing director with each senior manager. Thus, if the managing director spent 35% of his time with the client services manager, then the adjusted client services manager's cost pool would receive 35% of the adjusted managing director's cost pool. Referring to figure 8-3, 40%, or \$400, of the client services manager's cost pool is allocated to the Adjusted managing director's Cost Pool. The whole of the managing director's cost pool is also added to the Adjusted managing director's cost pool. Next, 35%, or \$315 of the adjusted managing director's cost pool is allocated to the adjusted client services manager's cost pool, which also receives the remainder of the client services manager's cost pool, namely \$600. Adjusted senior management cost pools are then allocated to functions based on the time spent with function staff

An objective of the cost system is to allocate function cost pools to product groups or insurance policy types, such as Whole of Life or Endowment. Each product group's costs are further divided into the cost of issuing a new policy (New Business), maintaining that policy (Continuing Business), terminating that policy (Terminations) and other general overhead costs (Overheads) associated with the policy that could not be categorised as new business, continuing business or terminations. Costs were split into these categories because the actuary considered that, when calculating policy premiums, it was important to include all the life cycle costs of insurance policies.

⁸¹ Senior management at Norwich are the client services manager, the actuary and the business development manager.

Figure 8-3 An Example of Top Management Cost Pool Adjustments

To accomplish this allocation cost drivers for each function are identified. Where a function cannot be traced to policy groups, the function's cost pool is allocated to other departments, such as Cafeteria costs being apportioned to other functions based on staff numbers. In some cases, it was possible to identify a single cost driver for a function, such as the number of new policies processed during the year used as the New Business department's cost driver. However, in other cases, a single cost driver for a function could not be identified thus, multiple cost drivers are used. The actuarial department's costs, for example, are allocated using the number of claims paid and the number of

alterations processed as the function supports both the Claims and Alterations departments.

Finally, all adjusted function cost pools are allocated to policy groups, such as allocating the Marketing department's cost pool on the basis of the number of sales of Main Fund, Life Yield and Personal Superannuation policies. Other cost drivers include the number of new policies, existing contracts, and claims, as well as the fund liabilities attributed to product groups. This cost system was regarded by all those interviewed as being successfully implemented, as the results are used in pricing decisions, policy mix decisions and policy introduction decisions. They consider that the ABC system yields quite different results than the previous costing system, as cost per policy data is now provided. The inability of the previous costing system to calculate this information was one reason why the cost system was changed.

C. The Reasons for the Change to the Costing System at Norwich

The principle reason identified for changing the costing system at Norwich was the lack of product cost information available to New Zealand branch managers. Previously, this lack of knowledge did not concern management, as England's costing measurements were used for policy decisions. However, when the actuary determined that England's costing measurements were no longer appropriate for use in New Zealand as New Zealand's business environment was not comparable with that of the United Kingdom, he requested that the accounting staff produce policy cost information to enable him to determine policy profitability. Consequently, it was necessary to implement a costing system capable of calculating costs per policy.

Also, the 30% increase in expenses prompted management to examine the nature of costs and why they occurred. With the old system accounting staff had difficulty answering management queries regarding the cause and nature of costs. These difficulties were compounded by the general ledger aggregation previously described.

The accountant, after considering these factors concluded that the costing system should be changed to ABC.

D. The Reasons for the Implementation of ABC at Norwich

Both the accountant and the previous assistant accountant believed ABC would provide more accurate product costs and product cost accuracy is important for pricing decisions. The accountant believed that *“the only other way of doing it [calculating cost per policy figures] would be to divide the costs by the total number of policies”* and he considered that this would give *“pretty poor answers.”*

The accountant believed that it is appropriate to implement ABC when indirect costs are high, hence, he considered it appropriate to implement ABC at Norwich as 70% of costs are fixed.

Finally, ABC was installed at Norwich as the new accountant was familiar with ABC systems and theory. The client services manager identified the accountant's previous experience as one reason for the implementation of ABC. Moreover, the accountant found that:

“ABC fitted fairly well, because I had been involved in a similar exercise in a manufacturing firm before this ... basically I was just told that the actuaries needed this information, cost per policy data and I was told to work towards it, so I went on my way. Since I had had that experience with ABC it was just a question of adapting it”

To aid the adaptation of his ABC knowledge to Norwich, the accountant obtained a copy of his previous employer's expense analysis reports which contained detailed descriptions of the ABC system used.

Once the decision to install ABC at Norwich had been reached, a number of decisions were required prior to implementation.

III. The Implementation of ABC at Norwich

A. The Decisions Made Prior to Implementation

1) A Stand-Alone System

The accountant and the actuary decided to implement a stand-alone ABC system at Norwich because they wanted to avoid being required to obtain the remaining senior managers' permission to install ABC. As they were required to obtain permission to alter or make additions to existing on-line systems, the accountant reasoned that if they did not alter existing systems, it was unnecessary to obtain permission to install the system. Thus, the accountant and the actuary decided to implement a stand-alone ABC system as it would not alter existing systems at Norwich.

The ABC system implemented at Norwich is a firm-wide system as the actuary had requested cost information on all policies. Additionally, the ABC system was custom built, as the software packages available at that time did not provide sufficient flexibility to accommodate the "*peculiarities of the insurance business.*" The accountant considered the peculiarities of the insurance industry to include the long delay between selling a service, in some case 30 years, and identifying actual product costs, whereas manufacturers can usually determine actual cost before selling their goods. These peculiarities, as well as the accountant's previous experience with ABC installation, appeared to influence the decision to use in-house staff to implement the system. However, the previous assistant accountant considered that the designers⁸² would have benefited from external advice regarding the formal design of the ABC system.

⁸² The designers and installers of the ABC system were the accountant and the previous assistant accountant.

2) *Formal Design Approval Was Omitted*

As a consequence of the actuary requiring policy cost information and the accountant assuming that he would not be interested in the details of how these results were obtained, formal design approval from the actuary was not acquired.

Furthermore, the accountant did not possess full knowledge of Norwich's business⁸³ and the previous assistant accountant had no experience with designing ABC systems. This would have hindered designers' abilities to provide an accurate formal design of an ABC system for approval from the actuary. Moreover, formal design of the ABC system would have been impeded by the designers' lack of knowledge about the availability of cost driver data.

Similar to the omission of an explicit decision to forego formal design approval, the 'owners' of the ABC system were never specifically chosen.

3) *The Owners Were Not Specified*

When employees referred to the ABC system, accounting staff were identified with it. The client services manager stated:

"I don't know the detail⁸⁴ but [the accountant] is very good at what he does, so I just trust his figures."

This may be the result of accounting staff being responsible for the implementation and maintenance of the system.

The client services manager believed there was one limitation with accounting staff implementing the system. He considered source documents complicated and he doubted whether the installers had sufficient knowledge to extract the correct information from them.

⁸³ When the accountant was asked if he had in-depth knowledge of the insurance industry at the time of installation, he replied; *"No, because I had just come in [to the industry]."*

⁸⁴ This was referring to the detailed procedures of the ABC system.

Insufficient knowledge contributed towards the designers failing to determine the desired accuracy level of the ABC system before installation.

4) *The Accuracy Level of the ABC System*

A predetermined accuracy level was not identified at Norwich, as the designers did not know what data would be available for use in the ABC system. However, the accuracy level of the ABC system was considered when identifying cost driver data during implementation. Instead of the two week period in which staff completed time sheets, designers decided that employee percentage estimates of time spent on different product groups would be used in the ABC system. Designers believed that the relativities of time spent between different policy groups would provide more relevant information than an accurately recorded sample period, which may not be representative of the year.

Additionally, when the accountant was determining whether to use employee percentage time estimates or time sheets as cost driver information, he considered employees' reactions to supplying the required data. Designers wanted data collection to cause minimal interference with employees' daily activities. As employees disliked completing time sheets, this also encouraged designers to use percentage estimates of times.

In addition to omitting to predetermine the desired accuracy level of the ABC system, designers also failed to specify the required complexity level of the system prior to installation.

5) *The Complexity Level of the ABC System*

Lack of knowledge, and the doubt surrounding the availability of data, prevented designers from specifying the level of complexity for the ABC system, but initially this did not cause any difficulties. However, as the system has been further developed, problems are occurring. The assistant accountant has encountered the main difficulty that, when inserting a row, the time necessary to update the system is unsatisfactory as the system is too complex for Excel, the software package originally used in implementation.

6) *Historical Costs*

Designers decided to use historical costs in the ABC system. Future costs were not used as the accountant doubted the credibility and reliability of budget information as budgeting had just been introduced at Norwich. Many managers “*had never been in the position where they had the responsibility of drawing up a budget.*” Consequently, the accountant believed managers were learning about budgeting and as this learning process generally involved mistakes, budgets were unreliable. Thus, actual historical costs were used in the ABC system at Norwich.

B. The Implementation Process

1) *Design Seminar*

A design seminar was held at the outset of implementation to instruct the previous assistant accountant on ABC concepts and design. As the accountant already understood ABC concepts, he explained and discussed these with the previous assistant accountant. Additionally, both the accountant and the previous assistant accountant attended two seminars on ABC held by the New Zealand Society of accountants. The previous assistant accountant found this process to be successful, as he gained an understanding of ABC concepts.

This education process appears to have aided in developing a mutual relationship of trust and respect between the designers. The combined knowledge of the two designers was complimentary to their working relationship; one member had detailed knowledge of ABC and the other designer had knowledge of the insurance industry.

Initially, designers had to use this knowledge to convince the actuary that ABC was appropriate at Norwich.

2) *Executive Seminar*

The actuary’s acceptance of ABC was crucial to the implementation of ABC at Norwich, as he had requested cost per policy information and this was the major reason why the cost system was being changed. If the actuary did not consider the information

to be valid, then he would not use it and hence, there would be no reason for implementing ABC:

“If the actuary hadn’t accepted [the ABC system] as being valid, it would have been dumped.”

In selling the ABC system to the actuary, the designers educated him about the principles and benefits of ABC through verbal discussions, external papers and notes from seminars. Once the actuary was convinced that ABC was appropriate for Norwich, designers could begin designing and implementing the ABC system.

3) *Design and Data Gathering*

During the design and data gathering phase of the ABC implementation, functions were identified as the activity centres. Allocating resources to these centres was relatively simple as the majority of resources had already been allocated to the activities. However, it was necessary to allocate costs relating to the managing director and senior management to functions.

Once resources were allocated to the activity centres the design team began to identify activity drivers through questionnaires and interviewing⁸⁵ function managers. However, in the first attempt there were a number of unallocated costs as designers had difficulty in identifying suitable cost drivers. Furthermore, some cost drivers were unable to be used because the corresponding data was not available since actuary data systems were not fully developed at this time. Available cost driver data was then gathered using computer statistics, computer records, and educated estimates from employees. Finally, product costs were calculated.

The design, data gathering and installation of the ABC system was progressive, assembled function-by-function. Designers would identify a function’s cost driver and gather the appropriate information. Each function’s cost pool and allocation method was then integrated into the overall ABC system.

⁸⁵ At the start of each interview there was an informal discussion briefly explaining the reason for the interview, namely that a costing analysis was being undertaken.

Once the system was completed, the resulting cost per policy figures were discussed in a results meeting with designers and the actuary. Designers had not previously reported to the actuary about the progress of the ABC project, as the accountant believed there would be no purpose reporting to the actuary until cost per policy figures were produced. Furthermore, the accountant was not given a deadline as to when policy cost information was required. However, progress meetings may have been beneficial in eliminating some of the errors discovered by the actuary and the accountant when costs were investigated after the results meeting.

4) *Results Meeting*

Following the installation of ABC, the system results and procedural documents were given to the actuary and then a results meeting held between him and the designers. Based on his “*gut-feeling*” and expectations, the actuary identified a number of cost per policy figures as appearing too high relative to other costs. The actuary requested investigations into these costs. The results of these investigations were discussed in interpretation meetings.

5) *Interpretation Meetings*

In these meetings, it was found that many of the problems identified during the investigations were relatively simple to solve, such as when a problem arose because the actuaries had given the accountant incorrect data. Furthermore, interpretation meetings gave designers the opportunity to explain to the actuary why some products received what he considered to be a disproportionately high share of costs. Once these reason were explained, the actuary accepted the costs per policy figures.

The ABC system was modified twice, as the result of interpretation meetings, before the actuary was satisfied that the cost figures could be distributed to managers. It took approximately one year to complete the ABC system, from inception to the approved final version. Designers identified several reasons for this delay:

- a) The system was developed alongside a number of other changes in the accounting departments, so did not get exclusive attention.

- b) Designers were not given a completion deadline.
- c) Previously, there was a complete lack of product cost information; and
- d) The actuaries were also developing systems and information from these systems were required for the ABC system.

A report, containing full details of cost calculations, was distributed to the actuary and the managing director. The accountant stated that the ABC system *“has only really been explained on a need-to-know basis, because there is no purpose in telling everybody the detail.”* Additionally, top and middle management were not informed about the implementation of the ABC system until it *“was up and running and accepted.”* Furthermore, the client services manager stated that he could not remember being informed about the ABC system until it had been installed. However, the accountant did indicate that he would have been quite willing to explain the system to managers if they requested an explanation.

Summaries of policy costs were distributed to the managing director and senior management. These summaries included total costs per policy group, as well as new business, continuing business, termination and overhead costs per policy group. Distribution of the summary was limited to senior management, as the information was considered confidential and commercially sensitive. Summaries were also accompanied by a memorandum giving a brief explanation on how the costs were calculated. The explanation given was:

“We use a technique known as ‘Activity Based Costing’ (ABC) for this analysis, where costs are allocated on the basis of resources used. A simple example is that Claims costs are allocated to products in proportion to the number of claims paid. Weightings are applied where some types of claim are more complex to ensure the allocation is as fair as possible. Most costs are not as simple as this and various methods of allocation are used as appropriate It should be noted that the ‘Costs per Policy’ are very volume sensitive and can change significantly with volumes of business.”⁸⁶

⁸⁶ From a copy of the memorandum sent to senior managers with ABC results.

As well as distributing a summary of the results to senior management, the results of the ABC system are used in the actuarial systems for pricing. ABC data is also used for calculating the management fee, strictly defined by the trust deed to only cover the expenses incurred, owing to the management company (Norwich) from the unit linked funds (the subsidiary companies). Since implementation, the uses of ABC output have expanded.

6) *Post Implementation*

Currently, ABC information is used in the calculation of shareholders' dividends and management fees, as well as in the budgeting process for allocating overheads to cost centres. Additionally, ABC data is used in management reports comparing budget to actual costs in evaluating management performance. Furthermore, the distribution of ABC information has increased to include the level of management below senior management, including the Training Manager, the Human Resources Manager, the Client Service Manager (Development), the Distribution Systems Manager and the superannuation services manager. The assistant accountant found that distribution of the data increased as the actuary gained greater confidence in the results. Distribution of ABC information was also expanded to "*increase cost consciousness.*"

When the superannuation services manager learnt that ABC was used in the budgeting process he inquired about how ABC figures were obtained. The business development manager also expressed an interest in knowing how costs were allocated to policies. However, other recipients of budgets or ABC output have not asked for an explanation of how cost per policy figures are calculated.

A number of actions have resulted from managers receiving ABC information, such as the superannuation services manager identifying a number of unprofitable policies. Where customers agree, these policies are being converted to other policies, otherwise they are being terminated. "*Cost consciousness*" has also increased as a result of budgets and detailed policy cost information. Additionally, ABC information proved useful for pricing and calculating the profitability of new products for example, Flexi-Cover, a comprehensive term insurance policy, and a personal superannuation savings

product, Super-Yield. Another consequence of the implementation of ABC was an increase in the profile of accounting staff at Norwich.

Since the ABC system was approved, it has been refined. Products have been added and more appropriate cost driver information has been obtained and utilised in the system.⁸⁷ Both the accountant and his assistant view improving the ABC system as a continuous process, as new information systems are developed and different data becomes available for use. Overall, it appears that the ABC costing system has been successfully implemented at Norwich, based on the accountant's comment that "*it [the ABC system] is up and running and accepted,*" as well as ABC results being used in pricing decisions, product mix decisions and in budgeting. This is despite an initial lack of commitment from the actuary.

C. The Commitment of Norwich Staff to the Implementation of ABC

The actuary had to be convinced that ABC was appropriate at Norwich. The accountant and his previous assistant had to sell the system to the actuary. Eventually, the actuary was convinced that ABC was appropriate "*to the extent that he actually presented a paper on it [ABC in the insurance industry].*" Additionally, there was no evidence of top management commitment to implementing ABC prior to, or during, installation.

However, due to the implementers' actions in selling ABC to the actuary, and installing the system, it appears that installers were committed to the project. Furthermore, one of the installers also appeared to sponsor the introduction of ABC at Norwich.

D. The Sponsorship of the Implementation of ABC

The client services manager, the assistant accountant, the superannuation services manager and the previous assistant accountant indicated that the accountant sponsored the introduction of ABC at Norwich. They also considered that the accountant had been

⁸⁷ One of the designers has left Norwich and his replacement, the assistant accountant, has taken over the operating responsibility of the ABC system. She has also been instrumental in ABC refinements since the previous assistant accountant left.

the driving force behind implementing ABC and this was a critical success factor of the project. A further critical success factor was the reaction of individuals, especially the actuary, to the implementation of ABC.

IV. Individuals' Reactions to the Change of the Cost System at Norwich

The accountant had not anticipated encountering any resistance to the implementation of ABC at Norwich as he did not consider that the system would affect employees, other than the actuary. Additionally, he believed employees would not be interested in the implementation. He considered that providing managers with additional (and he believed unnecessary) information would be unwise when managers were already being required to adapt to a number of other changes, such as the introduction of budgeting. These factors lead the accountant to believe that employees would not benefit from being informed about ABC.

Nevertheless, a number of employees reacted to the implementation of ABC at Norwich, including the previous assistant accountant.

A. The Previous Assistant Accountant's Reactions

The previous assistant accountant welcomed the installation of ABC as he believed it was necessary to provide accurate product cost information. Furthermore, he believed that the implementation process would be both challenging and educational. As he enjoyed learning, the opportunity to participate in implementing an ABC system at Norwich was welcomed.

Additionally, the previous assistant accountant considered that implementing ABC would be interesting. He regarded this interest factor as an important intrinsic reward. Moreover, he found collating the data required by the previous cost system both time consuming and tedious, and he had disliked completing the time sheets himself. He was willing to aid the implementation of a costing system that would eliminate those tasks that he considered disagreeable.

However, not all employees welcomed the implementation of ABC, including the information providers.

B. Information Providers' Reactions

Initially, designers faced some suspicion from staff when they were requested to provide estimates of the percentage of time spent on policies, and information on the activities that they performed. As a result, delay was experienced by installers in acquiring the necessary data.

This delay and suspicion appears to be the result of the manner in which designers gathered the data. When designers were trying to determine how to allocate functions' costs, interviews were conducted with departmental managers. All managers at head office were interviewed and a sample of sales branch (also referred to as customer centre) managers were also interviewed. Not all customer centre managers were interviewed, due to financial restrictions. Furthermore, average figures for customer centres were used to distribute the customer centre cost pool and the accountant believed that a sample of the customer centres would be representative of all centres. Additionally, it was planned to visit different customer centres in the following years, so eventually all centres would be included.

The customer centre managers who were not interviewed were required to send their completed questionnaire to the accountant. Interviews were arranged by sending a memorandum to managers, stating that the accountant and the previous assistant accountant would be visiting and it also included the questions to be asked. The interviews focused on how managers performed their activities, where their time was spent, analysing their job descriptions and relating job descriptions to activities.

Designers found that the majority of managers did not prepare for the interviews⁸⁸ because they did not understand what information was required, such as staff at the Hamilton branch. This caused some delays in obtaining information. Interviews

⁸⁸ In those cases that information was prepared prior to the interview, it was found that manager's secretaries had compiled the data.

permitted designers to clarify the data they required from information providers, which proved beneficial for reducing misunderstandings. This may explain why the majority of difficulties in acquiring data arose from those managers at customer centres who were not interviewed.

Further delays resulted from errors in the data supplied to the previous assistant accountant. Information providers were supported, rather than criticised, when they had supplied designers with incorrect data. When errors were made, the focus was on acquiring the correct information, not the error itself. Similarly, when installers made an error in designing or installing the system, the aim was to concentrate on correcting this mistake, rather than penalising the person who made the error.

Managers were not told in the memorandum why this information was necessary. As managers did not know why this information was being requested, it was viewed with suspicion. The presence of the accountant and the previous assistant accountant in cost centres and sales branches threatened managers, as they did not trust the accountant or the previous assistant accountant.

In an effort to minimise information providers' distrust, at the beginning of interviews, the accountant and his previous assistant explained that the interview was part of an annual cost analysis exercise for costing policies. Once this was explained, both designers found that managers relaxed and were quite willing to provide the necessary information. However, the accountant did indicate that some of the cost centre managers were sceptical that he had disclosed his 'true' reason for the interviews. The accountant believed this was the result of managers considering that he was reviewing the performance of cost centres, which threatened cost centre managers.

Distrust of accounting staff also influenced the actuary's reaction to the implementation of ABC.

C. The Actuary's Reactions

The ABC system had a greater impact on the actuary than merely having to provide data to accounting staff. The actuary had to rely on the resulting cost per policy data for

calculating policy prices, policy profitability and profit projections. The actuary initially resisted the implementation of ABC because he was unfamiliar with ABC and he did not trust accounting staff. His distrust of accounting staff was influenced by difficulties experienced by him when acquiring timely and correct accounting information from the previous accountant. The accountant stated that he had “*suffered*” from this distrust, as all information he conveyed to the actuary was checked for errors.

The actuary’s initial resistance to ABC was overcome through education. The actuary learnt about ABC concepts and the accountant discussed ABC in relation to the insurance industry. During these discussions, the actuary identified specific situations where he believed ABC would fail, but the accountant stated that they had to “*come up with a way to allocate costs that works across the board.*” Additionally, the accountant emphasised the benefits of ABC and explained that alternative costing systems would produce inadequate results.

The accountant also identified “senior management” as initially being resistant to ABC.

D. Senior Managements’ Reactions

The accountant indicated that senior managers were initially resistant to ABC because there was “*a degree of hesitancy in senior management towards new ideas.*” This hesitancy was overcome by communicating the reasons for the necessity of ABC. The presentation of this information also influenced senior management acceptance of ABC, as the benefits were used to persuade senior managers to accept the system. Furthermore, senior managers were informed that the actuary required cost per policy data and alternative costing systems would not be as accurate as ABC.

By the time the ABC system was presented to senior management, the actuary had already accepted ABC and was committed to its implementation at Norwich. As the actuary was committed to ABC, and the system had already been installed, it appears that obtaining senior management approval was merely a formality. This may explain why the client services manager could only recall ABC being discussed briefly with senior management, and his lingering concerns about the ABC system.

The client services manager welcomed the abandonment of the two week time sheet requirements. The superannuation services manager also found this consequence of implementing ABC to be advantageous.

E. The Superannuation Services Manager's Reaction

As ABC information has been used in the budgeting process, the ABC system has effected all those managers with budget responsibility. The majority of these managers appear to have accepted the system without concern. However, the superannuation services manager questioned the accuracy of the ABC system when he received his revised budget, because his budgeted costs had been doubled when overheads were allocated. He was responsible for his budget and wanted to know why he was allocated these extra costs. He did not believe he had been allocated a fair and reasonable amount of overall costs, although the accountant believed that the allocations were correct. This difference of opinion was influenced by the superannuation services manager's lack of knowledge about the ABC system. Consequently, the superannuation services manager was adamant that the ABC system should be explained to all management.

Additionally, he believed that all management should have been informed of the ABC implementation when the concepts were first introduced to Norwich. Furthermore, the superannuation services manager believed all management, including himself, should have been consulted about, and involved in implementing the system. Although this view was not held by the other employees interviewed at Norwich, the previous assistant accountant did believe the actuary should have been involved in the initial stages of implementation, as the ABC system was being developed expressly for his use.

However, the superannuation services manager now believes that the cost allocations are correct. This was the result of the accountant and his assistant explaining how the ABC system operated and why and how he was allocated each overhead cost. Once the superannuation services manager understood the ABC process, he was satisfied that he had received a fair and reasonable proportion of overall costs.

V. Summary

It appears from the findings of this case study that the ABC system was successfully installed at Norwich despite deviations from the suggested implementation process outlined in the previous chapters. It appears that the uses of the system have constantly expanded and the ABC system itself is being continually refined and developed.

In Chapter 9, the implementation of ABC at NMH is investigated. The results of implementing ABC at both Norwich and NMH are then compared in Chapter 10.

Chapter 9: The Implementation of Activity-Based Costing at Nelson Marlborough Health Services Limited

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I. The NMH and the Health Sector Reforms

Prior to June 1992, NMH was the Nelson Marlborough Area Health Board, responsible to the Ministry of Health (MOH). Following health sector reforms, which restructured the New Zealand public health system, NMH became a Crown Health Enterprise (CHE), contracting with the Regional Health Authority (RHA) and the Public Health Commission (PHC), to provide health care services to the general public in the Nelson Marlborough region.

NMH manages eight hospitals. The Nelson Public Hospital and the Wairau Public Hospital provide general hospital services, including surgical, to the public and Braemar provides care for intellectually handicapped people. Murchison Health Centre, Motueka Community Hospital and Golden Bay Community Hospital primarily provide maternity and geriatric hospital services to the public. Ngawhatu provides care to mentally disturbed patients and geriatric care is provided at Alexandra Home. NMH also provides community health services, such as the education of school children about health or advise on sexually transmitted diseases.

To provide these services, NMH operates a number of support departments, such as the laundry, transport and food departments. Consequently, NMH is a large and highly complex organisation, comprised of 250 departments, of which 99 are indirect⁸⁹ or support departments. Furthermore, NMH has an operating budget of approximately \$100 million per annum.

Traditionally, NMH was allocated a lump sum of money (bulk-funded) by the MOH, regardless of the number of services consumed by the public. Consequently, in an effort to avoid possible funding cuts, NMH staff spent their full quota of funds. Furthermore, if funds were overspent, it was assumed that the MOH or government would meet the shortfall. However, the health reforms have created a need for an alternative approach.

⁸⁹ Indirect refers to those departments which do not have primary contact with patients, such as the laundry department.

In the July 1991 Budget, the New Zealand Government introduced radical changes to the health care environment within which NMH operates. The changes identified were that:

- 1) Regional Health Authorities would be established to purchase primary care services from public, private and voluntary providers;
- 2) “most big hospitals will be restructured on more businesslike lines as Crown Health Enterprises”;
- 3) “the public would be given the choice to take their share of government funding to an alternative health care plan”;
- 4) the PHC would be established to centrally purchase population-based public health activities, such as education programs; and
- 5) a system of user charges for medical services will be introduced (Ashton 1992, p146).

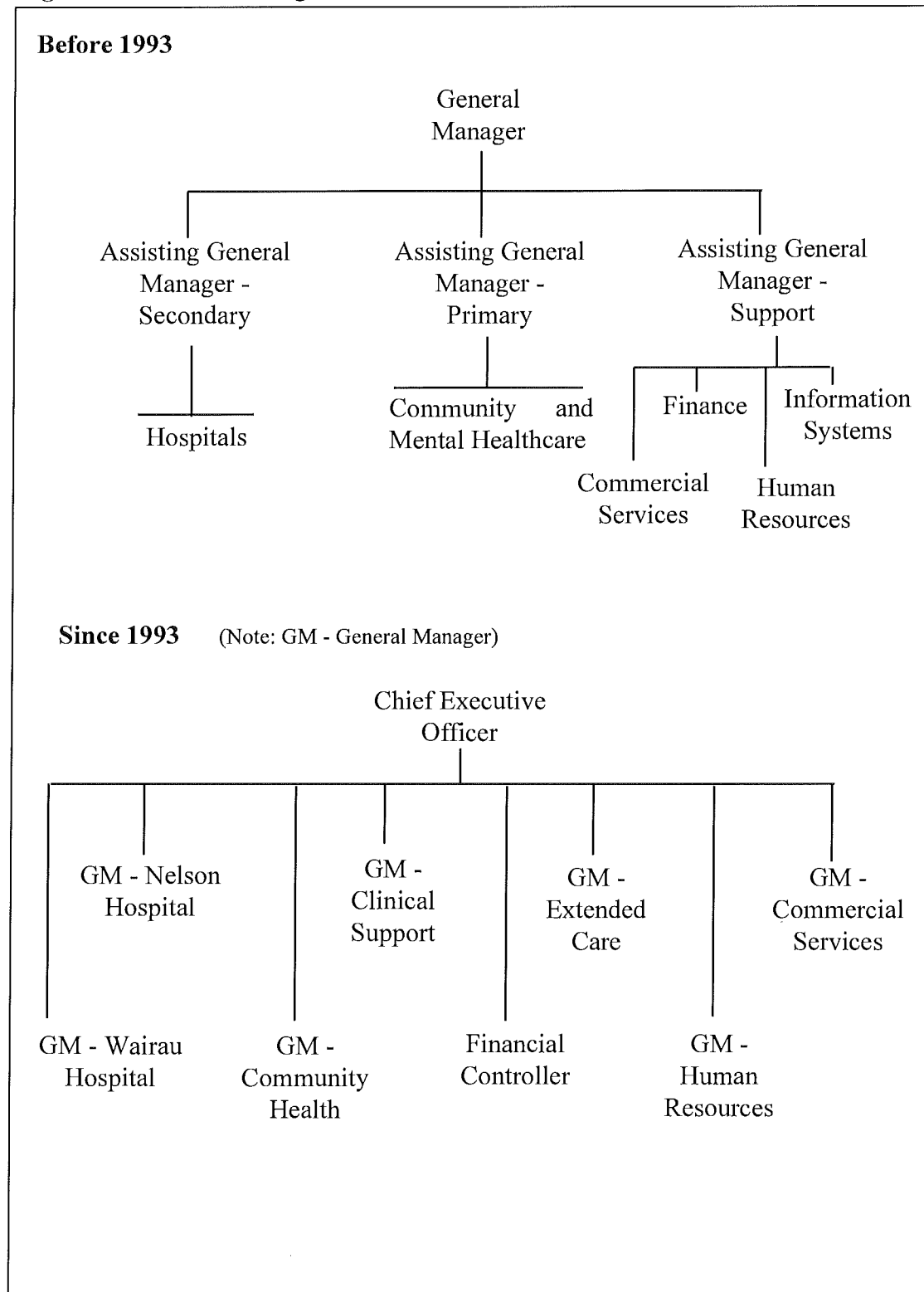
Currently, these reforms have been implemented with one exception; the public have not yet been given the choice of where to take their share of government funding. The reforms required health care employees to adapt to changes in the operation of the public health care system, such as the alteration of NMH’s organisational structure, as shown in figure 9-1. However, NMH employees did not generally agree with, nor welcome, these changes.⁹⁰

Currently, CHEs, including NMH, are required to have a number of commercial objectives, such as to operate an effective and efficient business, which they must strive to attain. This has resulted in resource management at NMH becoming important. Additionally, bulk-funding of Area Health Boards has ceased and service contracts

⁹⁰ From interviews with NMH employees, which included; the Management Accountant, the Finance Officer, the Executive Officer - Community Health, the General Manager - Commercial Services, the Child and Adolescent Mental Health Service Unit Manager, the Maintenance Services Manager, the Adviser Asset Manager, the CSSD Unit Manager, the Manager - Oral Health Services, the Ward 2 Unit Manager, the Manager - Household Services, the Manager - Pay-roll, the Finance Officer - Reporting, the Financial Controller, the Performance Contract Manager, the District Accountant - Wairau, the Projects Officer, and the Treasury Accountant. Hereafter quotations from employees will be in italics, inside quotation marks.

introduced, therefore, it has become necessary for costs to be managed from strategic, management and operational perspectives.⁹¹ Consequently, the accounting systems at NMH were reviewed, which included an examination of the costing system.

Figure 9-1 NMH's Organisational Structure



⁹¹ From a report of a review of NMH's financial services area in 1992.

II. The Introduction of ABC to the NMH Organisation

A. The Previous Costing System

In an examination of the costing systems in the health care industry a detailed knowledge of health care terminology and references is necessary, as shown in table 9-1.

Table 9-1 Health care Terminology and References

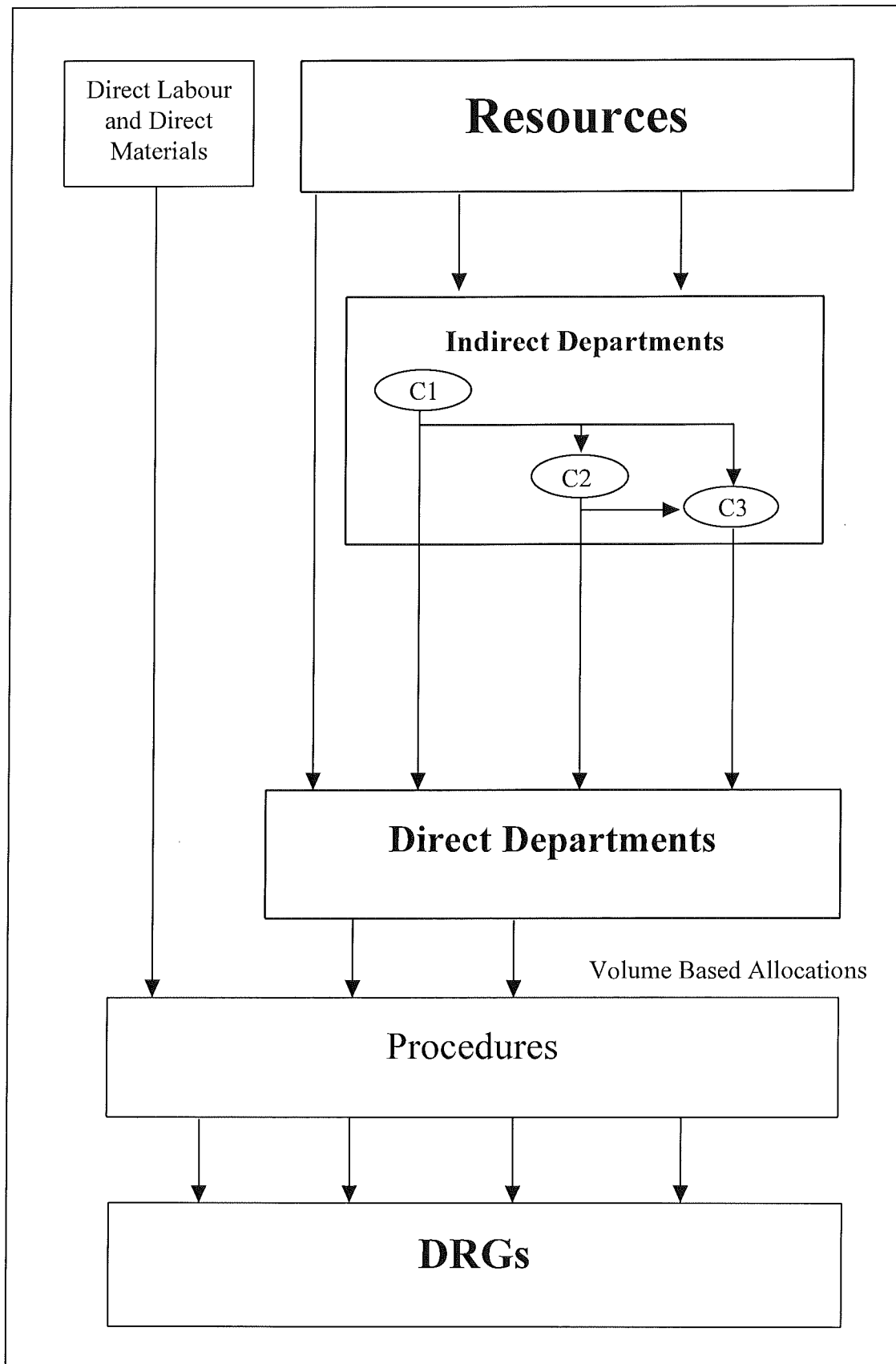
Name	Description
ICD9	ICD9s are the international classification of diseases codes. There are 9800 of these codes.
DRG	DRGs are Diagnostic Related Groupings. The ICD9s are aggregated into 477 DRGs based on disease similarities between ICD9s. DRGs can be divided into procedures as similar illnesses will require similar treatment.
Procedures	Procedures are those actions required in the treatment of a client's ailment. For example, a hip replacement is comprised of an operation and physiotherapy. A procedure is also called a work load unit. Procedures are the outputs of direct departments and are usually measured in terms of time taken to perform the procedure.
Direct departments	Direct departments are those departments which are primarily responsible for clients, such as the Accident and Emergency Department. Direct departments also include those services that have secondary contact with the client, such as laboratories.
Indirect departments	Indirect departments are those departments which have no direct contact with the patient, such as the Quality Assurance Department. Indirect departments support the direct departments, for example, the laundry department provides linen to direct departments.

The Resource Utilisation System (RUS) was implemented in April 1990, detailed in figure 9-2. This system provided costings of surgical and medical inpatients at the Nelson Hospital. Firstly, the resources used at Nelson Hospital were identified. The costs of departments that provided exclusive service to Nelson Hospital were readily available because the general ledger was sufficiently detailed to capture this data. However, some departments provided services to NMH as a whole, including Nelson Hospital. The NMH management accountant stated that a portion of these departments' costs were allocated to Nelson Hospital on an arbitrary percentage basis, namely 40% of corporate level costs were allocated to the corporate level department at Nelson Hospital. Furthermore, materials and labour traceable to procedures were directly costed to those procedures. Materials and labour can also be traced to direct departments if required.

Indirect department costs were then allocated to direct departments using a step-down method. Referring to figure 9-2, C1 was allocated to direct departments and to the remaining indirect departments, C2 and C3. C2 was then allocated to direct departments, as well as C3.

Procedure costs were then calculated through the division of each direct department's cost pool by the number of procedures performed. The resulting overhead cost per procedure figures were added to each procedures' direct costs and these figures were then used to compile DRG costs.

The treatment of a DRG consists of a number of procedures, or work load units, therefore, costs per procedure were added to attain a cost per DRG. Hip replacements constitute a DRG. To treat this group requires an operation and follow-up physiotherapy, therefore, the cost of a hip replacement is equal to the cost per operation and the cost per physiotherapy unit, which is multiplied by the number of physiotherapy units consumed. Under the current costing system a similar approach is used to calculate procedure costs from direct department costs.

Figure 9-2 The Resource Utilisation System at NMH

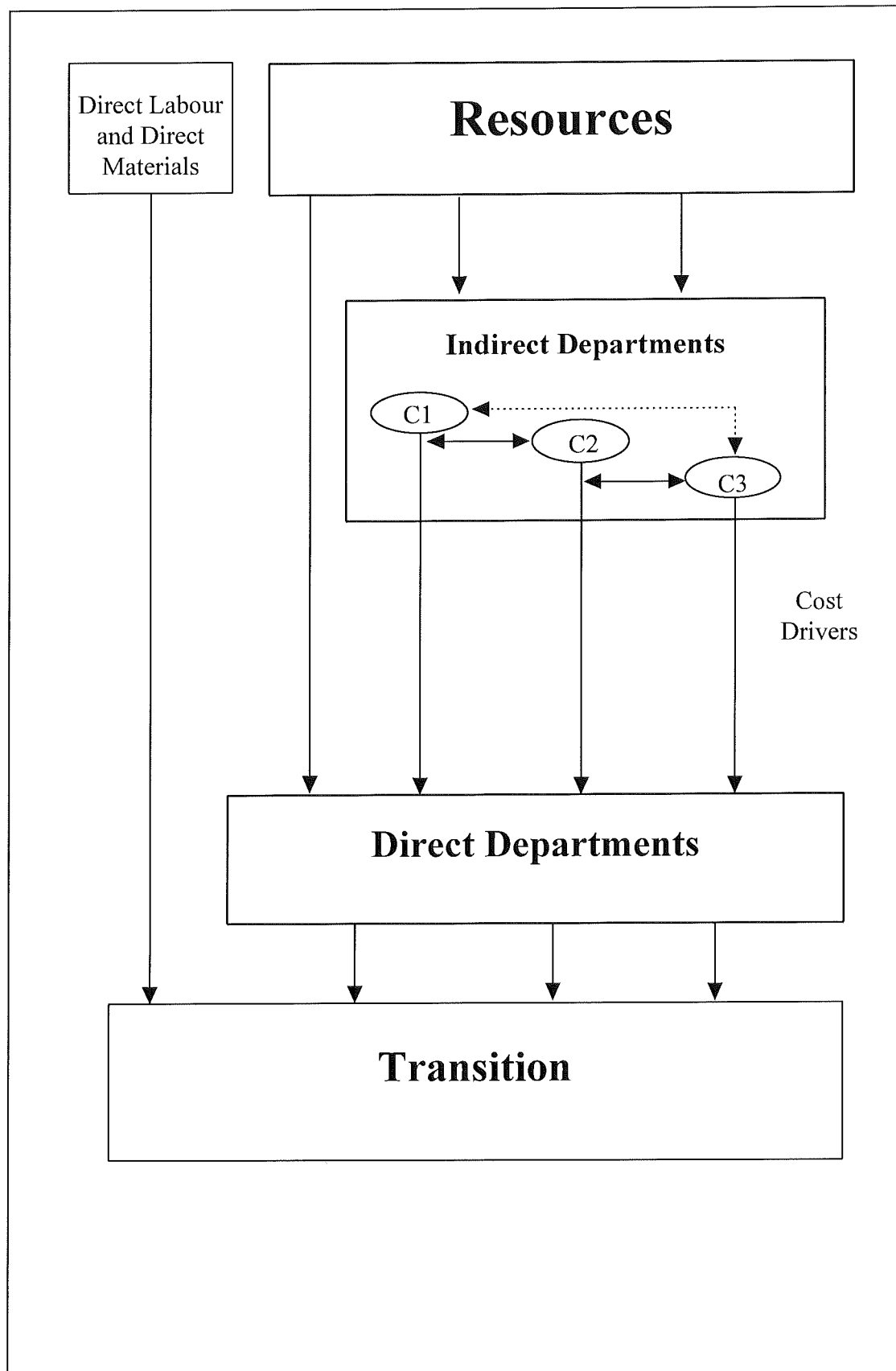
B. The Current Costing System

NMH's current costing system, initiated in August 1992 and completed early 1993, is described as ABC and calculates procedure costs using budget figures. Presently, the system is comprised of two distinct components; indirect departmental cost allocations to direct departments which is known as the ABC system, shown in figure 9-3, and transition, which distributes direct department costs to services, as shown in figure 9-4.

The cost of direct labour and direct materials are immediately entered into transition as they are directly traceable to procedures. However, resources that cannot be directly traced to procedures, such as the CEO's salary, are allocated to departments. Resources are easily traced to departments as all department managers submit a budget to the management accountant detailing the cost of resources expected to be consumed by that department.⁹² A reciprocal cost allocation method is then used to allocate indirect department costs to direct departments. Indirect department costs may be allocated to other indirect departments, but eventually, all these costs are allocated to direct departments. In figure 9-3, for example, C1's costs are distributed to direct departments, as well as C2 and C3. However, C1 is also allocated a portion of C2's and C3's total costs, which includes part of C1's costs.

Cost drivers, which reflect the consumption of indirect department's services, are used for these allocations, such as the number of cleaning hours used by other departments for allocating the household department's cost pool. Other cost drivers include; the number of full time employee equivalents, the dollar value of materials used in departments, patient days, the dollar value of meals, the number of employees and the actual consumption of electricity.

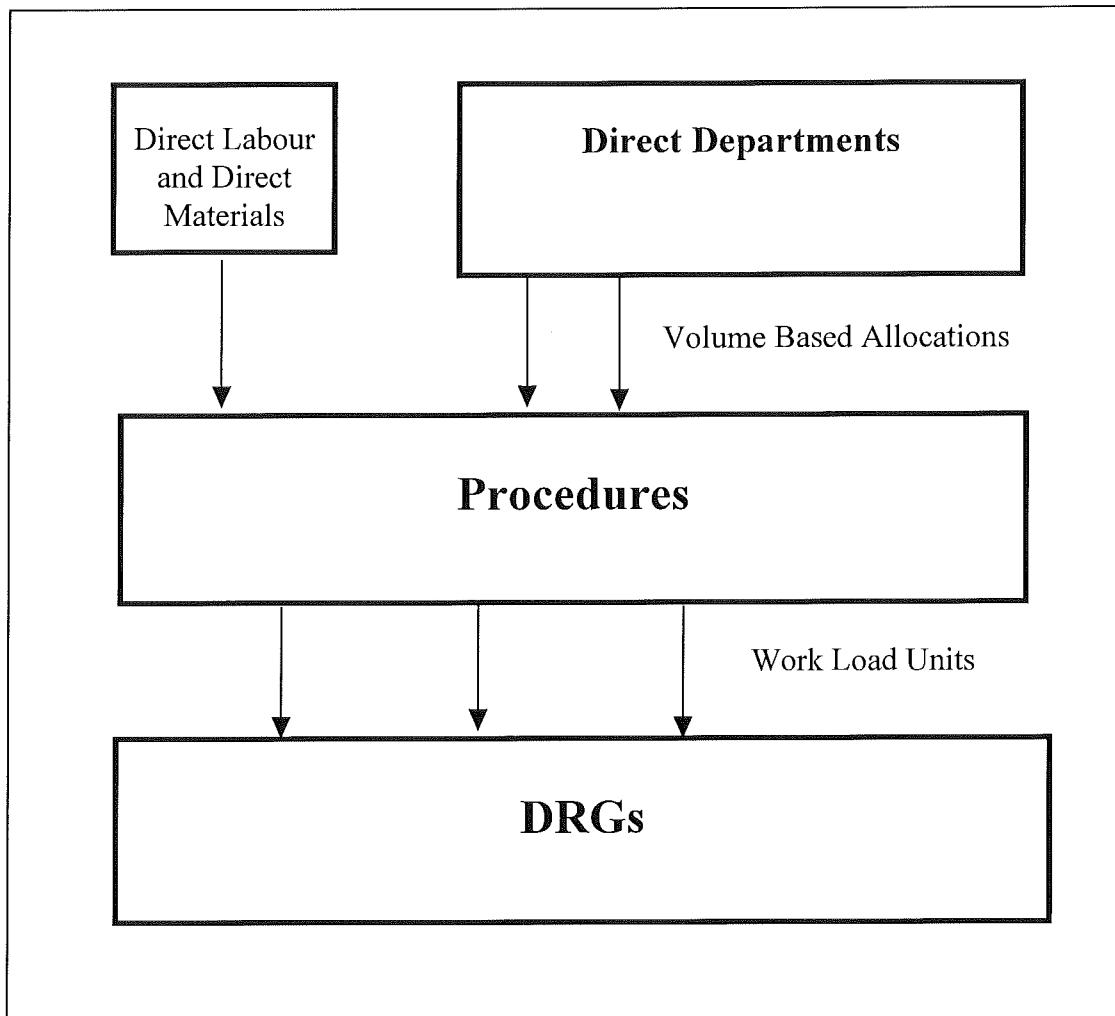
⁹² As there is a separate corporate level budget including the Chief Executive Officers' (CEO) salary, this has been termed the corporate level department.

Figure 9-3 NMH's ABC system

The main difference between this section of the current costing system and the previous one is that indirect department costs are now allocated to direct departments based on a reciprocal method, as opposed to the step-down method. Once all costs have been allocated to direct departments, the total direct department costs are entered into transition.

Transition is similar to the final stages of the previous costing system. Firstly, direct labour and direct materials are traced to procedures. Direct department overhead costs are then divided by the volume of procedures performed by that department yielding an overhead cost per procedure. The overhead cost per procedure and the direct procedure costs are summed to obtain the total cost per procedure. DRG costs are then calculated from the addition of the different work load units necessary to treat clients' ailments.

This phase of the current costing system is dissimilar to the previous system as average DRG costs are calculated for NMH as a whole, whereas RUS calculated DRG costs for Nelson Hospital only. Additionally, the DRG costs of caring for the mentally handicapped patients at NMH are calculated by the current costing system, but these calculations were not performed under RUS.

Figure 9-4 The Transition Costing System at NMH

C. The Reasons for the Change to the Costing System

The principle reason for changing NMH's costing system was that bulk-funding of Area Health Boards, including NMH, was eliminated. Currently, the RHAs and PHC distribute funds to CHEs, including NMH, through the purchasing of services from CHEs using fixed contracts. The contract is fixed; regardless of the number of operations performed at NMH. Funding will only be received for the number specified in the contract. Furthermore, the contract price is inclusive of all support costs, such as laundry and administration. RHA negotiators may state that there is a fixed contract for 100 hip replacements to be funded at \$2,000 per hip replacement. In correspondence with consultants it was stated that NMH management would require costing information to determine whether to accept contracts offered by the RHA and PHC.

Additionally, management predicted, in correspondence with consultants, that contracting could be conducted on a tender basis. Health care providers would submit DRG prices to the RHA and PHC. The provider offering the service at the lowest price would acquire the contract. Costing information would be important in the determination of these prices.

Management considered that in all scenarios fully absorbed cost information on all services was essential. As the previous costing system did not include all branches, services and costs, such as 60% of corporate costs, then it was necessary to develop a costing system that included these factors.

The decision to change the costing system was also influenced by the perceived accuracy level of the previous system. The general manager - commercial services, financial controller, executive officer - community health and the management accountant believed the previous system to be inaccurate in allocating indirect department costs to direct departments because of the hierarchical positions of indirect departments in the step-down method. Although household department staff, for example, used the human resource service, this associated cost was excluded from household department expenses. This was because their costs were allocated to indirect and direct departments before human resource's costs were distributed to departments. Thus, the management accountant did not believe that the household department's costs accurately reflected the resources consumed in the provision of household services. With the introduction of commercial objectives to NMH, the viability of the internal provision of these services became an increasingly important issue. If it would be cost effective to contract these services out to external providers, then NMH management were obliged to do so. Consequently, it was necessary to accurately cost indirect services.

All these factors were considered when the decision was made to change the costing system to ABC.

D. The Reasons for the Implementation of ABC

A number of reasons for the implementation of ABC at NMH can be identified. The management accountant considered ABC appropriate, as he believed it was a modern, “reasonably complex system” that could be installed on a computer. The management accountant was concerned about whether it was possible to adapt a costing method to meet the costing requirements of an organisation as complex as NMH. The management accountant also believed that banking was as complicated as the health care industry, therefore, when he found ABC was used in the banking business, he considered that ABC could also be used at NMH.

A cost/benefit analysis was not performed on the implementation of ABC. Furthermore, other types of costing systems were not considered for installation at NMH as the financial controller believed them to be inappropriate because NMH’s product lines were not consistent and services are demand driven. For example, one week there may be six hip replacements performed and the next week a dozen appendectomy cases treated, instead of hip replacements.

The management accountant also identified the relative size of indirect department costs as a reason for installing ABC, approximately one third of operating expenses. Thus, as he believed that ABC was appropriate where indirect costs were high and he wanted costs allocated on an activity basis, he considered ABC to be appropriate. Moreover, he believed that cost allocations should be auditable and he considered ABC systems to be auditable.

The main reason ABC was implemented at NMH appears to be that the general manager - commercial services wanted to install ABC. His previous employer had used an ABC system for costing products and he had used the output from this system in decision-making, such as in pricing and contracting. He believed the absence of ABC information hindered his ability to make accurate decisions, such as whether to contract out indirect department services to external providers.

Prior to 1993, the financial controller reported to the general manager - commercial services, formerly the assistant general manager - support. When planning to introduce

a cost accounting department in 1991, the general manager - commercial services “persuaded” the financial controller to hire the present management accountant, although he had not completed his studies. The general manager - commercial services continued to act as the management accountant’s mentor and in early 1992 he was instrumental in sending the management accountant to the New Zealand Society of Accountants seminar on ABC.

In mid 1992, following the decision to change the costing system, both the financial controller and the general manager - commercial services contacted accounting firms, requesting proposals for the implementation of a new costing system at NMH. Simultaneously, they also made inquiries as to whether staff at these accounting firms were familiar with ABC. When selecting the consultant, the general manager - commercial services admitted to ensuring that the accounting firm chosen recommended the installation of an ABC system.

Once Ernst and Young were appointed as the consultants, the future cost system was discussed and a number of decisions were made prior to implementation.

III. The Implementation of ABC at NMH

A. The Decisions Made Prior to ABC Implementation

1) Consultants

Two reasons were identified by the general manager - commercial services for the use of external consultants to implement the costing system. Firstly, the cost accounting department did not have sufficient time to install ABC without external aid. Secondly, the management accountant and the financial controller did not have the expertise necessary to successfully implement ABC.

However, the finance officer believed that the consultants should not have been involved in the project, as they lacked health care knowledge. Furthermore, many employees, including the executive officer - community health, considered consultants unnecessary because they believed that the cost accounting staff should have the expertise to develop a cost system themselves. The district accountant - Wairau also

considered consultants unnecessary. However, both he and the performance contract manager believed that the external consultants provided an outside focus which overcame internal politics⁹³ and increased the credibility of the costing project.

Following consultations between the consultants, the management accountant, the financial controller and the general manager - commercial services, it was determined that a stand-alone ABC system would be implemented at NMH.

2) *A Stand-Alone System*

Concerns were raised by the management accountant and the performance contract manager in correspondence with consultants about the data duplicity involved in the implementation of a stand-alone system. However, a data link to the general ledger was not considered cost effective, due to impending changes in the general ledger and organisational structure. Therefore, it was determined that a stand-alone, firm wide ABC system would be implemented at NMH.

The management accountant stated that he would have liked to implement a pilot ABC system to establish implementation guidelines. However, this was not feasible due to the reciprocal nature of the indirect department cost allocations.

The management accountant also expressed concern about the formal design of the system in initial meetings with the consultants.

3) *General Formal Design Approval*

Consultants were not required to submit a complete formal design of the ABC system before implementation but, it was necessary for them to acquire general design approval. In this case, a general formal design does not specify each indirect department's cost driver, whereas a complete formal design specifies these cost drivers. This decision appears to have been influenced by the consultants' lack of knowledge about the availability of data and the health care industry. Furthermore, time pressures

⁹³ The district accountant - Wairau stated that if a project is internally performed, the project team members get questioned on why they are performing a task, whereas if consultants indicate that an activity should be performed, few questions are asked.

were not conducive to the compilation of a complete formal design, prior to installation. The decision to omit determining the 'owners' of the ABC system was also influenced by time pressures.

4) *The Management Accountant is the 'Owner' of the ABC System*

The management accountant believed that an attempt to determine the 'owners' of the ABC system would have delayed implementation, because of the general dissension likely to occur amongst management. He believed internal disagreement would result from the power that the people who 'own' the system will have over the remainder of the organisation. The management accountant believed the system would be powerful as contracts would be accepted, or indirect departments contracted out to external providers, based on this information. Nevertheless, employees identified the management accountant, who was leader of the implementation team, as the ABC system owner.⁹⁴

Other members of the implementation team included the finance officer, finance officer - reporting, district accountant - Wairau, performance contract manager, employee A, executive officer - community health, manager - payroll and unit manager - ward 2. However, not all of these team members were on the implementation team for the duration of the project.

The finance officer - reporting was employed at NMH to implement ABC and to produce internal reports. However, she did not have the time necessary to perform both tasks, so left the implementation team to concentrate on satisfying internal reporting. The manager - payroll also found that she was unable to continue working on the ABC project due to time constraints.

Employee A⁹⁵ left the implementation team, and NMH, in January 1993. The management accountant stated that his departure was the result of his disagreement with

⁹⁴ From interviews with the treasury accountant, maintenance services manager, adviser asset manager and the manager - oral health services.

⁹⁵ This employee's job title was not disclosed during interviews as staff were unsure of the exact title.

health reforms. He had been included in the project team as he had also helped to install RUS. However, the district accountant - Wairau, performance contract manager, unit manager - ward 2 and the management accountant did not believe that employee A should have been involved in the project. Furthermore, the financial controller, management accountant and the unit manager - ward 2, stated that employee A had not contributed greatly to the group effort.

The district accountant - Wairau left the ABC project because he believed that the continued use of consultants was unnecessary. NMH staff supplied information to the consultants, who then compiled this data and presented it to NMH staff. However, in some cases, the information was presented by the consultants to NMH staff in the same format that it had been supplied to them. The fact that consultants were being paid for this information concerned both the district accountant - Wairau and the performance contract manager.

The performance contract manager was considered one of the core team members and had been included in the team as he had been involved in implementing RUS. Furthermore, the finance officer was also a core team member. She was seconded onto the project team from Nelson Hospital where she was employed as a kitchen-hand. The general manager - commercial services had learnt that one NMH employee working in the kitchen was studying part-time at a polytechnic institute to acquire an accounting qualification. He decided that NMH would benefit from using the finance officer's accounting knowledge in the ABC project, hence she was seconded to the implementation team.

The unit manager - ward 2 was also part of the implementation team. It was considered necessary to include someone with clinical knowledge to relate to the clinicians being interviewed, and to explain some of the clinical terminology to the consultants and the remaining team members. Furthermore, the management accountant and the general manager - commercial services believed that the inclusion of a clinician would increase the credibility of the system amongst other clinicians and hence, increase their acceptance of the ABC system. The executive officer - community health was also a member of the implementation team to increase community health employees'

acceptance of the ABC system. However, both the executive officer - community health and the management accountant believed that this failed to produce the expected results. The management accountant found that community health staff did not consider that they had outputs, in terms of a patient, and thus, found little purpose in costing a service that did not have a definite output.

Despite the inclusion of the unit manager - ward 2 and executive officer - community health on the team, the manager - oral health services and the child and adolescent mental health service unit manager believed the team, and particularly the leader, lacked the necessary health care knowledge to successfully implement an accurate costing system. Furthermore, the finance officer indicated that she had encountered difficulties when interviewing department managers, because she did not understand some of the terminology.

The manager - maintenance services, asset adviser manager, and the manager - household services were unable to comment on the implementation team, as they were unaware of who was involved in the ABC project. Similarly, they did not know the composition of the steering committee.

The steering committee was comprised of the CEO, the financial controller, one consultant and three general managers. The steering committee was responsible for specifying the objectives of the project and ensuring these objectives were met. The steering committee was also involved in determining the precision level of the ABC system.

5) *The Precision Level of NMH's ABC System*

It was determined that the implementation team would concentrate on accurately allocating costs from those departments with comparatively high costs. Consequently, an "80/20 rule" was applied to identify high cost departments.

The accuracy of costing indirect department services was also important for management decisions on whether to contract these services out to external providers or to continue with internal provision. The management accountant and the financial controller determined that the most accurate method of allocating indirect department

costs was a reciprocal method because of the interdependencies between indirect departments. One of the consultants had disagreed with this view and considered that a step-down approach would adequately satisfy requirements. However, the management accountant and the financial controller were adamant that the reciprocal method would be used.

The management accountant also stated that one of the objectives of the cost system was to identify a general cost for each DRG, rather than separate DRG costs for each hospital. The management accountant wanted, for example, a general cost for a hip replacement, rather than the cost of a hip replacement at Wairau Hospital, as well as a Nelson Hospital cost. This was necessary as NMH would not contract for DRGs at a specific hospital, rather the contract would be for the Nelson Marlborough region as a whole. Therefore, the accuracy level and complexity required of the costing system was reduced.

6) *The Complexity Level of NMH's ABC System*

Complexity was reduced as, prior to implementation, it was determined that each indirect department would have a single cost driver. The management accountant believed that differentiating costs between sites was unnecessary as a general cost per DRG was required. Therefore, although Golden Bay and Nelson hospitals contract with two different electricity suppliers whose contract rates are dissimilar, it was unnecessary to use separate cost drivers to allocate electricity costs to Nelson and Golden Bay. However, because of the large number of departments and services offered at NMH, the system remains complex.

7) *Historical Budget Costs*

Department budgets were used as the basis for cost calculations in the implementation of NMH's ABC system because the objective of the ABC system was to produce standard DRG costs. The finance officer considered that budgets indicated the expected costs and excluded the random fluctuations inherent in actual costs. Therefore, departmental budgets were used in the implementation of ABC.

B. The Implementation Process

1) Consultants - Phase One

Initially, the consultants were contracted to:

- a) establish the information requirements of NMH management;
- b) determine the general design of a costing system to meet those requirements; and
- c) deliver a detailed work plan of implementing the costing system.

Consultants interviewed finance staff, the CEO and the assisting general managers to determine the information needs of NMH management.

When identifying the desired costing method to be used at NMH, the consultants encountered a number of difficulties with the financial controller and the management accountant, which arose because both wanted a reciprocal method for the allocation of indirect department costs, and the consultants disagreed. The consultants believed that a step-down allocation of indirect department costs would be adequate for the information requirements of management, and attempted to steer the project in this direction.

A formal proposal was presented to the financial controller and the general manager - commercial services, who submitted it to the CEO. After a review of the proposal, the CEO gave her approval for a change to an ABC system.

The management accountant had expected NMH staff to resist the costing system change because it was imposed on NMH employees, thus, an education program was developed to minimise this resistance.

2) ABC Seminar

Presentations were held by consultants based on the ABC proposal primarily for clinicians, although the finance officer and indirect department managers also attended. The general manager - commercial services believed that these presentations should help people understand cost driver concepts, enabling staff to suggest measurable and

reasonable cost drivers for their departments to the designers. Therefore, he encouraged indirect department managers to attend these seminars.

The finance officer considered it vital to gain clinicians' acceptance, as they are the "gatekeepers" of NMH's funding. They have the right to admit, diagnose, order treatment for and discharge clients. However, the clinicians did not support the installation of an ABC system at NMH despite the presentations. Nevertheless, indirect department managers considered these presentations successful as they were able to identify appropriate cost drivers for their departments.

The finance officer believes the presentations failed to increase clinicians' acceptance of ABC because they were too theoretical and unrelated to the health care industry. Additionally, the management accountant found that the consultants had "*insulted a lot of peoples' intelligence*" when conducting these presentations. Furthermore, the consultants continued to attempt to steer the project towards the use of a step-down allocation method, despite the management accountant and financial controller requests for the use of the reciprocal method.

The general manager - commercial services intervened and demanded that one of the consultants be taken off the project. Consequently, he was replaced by another Ernst and Young employee, who had previous experience in implementing ABC systems. The new consultant provided valuable guidance to the implementation team when data was being collected for the system.

3) *Design and Data Gathering*

The ABC system's design was developed concurrently with the construction of the system. The management accountant and the new consultant collaborated in the design of the system using the data gathered by the implementation team. As information from a department was gathered, that section was incorporated into the ABC system, thus, installation and design was progressive.

Consultants were also initially involved in data collection. However, the management accountant and the steering committee found this expensive and unnecessary, as NMH staff could easily perform this task. The new consultant also guided the team on what

questions to ask department managers and what data to collect, based on previous experiences with ABC. Hence, the consultants' role in the implementation process was limited to the provision of guidance concerning data collection and the construction of the ABC model.

Departments were identified as the ABC system's activity centres, thus, the allocation of resources to these centres was relatively simple, as resources had already been allocated to the departments through budgets.

Interviews with departmental managers were used to determine the appropriate cost driver for departments. At the beginning of each interview, the reasons for the interview were explained and ABC concepts in relation to NMH were discussed. Indirect department managers were then asked to identify cost drivers for their departments and the availability of this cost driver information was examined. In some cases, this data was readily available, such as the number of employees in each department. In other instances, delays occurred as data had to be collected, such as the requirement for orderlies to perform a three month time analysis exercise.

Direct department managers were asked to identify:

- 1) their principle outputs or procedures;
- 2) their main clients; and
- 3) whether output statistics were being collected.

Direct department managers were not questioned about the indirect department services used in their departments to provide their services to the public. The child and adolescent mental health services unit manager believed that direct department managers should have been asked what services they considered they used.

These interviews were conducted simultaneously by the implementation team. The finance officer and the unit manager - ward 2 were given a brief training session on entering the data collected into the computer. Both members initially interviewed department managers and updated files from these interviews. However, as the finance officer became efficient at data entry, the unit manager - ward 2 conducted the majority of interviews and the finance officer concentrated on data entry. The unit manager -

ward 2's clinical background, and familiarity with clinicians, was advantageous as the majority of direct department managers were clinical staff. Nevertheless, some difficulties were encountered by the implementation team in acquiring information.

The unit manager - ward 2 found that some direct department managers, such as the child and adolescent mental health services unit manager, were unwilling to allow the finance department access to their statistical files. The finance officer found time delays in acquiring data as the most prevalent problem. However, when she contacted department managers after the expiry of due dates and offered her assistance to acquire the data, the information was promptly provided.

Throughout this process, progress meetings were held with the steering committee and the project group.

4) Progress Meetings

The management accountant held a weekly meeting with the implementation team to discuss the progress of the implementation, distribute work loads and examine any difficulties that may have arisen. This meeting was also used to deliver the data collected to the new consultant so that it could be incorporated into the ABC model, on an ongoing basis.

Monthly meetings were also held with the team leader, the consultants and the steering committee. However, as other work increasingly required NMH staffs' priority, attention and progress on the implementation of the ABC system decreased. Meetings were held bi-monthly instead. Upon completion of the first model, results meetings were initiated.

5) Results Meetings

A results meeting was held where RUS's procedure costs were compared with the ABC system's procedure costs. The first version of the ABC model was different to the current ABC system as it was one complete system that calculated procedure costs, as opposed to the current system where direct department costs are inputted into transition before procedure costs can be calculated. For comparison, the direct department

overhead costs determined by the ABC system were entered into RUS. The resulting procedure costs from RUS were compared with the ABC system's procedure costs to determine the validity of RUS results. This was confirmed and the steering committee decided to expand the final steps of RUS to include all NMH's sites and services. However, it was decided that the first phase, the indirect department cost allocations, of the ABC system would remain in use and the step-down allocation of indirect department costs within RUS was abandoned. Thus, the current costing system is comprised of an indirect department cost allocation system and transition, the renamed and altered version of RUS.

Results meetings were also used to validate indirect department cost allocations. All departments were issued with their revised budgets, including indirect department cost allocations. Each department manager was then visited by a member of the implementation team to discuss these results. Department managers were required to comment on each of the allocated departmental costs, to agree or disagree. If they disagreed, they were asked to explain why they should not incur those costs. The child and adolescent mental health services unit manager, for example, did not agree with being allocated ambulance costs, as ambulance services were not used. Additionally, the laundry department manager questioned why the laundry department had not been allocated quality assurance department costs, when quality assurance staff provided laundry staff with advice and support.

As a result, questions were raised about the accuracy of the new system. The child and adolescent mental health services unit manager and the executive officer - community health believed that the allocations had been performed in an arbitrary manner, without consideration of departmental activities. The child and adolescent mental health services unit manager also believed that the ABC model reflected implementers' lack of knowledge about departments' activities. When carrying out results meetings with other department managers, the finance officer received similar criticisms about the ABC system. These attitudes may have been influenced by employees considering that the finance department is "*isolated*" from the activities performed at NMH. Furthermore, when the performance contract manager presented one clinician with the

statistics used in the calculation of a procedure cost, the clinician disagreed and proved that the statistics used were incorrect. Twenty six operations had not been recorded.

The information acquired from these meetings was collated, discussed and acted upon in interpretation meetings.

6) Interpretation Meetings

When the information from results meetings was collated a number of discrepancies were found by the performance contract manager. A discrepancy occurred when, for example, the household department manager stated that they provided the physiotherapy department with 20 hours of cleaning each week, but the physiotherapy department manager claimed they received two hours of cleaning each week. In these cases, the performance contract manager stated that direct department managers had very little influence over the allocations. The indirect department managers were relied upon to provide information on the usage of their department because the implementation team and steering committee believed that obtaining a consensus between indirect and direct department managers would be difficult and time consuming.

The main objective of the direct department results meetings was to identify whether an indirect department's service was used. At the interpretation meetings, the findings of the result meetings were discussed to determine if adjustments to the ABC system were necessary. The implementation team found that direct department managers had focused on what they considered to be obscure indirect department costs, such as Maori health which had a total budget of \$50,000, allocated to approximately 100 departments which refused to accept the allocation. The management accountant overcame this problem by consolidating the smaller indirect department costs, such as chaplaincy services, into a category called administration, which was not queried by direct department managers.

Throughout this process, the steering committee were kept informed of all stages of reviews and corrections to the ABC model. However, department managers were not consulted after the results meeting with the implementation team. Upon the completion of the fifth version of the ABC system, the steering committee was satisfied with the

accuracy of the system, and the resulting budgets were distributed to department managers.

7) Post Implementation

The budgets were promoted to department managers as being information sheets and management accounting staff informed department managers that they welcomed any comments regarding the cost allocations. However, the child and adolescent mental health services unit manager, the executive officer - community health and the manager - oral health services stated that little attention was given to these budgets. They believed that the system did not effect the operation of their departments, thus, budget reviews were considered low priority tasks, especially when work pressure was high. The executive officer - community health believes that the system has a degree of inaccuracy as his department is allocated gardening expenses when gardens or lawns do not surround community health buildings situated in the main centre of Nelson. Furthermore, the general manager - commercial services also believes that the system contains inaccuracies. Specifically, in establishing the total cost of linen, a portion of orderlies costs are allocated to linen. However, the general manager - commercial services considers this to be incorrect as, if linen services was an external provider, linen would be delivered to each hospital's back door, not to each department within the hospitals and the cost of internal delivery would not be incurred.

The child and adolescent mental health services unit manager also considers the system to be inaccurate as a portion of Ngawhatu nursing department costs are allocated to her department and Ngawhatu nursing services are not used. Furthermore, the child and adolescent mental health services unit manager believes that she is unable to challenge these allocations.

However, department managers have challenged cost allocations and their suggestions have resulted in changes to the ABC system, such as using number of employees to allocate pay-roll department's costs, rather than full-time employee equivalents. To query the ABC system, managers submit their suggestions to the finance officer and the management accountant for their review at a latter date. From the finance officer's file of ABC queries, for example, the adviser - property and assets requested that household

services of 1.5 hours for the medical gym be charged to the physiotherapy department, not asset management. At present this file contains thirteen queries and requests and the management accountant intends to use these queries to continuously review and develop the system. Currently, the seventh version of the ABC system is being used to produce departmental revised budgets.

The ABC system is also used in pricing, price - volume scenarios and for internal costing. Additionally, ABC information was used in the evaluation of whether the transport department should be replaced by services from an external provider. Costings influenced management's decision to contract out transport to external providers as NMH's transport department's costs were not commercially competitive. Additionally, costing information is used by the CEO in price - volume scenarios. However, cost system information has not yet been used in contract rounds with the RHAs or PHCs. These costings were submitted to the RHA in the last contract round as additional information, but were not used in contract negotiations. In the coming year it is expected that ABC system results will be used in these negotiations.

8) *Consequences of the Implementation of ABC*

One consequence of the ABC implementation process at NMH identified by the management accountant was an increase in "*the consciousness of cost.*" Additionally, there was an initial increase in the profile of accounting staff as they became known to other employees through the interview process. However, as work loads increased it became difficult for team members to maintain this profile. Currently, the finance department's profile within NMH is negative and to the majority of NMH employees, finance staff are "*faceless individuals.*" The financial controller's profile is extremely low and clinicians have nick-named him "*The Ghost Who Walks.*" The unit manager - ward 2, child and adolescent mental health services unit manager and the CSSD manager also consider accounting staff as being isolated from NMH activities, "which is to be expected with an off-campus department."

Additionally, finance staff are viewed with suspicion and other NMH employees do not consider that accounting staff "*know what they are doing.*" The general manager - commercial services believes that finance staff are viewed as "*watchdogs or financial*

police.” Furthermore, many NMH employees resent accounting employees because accounting staff numbers increase, whilst other department managers are unable to increase their staff numbers due to budget restrictions. This resentment is influenced by a lack of knowledge about the tasks performed by finance staff. Non-accounting employees do not realise the increasing demands of government on accounting staff to supply financial reports, such as parliamentary requests for information on the costs of operating smaller hospitals similar to the Golden Bay Community Hospital.

For finance staff to successfully implement the ABC system, in an environment where finance staff were resented, required commitment from implementation team members and top management.

C. The Commitment of NMH Staff to the Implementation of ABC

Evidence suggests that the management accountant, the finance officer and the general manager - commercial services were committed to the implementation of ABC at NMH. ABC was sold to the CEO and once she supported it, top management commitment to the implementation of the system was assured. This commitment ensured that the implementation team were supplied with all the resources required to install ABC. Additionally, the CEO was identified by the management accountant as the project’s sponsor.

D. The Sponsorship of the Implementation of ABC

There seems to be some discrepancy as to who was the sponsor of the ABC project at NMH, although the management accountant and the finance officer identified the CEO as the project’s sponsor. However, the financial controller was cited as the project sponsor in correspondence with Ernst and Young, dated 26 August, 1992. This document also stated that the CEO was the project authority and the management accountant stated that the CEO’s support was a critical success factor to the project. A further factor influencing the implementation of ABC was individual employees’ reactions to the installation process.

IV. Individual Employees' Reactions to the Change of the Costing System at NMH

When reviewing individuals' reactions to the change of the costing system at NMH, attitudes toward preceding changes in the organisation appear to have influenced reactions. The health reforms were generally disliked by NMH employees because they were imposed and the effect health reforms would have were not communicated. In some cases *"the effects of the health reforms on their job was in the newspaper before they were actually told they were changing."* This dislike of the health reforms is important when considering that, during interviews with managers, the unit manager - ward 2 found that managers believed the health reforms included the implementation of ABC. Hence, it is not surprising that many NMH employees, including top management, resisted the installation of ABC.

A. Top Managements' Reactions

The management accountant found that top management appeared to accept the implementation of ABC because it was supported by the CEO and they had acknowledged that the cost system required alteration. However, the management accountant believed that instead of voicing their resistance to the implementation of ABC, *"people preferred to discredit the information"* because the project was supported by the CEO.

Additionally, during the implementation of the ABC system, top management resisted the distribution of detailed budgets to department managers as they had not been consulted about whether department managers should receive this information. Hence, their control over departments was undermined. This resistance was overcome through an explanation, from implementers to top management, that department managers were *"the best people to validate the information."*

When reviewing the installation process of the ABC system, the general manager - commercial services stated that the reactions of the core implementation team to the installation of ABC were critical to the project.

B. The Core Implementation Teams' Reactions

The management accountant welcomed the implementation of ABC as he found ABC to be interesting and he regarded this interest factor as an important intrinsic reward. Furthermore, he believed it was necessary to provide accurate service cost information as this information would be used in contract decisions. The management accountant considered that if contracts were lost because of incorrect costs, he would be held responsible. Thus, he welcomed the implementation of a costing system that he understood and had confidence in its ability to produce accurate product costs.

Additionally, he believed that the implementation of ABC was important for his reputation at NMH. Consequently, he experienced stress during the implementation process because he was tired and irritable from working extra hours on the project. However, he believes that this experience was worthwhile as he considers that his status throughout the organisation has increased as a result of the project's completion. The finance officer also welcomed the implementation of ABC at NMH.

The finance officer embraced the implementation of ABC as it enabled her to obtain a position in her chosen profession, prior to the completion of her studies. Simultaneously, this allowed her to leave a job she had disliked. Furthermore, the finance officer considered that the implementation process would be educational. As she enjoyed learning, the opportunity to participate was welcomed. The performance contract manager also accepted the implementation of ABC.

The performance contract manager believed it necessary that accurate service cost information be available and that the credibility of RUS information was low. Therefore, he accepted the change to ABC and was willing to aid its installation because he considered it necessary to change the costing system. However, he believed the project would have benefited from clinical input, in addition to the inclusion of the unit manager - ward 2, in the implementation team.

Initially, the unit manager - ward 2 welcomed the opportunity to aid the implementation of ABC as he thought it would be interesting and he believed that a clinical person should be included on the project team. He also believed that the ABC system would

decrease the amount of statistical information that department managers and clinicians were required to collect. As the unit manager - ward 2 found that data collection encroached upon the time spent with patients, he embraced a system which would allow him to continue to perform the tasks he considered important, namely treating patients.

However, currently the unit manager - ward 2 is not as accepting of the ABC system because information demands are increasing, such as requiring him to complete time sheets. Additionally, he has not cited any reports explicitly including ABC information. The only financial feedback he receives, which he had also received before the implementation of ABC, is a monthly report detailing the previous months expenditure and comparing this to prior months costs. *"Nothing has changed."* Furthermore, the unit manager - ward 2 is not interested in the costing system as he is "too busy looking after sick people," which is a similar attitude taken by other clinicians.

C. Clinicians' Reactions

The performance contract manager found that clinicians resisted the implementation of ABC as they distrusted the statistics used in the installation of the ABC system. Electronic data collection methods were used to gather statistics, but clinicians preferred to keep manual records of data, such as the number of hip replacement operations. Consequently, when electronic data statistics were proven incorrect by one clinician, this reinforced the distrust of the statistics used in the installation of ABC. *"The information was not credible. The [the clinicians] would not believe the information until you could show it."* The performance contract manager believes that currently clinicians accept validity of statistical information because discrepancies between the two data collection methods have been eliminated, which was communicated to clinicians.

Additionally, the management accountant found that clinicians resisted the implementation of ABC as it was imposed upon them. Education and presentations emphasising the benefits of ABC were used in an attempt to overcome clinicians' resistance, but this failed because the ABC seminars were too theoretical and unrelated to the health care industry. The clinicians believed there was no purpose in discussing costs with them and displayed little interest in the ABC system, preferring accounting

staff to calculate costs. Furthermore, the financial controller believed that clinicians' *"bad experiences with the implementation of RUS,"* influenced their reluctance to accept the installation of ABC.

After the failure of seminars to overcome this resistance, the management accountant decided not to actively attempt to eliminate clinicians' resistance to the implementation of ABC. He had determined that acquiring department managers' acceptance of the project was more important as they, not clinicians, would be providing the information necessary for the successful implementation of ABC at NMH.

Currently, the management accountant considers that clinicians' are beginning to accept the ABC system, but little evidence of this was found from interviews with clinical direct department managers.

D. Direct Department Managers' Reactions

Initially, direct department managers passively resisted the implementation of ABC as they were not interested in costing and preferred to concentrate on *"more important matters, such as treating patients."* The executive officer - community health believed that the majority of direct department managers considered that *"it [the ABC system] would go away."* Furthermore, when the unit manager - ward 2 interviewed direct department managers he found that they viewed the costing system change as part of the health reforms, hence causing resistance, as health reforms have not been welcomed by the majority of NMH employees. Additionally, the manager - oral health services and the child and adolescent mental health services unit manager resented the implementation of ABC because it was imposed.

The implementation team attempted to overcome this resistance in the first interview with direct department managers by explaining the reason for the interview and ABC concepts. However, the child and adolescent mental health services unit manager considered this explanation as *"a dead loss."* She felt that the fifteen minute interview's impact was low and the explanation given was not practically orientated and difficult to understand.

When collecting information from direct department managers the unit manager - ward 2 and the management accountant also encountered resistance because many of the managers had already developed systems to satisfy the requirements for volume based funding. Managers resented being required to disclose this information to the implementation team as they *“viewed information as power and many of them had hidden agendas.”* Furthermore, they could see little purpose in the implementation of ABC when their own systems adequately satisfied contract requirements.

In some instances, the implementation team requested access to these systems, such as the child and adolescent mental health services unit manager’s system for collating service volumes. However, the child and adolescent mental health services unit manager resents investing time and effort in installing a system, and then accounting staff wanting to have access to it. She believes that if her system is so important, then she should have been consulted about the implementation of ABC. Furthermore, she believes that all direct department managers should have been consulted about the implementation of ABC.

The nature of direct department managers’ resistance changed upon receiving detailed budgets from the first ABC model. Direct department managers found inaccuracies in the budgeted indirect department cost allocations which caused them to resist the implementation of ABC as they distrusted the cost information calculated by the system. Inaccuracies also reinforced their opinions that accounting staff were isolated from the daily operations of NMH and did not know what they were doing when they implemented the first model. The unit manager - ward 2 also found that there was a great deal of misunderstandings as many managers could not see their connection to the costs that they were allocated, thus direct department managers resisted the implementation of ABC. Additionally, the general manager - commercial services believed that misunderstandings resulted from managers being unfamiliar with costing systems and ABC.

The project team attempted to overcome this resistance by meeting with each direct department manager, explaining that the detailed budgets were the results of a trial model and that managers’ suggestions for corrections to the system were welcomed.

Although the system was altered, direct department managers remained sceptical of the accuracy of the system.

Implementers also attempted to use support to overcome resistance by being available to answer managers queries, but this appears to have had little impact on the acceptance of the implementation of ABC. Additionally, the child and adolescent mental health services unit manager does not consider that support exists as she believes that she is unable to challenge the system.

When direct department managers realised that their service could be discontinued because of results from what they believed was an incorrect costing system, fear of job loss and a lack of security caused resistance to the implementation of ABC. This resistance was not alleviated when implementers told managers that they had no control over these cost allocations. This was an attempt to restrain managers from implementing “*inappropriate actions*” to lower their indirect department costs, such as “*doing their own vacuuming.*” Thus, resistance increased due to direct department managers’ having little control over their costs, hence little control over the future of their departments.

The manager - oral health services and the child and adolescent mental health services unit manager had even considered removing their service from NMH for independent operation. They believed that if they could receive a monetary equivalent of their share of overheads they could offer a more efficient service to the public.

Currently, the management accountant and the financial controller consider that the ABC system is beginning to be accepted by direct department managers. This opinion may be the result of direct department managers continuing with their work and ignoring the budgets as “[e]veryone knows that accounting have not got the least idea of what they are doing” because service contracts with the RHA and PHC have not been signed. Thus, for the last three months NMH has been operated with no knowledge of the funds available to them to spend. However, resistance to the system remains because managers, including indirect department managers, distrust the accuracy of the system and fear the consequences of ABC information in decisions concerning their departments.

E. Indirect Department Managers' Reactions

Indirect department managers' resistance to the implementation of ABC at NMH resulted in time delays in the provision of information to the implementers of the system. As the majority of implementers were accounting staff, resistance was influenced by distrust of finance staff. Additionally, resistance was also the result of ABC being imposed and they, or anyone they could relate to, were not involved in the team. The general manager - commercial services considered that installation of ABC would have benefited from a commercial support manager, such as the manager - household services, being included in the project team.

Indirect department managers' resistance to the implementation of ABC was also caused by fear and anxiety. They felt threatened as they believed that as a result of the implementation of ABC their services may be contracted out to external providers, hence they feared they would lose their jobs and their security. Additionally, this fear and anxiety was enhanced for some managers, such as the CSSD manager, the manager - maintenance services and the asset adviser manager, as they did not understand why the costing system was being altered. The asset adviser manager also considered that there had been "just too many changes."

Indirect department managers' resistance to the implementation of ABC appears similar to direct department managers' resistance. However, there are dissimilarities as, unlike direct department managers, indirect department managers' resistance to the installation of ABC was not influenced by a resentment of accounting staff gaining access to their systems.

The implementation team attempted to overcome this resistance through supporting indirect managers in the collection of data by offering to help them acquire the information. Additionally, they also involved indirect department managers in determining cost drivers for their department and educating the managers about cost drivers. Furthermore, indirect department managers were informed that the data was required for the implementation of a new costing system, but the reasons for the new costing system were not explained to them.

However, indirect department managers remained resistant. The manager - household services believed that incomplete information about the change from accounting staff was given. Additionally, the majority of indirect department managers distrusted the accuracy of the system and feared the consequences of using the ABC system's results in decisions concerning their departments. The manager - household services also indicated that she believed the implementation of ABC to have been "*a waste of time and money.*"

Currently, the general manager - commercial services and the asset adviser manager believe that indirect department managers have accepted the ABC system with the passage of time and the continuous improvement in the accuracy of the ABC system. However, when the finance officer was interviewed she indicated that she was experiencing time delays from indirect department managers in supplying her with data to update the ABC system, indicating that some resistance towards the ABC system remained.

V. Summary

It appears from the findings of this case study that the implementation of ABC at NMH was resisted by clinicians, as well as direct and indirect department managers. However, ABC was implemented at NMH, also despite deviation from the suggested implementation process outlined in the previous chapters.

In Chapter 10 the results of implementing ABC at both Norwich and NMH are compared.

Chapter 10: A Comparative Analysis of the Implementation of Activity-Based Costing at Norwich Union Life Insurance (NZ) Limited and Nelson Marlborough Health Services Limited

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I. Background

Both Norwich and NMH are operating in service industries which have been undergoing considerable change. Competition within the insurance industry has increased, whereas the health care industry has been restructured through health reforms. These changes have resulted in accounting modifications at Norwich, whereas at NMH the fundamental approach to operations has been altered and business values have been introduced.

Additionally, the general feeling within the two organisations towards these changes are dissimilar. Whilst Norwich staff have appeared to accept these changes with little resistance, NMH employees generally dislike the changes resulting from the health reforms. Amongst these changes ABC systems were implemented at Norwich and NMH.

II. The Introduction of ABC to Organisations

A. ABC Systems

In Chapter 2 ABC was defined as a two stage process for allocating overhead costs to products using cost drivers, to determine product costs. Although both Norwich and NMH's current costing systems are referred to as ABC, ABC concepts are not fully used as the systems do not determine cost per product figures. Instead, the ABC system at Norwich is used to determine the costs per product group and the ABC system at NMH is used to identify the direct department cost pools. In short, the ABC model has been tailored to meet the information requirements of each organisation.

Prior to the implementation of an ABC system at Norwich and NMH a decision had to be made to change the previous costing systems.

B. The Reasons for Changing the Cost Systems

In Chapter 3 a number of symptoms suggesting that the cost system should be changed were identified. Reasons similar to these were identified by Norwich and NMH employees for changing their cost systems. Norwich's cost system was altered because of an unexplained increase in expenses and general ledger aggregation, whereas NMH's

system was changed because management required indirect, or support, department costs.

However, both Norwich and NMH staff also determined that their cost systems were altered for reasons not supported in the literature. NMH's costing system was changed because the industry funding structure altered and the previous costing system did not include all costs when calculating service costs, nor were all services costed. The costing system at Norwich was also altered because policy costs were not determined by the previous costing system.

Upon deciding to change costing systems both NMH and Norwich management determined that it was appropriate to implement ABC for a number of reasons.

C. The Reasons for the Implementation of ABC

In Chapter 4 the reasons and conditions for installing ABC were discussed. One similar reason that influenced Norwich employees to implement ABC was the desire for accurate product costs. However, the remaining reasons for installing ABC identified by staff at Norwich and NMH differ from those suggested. Although at both NMH and Norwich ABC was implemented because of large overhead costs, decreasing labour costs were not simultaneously identified by staff as a reason for implementing ABC. Thus, this varies from the recommendation that ABC should be implemented when labour costs are decreasing *and* overheads are high.

Although not recommended, ABC was also implemented at Norwich because the new accountant was familiar with ABC concepts. Similarly, the main reason ABC was implemented at NMH was due to the general manager - commercial services being familiar with ABC. Furthermore, again not supported, the management accountant considered that ABC was installed at NMH because other complex industries, such as banking, used ABC. Additionally, the management accountant determined that ABC was implemented as it was a complex system that could be installed using a computer and was auditable. This seems surprising as other types of costing systems can also be installed on a computer and are auditable, such as the traditional method of using direct labour based overhead cost allocations. Furthermore, cost/benefit analyses, to

determine whether ABC would be beneficial for the organisations, were not conducted at either Norwich or NMH, once it was deemed appropriate to implement ABC.

Once the decision to install ABC at Norwich and NMH was reached, a number of decisions were required prior to implementation.

III. Implementing ABC

A. Decisions Made Prior to Implementation

1) Integrated or Stand-Alone?

In Chapter 5 the factors affecting the decision whether to implement an integrated or stand-alone ABC system were discussed. However, at Norwich a stand-alone system was implemented to avoid the requirement of top management approval for the implementation of ABC *not*, as suggested by the literature, to avoid the approval process necessary to alter existing systems. Also unsupported, the decision to install a stand-alone system at NMH was affected by the expected change to NMH's organisation structure and general ledger.

It is also recommended that implementers decide whether to install custom built or 'off-the-shelf' systems. Similarly, this decision was also made at NMH and Norwich, resulting in custom built systems being implemented at both organisations.

Once it was determined that custom built ABC systems would be implemented at NMH and Norwich, it was also decided that both systems would be firm-wide, despite the recommendation that a pilot project be initially conducted. A firm-wide system was implemented at NMH because it was not feasible to implement a pilot project due to the reciprocal nature of indirect department costs. However, a firm-wide system was implemented at Norwich as the actuary required all product group cost information.

Previous researchers also examined the factors influencing the decision whether to use in-house staff or consultants to implement ABC. This was confirmed at both Norwich and NMH as this decision was influenced by employees' knowledge of the ABC implementation processes. Hence, the installation of ABC at Norwich was an in-house project whereas consultants were used at NMH. Time constraints also influenced the

decision to use consultants at NMH, although this factor is not mentioned in the literature. However, the use of consultants caused some controversy amongst NMH employees.

Once these decisions are made, implementers must decide whether there should be formal design approval prior to the implementation of ABC.

2) *Should There Be Formal Design Approval Before Implementation?*

The factors influencing the decision of whether to have formal design approval were identified. Following these recommendations, at both case sites the designers' knowledge of ABC and the organisations' activities affected this decision. However, at both Norwich and NMH the designers' knowledge of data availability was also considered, although this was not recommended. Additionally, the Norwich accountant assumed his superior would not be interested until shown the results of the system, thus, at Norwich there was no formal design approval. In contrast, at NMH it was determined that there would be general formal design approval before implementation began and this decision was affected by time constraints, yet this is not recognised in the literature.

The literature does indicate that prior to the implementation of an ABC system, the 'owners' of the system should be determined.

3) *Who Will Own the System?*

Contrary to recommendations, at NMH the 'owners' were not identified because it would have delayed implementation, whereas at Norwich the decision to determine the 'owners' of the ABC system was not considered. Consequently, the implementation team leaders were identified with the costing systems by employees at both NMH and Norwich.

The suggested composition of the implementation team was followed at NMH as a multi-disciplinary team was used because finance staff did not have sufficient knowledge of NMH's business processes, nor did they have access to non-financial data. Although not recommended, at Norwich the installation team included only accounting staff despite doubt as to whether they had sufficient knowledge of Norwich's

business processes. Additionally, the original implementation team at NMH was considerably larger than the project team at Norwich.

Prior to the implementation of ABC, it is suggested that teams should be informed about the desired precision level of the systems to be developed.

4) *How Precise Should the System Be?*

The accuracy level of the ABC system should be determined prior to the installation of ABC and those factors which should be considered when making this decision were discussed. Although not recommended, a predetermined accuracy level was not identified at Norwich. However, this decision was influenced by a factor recommended in the literature to consider *when determining* the desired accuracy level, that is, data availability. Although the desired accuracy level of the ABC system was not determined prior to the implementation of ABC at Norwich, *during* installation similar factors to those recommended influenced decisions on the accuracy of the system.

As suggested, the desired accuracy level of the ABC system at NMH was determined prior to implementation. Furthermore, the elements considered when making this decision were similar to those influences discussed, including the “80/20 rule.” Additionally, this decision also affected the complexity level of NMH’s ABC system.

5) *Initial Design Complex or Simple?*

A variety of considerations must be examined when determining the complexity level of an ABC system. NMH management appear to have followed these recommendations. In contrast, at Norwich the complexity level of the ABC system was not determined before the implementation of ABC because data availability was unknown. Although this did not cause any difficulties during implementation, as the system has been refined and increased in complexity, a problem has arisen with the update times of the model confirming that problems may occur if the complexity level is not determined prior to the installation of ABC.

Implementers should also determine if historical or future costs will be used in the implementation of ABC.

6) *Historical or Future Costs?*

A number of issues to consider when identifying whether historical or future costs should be used in the implementation of ABC were identified. The evidence from both case studies supports this. Doubt about the reliability of budget data at Norwich resulted in the use of historical data in the implementation of ABC at Norwich, whilst the intended purpose of the system resulted in the use of budget data at NMH.

Once these decisions had been made at NMH and Norwich, the installation process began.

B. The Implementation Process

1) *ABC Seminar*

It is recommended that for the successful implementation of ABC it is critical that the installation process should begin with a seminar on ABC for all management. However, although an ABC seminar was not held at Norwich it appears that ABC was successfully implemented. In contrast, an ABC seminar for clinicians, *not* all management as suggested, was held at NMH and this seminar was considered a failure.

Additionally, the ABC seminar was the second step in the installation process at NMH, not the first as is generally proposed. Consultants conducted an initial phase where they established managements' requirements of the system, instead of using the seminar to identify their requirements as recommended. At NMH the implementation team members attended the ABC seminars and a design seminar was omitted from the installation process.

2) *Design Seminar*

It is proposed that a design seminar should follow the ABC seminar for the implementers and designers of the ABC system. At Norwich a design seminar was held and this helped create a strong team identify. A design seminar was not conducted at NMH which the executive officer - community health, the finance officer - reporting and the finance officer considered would have been helpful. However, this does not

appear to have caused any difficulties with the implementation of ABC at NMH and once the ABC seminar was held, the design and data collection phase was initiated.

3) *Design and Data Gathering*

Five steps for designing an ABC system have been identified. These steps appear to have been followed at Norwich and NMH. Additionally, at both cases the design, data gathering and installation of the ABC systems were progressive, assembled department-by-department. Furthermore, at Norwich and NMH implementers experienced delays in obtaining requested information. These problems were discussed at NMH in progress meetings.

4) *Progress Meetings*

Progress meetings are considered essential to ensure that the ABC system meet managements' requirements. At NMH, where progress meetings were held, this was confirmed. In contrast, at Norwich progress meetings were not held but the system met the actuary's requirements, which had been specified at an executive seminar.

5) *Executive Seminar*

It is recommended that an executive seminar be held once the design and data collection phase has been completed to educate top management about ABC and to discuss how the results of the ABC system should be distributed. Although an executive seminar was held at Norwich, it was conducted *before* the system was designed and it was *not* for all top management, just the actuary.

However, at NMH an executive seminar was not held. Consequently, the management accountant was criticised by top management for a lack of consultation concerning the distribution of ABC outputs at results meetings.

6) *Results Meeting*

A results meeting is recommended where the results of the ABC system be discussed and those areas that require further investigation be identified. At Norwich and NMH this advice was followed, although at NMH instead of one results meeting, many of

these meetings were held. These meetings at NMH resulted in employees regarding accounting staff as being isolated from the activities of the organisation, an unforeseen consequence of results meetings. Those areas identified for further investigation at results meetings at both NMH and Norwich were discussed in interpretation meetings, as recommended.

7) *Interpretations Meetings*

The literature reviewed outlines the uses of interpretation meetings. As suggested, at both Norwich and NMH interpretation meetings were used to discuss the results of in-depth analyses. However, although recommended, at neither organisation were actions from, or interpretations of, the ABC information identified at interpretation meetings.

8) *Post Implementation*

Currently, ABC information is used in pricing and budgeting in both organisations. At Norwich ABC results are also used for introduction and termination decisions regarding policies. Although at NMH management intend to use ABC data in these decisions, this has not yet occurred but, ABC information is used in determining whether NMH should remain internally providing support services to hospitals. ABC information is also used to calculate management fees and shareholder dividends at Norwich.

As a result of these uses, at both NMH and Norwich “*cost consciousness*” seems to have increased. Another consequence of the implementation of ABC was an initial increase in the positive profile of accounting staff. However, employees’ respect of the accounting department at NMH is currently very low and people doubt the credibility and accuracy of accounting information. In contrast, the positive profile of accounting staff was maintained at Norwich. Additionally, the implementation of ABC at Norwich was successful because of the installers commitment to the implementation of the ABC system.

C. Commitment

For the successful implementation of an ABC system it is essential that top management be committed to it. However, although the implementation of ABC at NMH had top

management support it cannot be conclusively stated that ABC was successfully installed because employees' doubt the credibility and accuracy of the information. Although there was no evidence of top management commitment during the installation of ABC at Norwich it was successful, despite contrary predictions.

It is recommended that when implementing ABC the sponsor of the project must also be considered.

D. Sponsorship

It is suggested that the sponsorship of the implementation of ABC by finance or accounting staff increases the likelihood of implementation failure. As the project sponsor is not known for certain at NMH, this case study neither supports nor contradicts recommendations. However, at Norwich the installation of ABC was successful despite the accountant having been the sponsor of the project, thus, the recommendations were not supported.

Furthermore, the accountant at Norwich found the reactions of individuals to the implementation of ABC was a critical success factor of the project.

IV. Individuals and Change

A. The Reactions of Individuals to Change

The psychological phases that individuals progress through to adapt to changes were discussed in Chapter 6. Additionally, at Norwich evidence suggests that individuals have internalised the change to ABC, as it is now generally accepted and people appear comfortable with the change. However, at NMH this has not yet occurred. Instead, evidence indicates that the majority of people, especially direct department managers and clinicians, are in the depression phase as resistance towards the ABC system remains. Yet, some individuals at NMH have accepted and internalised the installation of ABC, such as the finance officer and management accountant.

The implementation of ABC at Norwich and NMH confirms that peoples' reaction to change relates to the extent the change process alters their jobs and terms of employment. As the installation of ABC had little impact on the majority of people at

Norwich, few people reacted to the change. Those that did react had either been required to provide information, alter the costing system or use the ABC information. However, the implementation of ABC on NMH employees has greater potential impact. One possible consequence of the installation of ABC at NMH is that departments may be closed, whereas the impact on individuals at Norwich was principally to supply information for the implementation and operation of the system. Therefore, it is not surprising that peoples' negative reactions at NMH appear to be stronger than those reactions demonstrated by employees at Norwich.

At both Norwich and NMH implementers encountered resistance to the implementation of ABC and there were some similarities between the cases as to the reasons for this resistance.

B. The Reasons for Resistance to Change

1) Lack of Control

The reasons for individual's resistance to change include a lack of control over situations. At both NMH and Norwich this source of resistance was confirmed. Although just one person resisted change because of a lack of control over the installation of ABC at Norwich, this source of resistance appears to have influenced the majority of NMH's employees' resistance to the implementation of ABC. However, this was not the only source of resistance at NMH and Norwich. Other reasons for resistance to the installation of ABC included unfamiliarity with ABC concepts.

2) Moving Away From the Comfort Zone

Resistance caused from moving away from a persons comfort zone or encountering the unfamiliar was confirmed at Norwich where the Actuary's resistance to the implementation of ABC was influenced by his being unfamiliar with ABC concepts. This was also supported at NMH, but fear and anxiety also appear to have influenced NMH staffs' resistance to the implementation of ABC.

3) *Fear and Anxiety*

Fear and anxiety can cause individuals' resistance to change. At Norwich fear and anxiety have not appeared to influence individuals' resistance to the implementation of ABC. However, at NMH a possible consequence, job loss, of the implementation of ABC upon employees heightened their resistance to the installation of ABC.

Fear of failure and the unknown influence resistance to change. Although the possible consequences of the implementation of ABC at NMH were known as departments either remained in operation or not, it is uncertain which outcome will occur. Thus, employees fear that their department will be shut down and it is a fear of this unknown outcome that has caused staffs' resistance to the installation of ABC at NMH.

Risk aversion also causes individuals to resist change.

4) *Risk Aversion*

Uncertainties involve an element of risk and, as people are usually risk averse, resistance to change is caused by risk aversion. At Norwich this was confirmed by top management being hesitant to new ideas, but no further evidence of risk aversion causing resistance to change was found at Norwich or NMH.

It is also believed that resistance to change can be caused by an individual's different assessment of the change.

5) *Different Assessments*

Differing perceptions of change, when individuals perceive change resulting in the diminish or complete loss of the things they value, were identified as causes of resistance to change. This was confirmed at NMH where staff resisted change because they did not want to lose their jobs. However, at Norwich there was no evidence of resistance from individuals' perceived losses.

Resistance can also be caused by individuals' differing assessments of the need for change. Little evidence of resistance caused by the differing assessments of the need for the implementation of ABC at Norwich was found. However, at NMH this cause of

resistance was supported as a number of employees did consider the implementation of ABC unnecessary.

It is suggested that these differing assessments may be the result of information asymmetry between the implementers and those whom the change effects. It is stated that the indicator of this situation is where employees have the opinion that installers do not know what they are doing or are “out of touch” (Cartor, 1993, p68). Evidence of this could not be found at Norwich. However, at NMH this is supported as employees did not consider that installers knew what they were doing and accounting staff also were viewed as being isolated from the remainder of the organisation. However, this attitude may also be the result of misunderstandings.

6) *Misunderstanding and Lack of Trust*

Individuals’ resistance to change caused by misunderstanding and lack of trust was shown, as, at both NMH and Norwich employees’ distrusted the installers. Furthermore, staff distrusted the change, as at Norwich the superannuation services manager did not believe that the allocation of overheads was fair or reasonable and the department managers at NMH did not trust the accuracy of the ABC system.

It is also suggested that bad experiences with, and the number of past changes influence resistance to change. At NMH the financial controller believed that clinicians’ bad experiences with past change had influenced clinicians resistance. Furthermore, the health reforms were numerous, generally disliked and were not distinguished from the implementation of ABC. Hence, NMH staff resisted the implementation of ABC. However, neither bad experiences or numerous previous changes appeared to cause resistance to the installation of ABC at Norwich.

Additionally, there was evidence to support that misunderstandings caused resistance to change at Norwich as misunderstandings about the overhead allocations caused the superannuation services manager to resist ABC. Similarly, at NMH misunderstandings of the reasons for the implementation of ABC and ABC concepts, contributed towards the resistance to the installation of ABC. The child and adolescent mental health

services unit manager, for example, indicated that she had difficulty understanding what implementers were attempting to do.

At NMH and Norwich various methods were employed to overcome this resistance to the implementation of ABC.

C. How Individuals' Resistance to Change was Manipulated

1) Participation

Participation or involvement as a method for minimising individuals' resistance to change was not used at Norwich, even though the superannuation services manager believed it should have been.

However, at NMH participation was used as indirect department managers were requested to help determine the cost drivers to be used in the allocation of departments' costs. Although this approach was successful in identifying appropriate cost drivers, it did not appear to reduce indirect department managers' resistance to the implementation of ABC. Similarly, although a clinician was included on the installation team, this involvement did not increase the remaining clinicians' or direct department managers' acceptance of the ABC system. Instead, the child and adolescent mental health services unit manager considered that all managers should have been involved in the installation of ABC. Additionally, she also believed that the communication about the change could have been improved.

2) Communication

The use of communication for reducing peoples' resistance to change was used at Norwich when explanations were given to information providers about why they were being interviewed. As a result this decreased information providers' resistance to the implementation of ABC as the explanation dissipated their suspicions of the interviewers. Additionally, communication also helped to reduce resistance caused by information request misunderstandings.

In contrast, communication failed to decrease NMH employees' resistance to the implementation of ABC. However, this failure appears to be the result of NMH staff

believing that the implementers did not fully disclose all available information on the installation of ABC. Furthermore, staff had not been informed about what to expect from the system. Additionally, when the management accountant informed department managers that it was unnecessary for them to worry about the indirect department allocations as they had no control over them, this simply increased, rather than reduced, their resistance. It would appear that, although the management accountant attempted to use communication to decrease resistance to the implementation of ABC at NMH, the manner and extent of the communication inhibited the effectiveness of this method.

3) *Presentation*

It is recommended that change must be presented in terms of the loss it can avoid, as opposed to what people can gain from it, in order to diminish individuals' resistance to change. This was not confirmed at Norwich as ABC was presented to the Actuary in terms of its benefits, not losses to be avoided, and the actuary's resistance to the implementation of ABC was reduced. However, as both education and communication were also used to reduce the actuary's resistance, it cannot be conclusively stated that these recommendations were not supported at Norwich.

Similarly, at NMH ABC was presented to clinicians in terms of the benefits that could be derived from the implementation. However, the presentation of the gains attainable with the installation of ABC did not reduce clinicians' resistance to the introduction of ABC at NMH, thus supporting suggestions. This presentation had been the result of the management accountant attempting to eliminate employees' resistance to the implementation of ABC through education.

4) *Education and Training*

Education and training as a method for decreasing peoples' resistance to change was used at Norwich as once the Actuary was educated about ABC concepts, his resistance to the installation of ABC, due to unfamiliarity with ABC concepts, was reduced. However, at NMH education failed to reduce clinicians' resistance to the implementation of ABC, thus, not supporting the literature. Yet, education at NMH succeeded in giving indirect department managers the ability to identify cost drivers for

their departments. Implementers also supported these managers in the collection of data relating to these cost drivers.

5) *Support*

The employment of support techniques is recommended as a method for minimising individuals' resistance to change. When information providers at Norwich became aware that they would not be criticised for supplying incorrect data to installers, resistance to the implementation of ABC decreased.

However, support did not appear, as suggested, to decrease people's resistance to change at NMH. This may be the result of employees being unaware of the support. Although the management accountant and finance officer believe that they are available to answer queries, the child and adolescent mental health services unit manager does not believe she can challenge the cost allocations.

In conjunction with support, the management accountant and steering committee also used manipulation and coercion to implement ABC at NMH.

6) *Manipulation and Coercion*

Manipulation and coercion can be used to curtail peoples' resistance to change. Similarly, manipulation overcame top management resistance at Norwich. When the actuary and accountant presented ABC to top management it had already been installed and the main user, the actuary, supported the system.

Although manipulation and coercion were used at NMH, this did not, as predicted, eliminate resistance to the implementation of ABC. Co-option was attempted by including the executive officer - community health on the implementation team. However, this failed to get the commitment of community health staff to the project as they remained unconvinced that their outputs could be costed.

Implicit coercion was used by the CEO to overcome resistance to the implementation of ABC at NMH as she directed its installation and she had the power to dismiss

employees. Contrary to suggestions, although this ensured that the system was installed at NMH, resistance remains as people discredit ABC information.

V. Summary

From a comparison of the literature reviewed in Chapters 2 to 6 to the implementation of ABC at both NMH and Norwich it is apparent that anomalies exist between the existing body of knowledge and these practical examples. When decisions were made, prior to the installation of ABC, at both NMH and Norwich, factors influenced these decisions which had not been recognised in the literature. Similarly, the implementation plan cited in the literature was not completely followed in practice. Additionally, the methods suggested in Chapter 6 for minimising individuals' resistance to change do not appear to have been effective at NMH.

However, the limitations of this research should be considered when reviewing the results of this study.

Chapter 11: Limitations and Recommendations

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I. Introduction

The case study method is criticised for its validity and reliability as a research method (McKinnon, 1988). However, Lee (1989) and McKinnon (1988) addressed how these factors can be controlled and these recommendations were adopted in the research process.⁹⁶ Nevertheless, there are four limitations of this research that require examination, namely:

1. the limited number of interviews conducted,
2. interviewer bias,
3. the ability of individuals to recall past events, and
4. generalisability.

⁹⁶ See Chapter 7.

II. Limitations of the Research

A. The Limited Number of Interviews

A limitation of this study is that some of the key individuals at both Norwich and NMH could not be interviewed.

At Norwich the actuary was unavailable for an interview as he had shifted to the United Kingdom and a contact telephone number or address was unknown. The managing director at the time of the implementation of ABC was also unavailable as he had left the organisation and the current Managing Director was too busy to be interviewed. Additionally, two of those interviewed, the assistant actuary and the business development manager had not been employed at Norwich when the ABC was implemented and their predecessors location was unknown. The number of interviews conducted at Norwich was also restricted as the majority of employees were unaware that ABC had been implemented. Hence, interviewing these people was difficult as they may not have understood what was being asked.

At NMH the chief executive officer and the majority of top management could not be interviewed as they were “too busy.” Furthermore, the implementation team member who left NMH was not interviewed at the management accountant’s request as difficulties had arisen due to this individual questioning his termination rights. Additionally, not all 250 department managers could be interviewed due to time restrictions. The selection of those department managers that were interviewed was influenced by the finance officer and management accountant as they provided a list of department managers that were available for interviews. The researcher also obtained interviews with managers not contained in this list, such as the child and adolescent mental health services unit manager, the manager - oral health services and the CSSD manager, by randomly selecting department managers from the internal hospital telephone book and asking if managers would be available for an interview.

B. Interviewer Bias

Research indicates that interviewer bias can result from a number of factors, including body language, speech intonations and word phrasing (Mishler, 1986; Richardson et al,

1965). These factors were controlled through a pilot test of the questions. However, research indicates that the ability to extract unambiguous and complete information from respondents by a trained and experienced interviewer, as compared to an untrained and inexperienced interviewer, is superior (Richardson et al, 1965). Therefore, as the interviewer was not professionally trained, and had little experience at interviewing, this is a limitation.

Furthermore, research has indicated that the use of a tape recorder in an interview can threaten the person being interviewed, thus biasing results (Richardson et al, 1965). At both case sites interviews were recorded using a small hand-held tape recorder and in one case a person deliberately leant over the tape recorder and spoke directly into the microphone. Another individual stated:

"I don't like talking to these machines [tape recorders]."

C. The Recollection of Past Events

It is commonly recognised that people may forget past actions or events due to the passage of time (Spear, 1978; Hunter, 1957). Furthermore, activities and environmental changes, since the occurrence of the action or event being recalled, may also influence what individuals recall (Spear, 1978; Hunter, 1957).

At Norwich and NMH evidence of recall difficulties were found.⁹⁷ It cannot be determined whether these recall difficulties were due to the passage of time or subsequent events, as at both sites considerable changes have been made since ABC was implemented. Norwich, for example, became a subsidiary company and NMH has undergone health reforms.

However, the ABC system at Norwich was implemented in November 1991, whilst NMH's ABC system was installed early 1993. Although it can be concluded from the literature that Norwich employees would have had greater difficulty than NMH

⁹⁷ For example, "I don't remember" or "I really can't remember," as well as "I vaguely remember them talking about it [ABC]."

employees recalling events pertaining to changing to ABC, there is no conclusive evidence to support this inference.

D. The Lack of Generalisability

The problem of statistical generalisability from two case studies remains, particularly as both cases are in specialised and regulated service industries where other, significant changes are occurring. However, it was not the intention of this research to make statistical generalisations. Instead, the objective of this research was to add to the body of knowledge about the implementation process of ABC systems and to suggest areas for further research.

E. Summary

The main limitations of this research concern the number of interviews conducted, generalisability, interviewer bias and the impaired memory of individuals interviewed. It was found that a number of individuals that were interviewed were threatened by the presence of a tape recorder at the interview. Furthermore, some individuals had difficulty recalling past events and actions. Thus, any consideration of the results of this thesis must be made in the context of these limitations.

Despite these limitations, a number of areas for further research have been identified.

III. Recommendations for Further Research

An investigation into the practical application of the theoretically defined ABC model is recommended as the two case studies indicate that in practice, ABC is tailored to meet the needs of management. This research is important as it may indicate that the theory requires further development.

Expansion of the theoretical basis concerning the reasons for changing a costing system is also suggested. As further cases are investigated the body of knowledge concerning the reasons for changing a firm's costing system will be expanded and this information is important to firms for determining whether their cost systems should be altered.

Research into the validity of the decision to implement ABC being influenced by factors such as employees' familiarity with ABC concepts, high overhead costs and the use of ABC in complex industries, should also be encouraged. ABC must be appropriate for firms otherwise the investment of both time and money in the system may not be beneficial to the firm.

An inquiry should be conducted on whether an expected change in the organisation's general ledger and structure, or avoiding acquiring top management approval for the implementation of ABC, are valid reasons for implementing a stand-alone ABC system. Furthermore, when implementers attempt to avoid the requirement of acquiring top management approval for installation this appears to defy the suggestion that top management commitment to the system is essential. Additional evidence also indicates that the theoretical recommendation that top management commitment is necessary for the successful implementation of ABC should be reviewed. If it is not essential to gain their commitment, then it is not necessary to spend time and money attempting to attain it, thus, lowering the cost of implementation.

It is also suggested that the theoretical recommendation of initially conducting a pilot project when implementing ABC be re-examined as evidence indicates that the consideration of environmental factors may alter this suggestion. This research is important as these decisions impact upon the ABC system being installed at a firm and if an incorrect decision is made, this may contribute towards ABC implementation failure.

The expansion of the body of knowledge concerning the use of consultants in the implementation of ABC, and factors, such as time constraints, effecting the decision to engage a consultant is of interest to practitioners. Additionally, it is suggested that research into the effects of using consultants be conducted as evidence suggests that the hiring of consultants may cause controversy amongst staff. This research is of interest to organisations as the engagement of consultants is expensive and should be beneficial to the firm.

It is also necessary to determine whether time constraints, the knowledge of data availability and the interest of superiors, should influence the decision to have formal

design approval. It is essential that all the factors effecting this decision be correctly identified so that practitioners can confidently use implementation models to install ABC.

It is suggested that an investigation into whether it is necessary to determine the 'owners' of the ABC system prior to implementation, be performed. Additionally, researchers should be encouraged to determine whether it is essential for multi-disciplinary teams to implement ABC. These areas of research are of interest as if theory differs from practice, then the theory may require further development.

It is also recommended that the necessity of a predetermined accuracy level for the ABC system be examined. Additionally, the theoretical basis for conducting an ABC seminar for all management should be investigated. Furthermore, the possibility that an executive seminar is not essential to the successful implementation of ABC should be explored. The findings of these investigations are of interest to those firms considering implementing ABC as seminars add to the cost of implementation to the firm, but may be of little benefit in acquiring managements' commitment to installation.

The two cases examined in this study indicates that the data gathering, design and implementation of an ABC system may be assembled function-by function, and the design of the system is developed concurrently with the construction of the system. Hence, it is suggested that as further case studies are performed, the theory concerning the design, data gathering and installation of ABC may be developed. Guidance on how to construct an ABC model is important for aiding implementers in the successful implementation of ABC.

An examination of whether it is necessary to discuss the actions from or interpretations of ABC information in interpretation meetings is also suggested. If excess information is discussed then the critical point of these meetings may be unclear, possibly resulting in later problems, which may be avoidable if the meetings had been clearly focused.

Additionally, the effects of the installation of ABC on implementers' profiles should be examined. If the effect is positive, then this can be used to sell the system to top

management, but if the effect is negative, management must be aware of this when deciding to implement ABC.

At both Norwich and NMH “*cost consciousness*” was increased as a consequence of the implementation of ABC. Investigation into this effect is recommended because it can be used sell ABC to management to gain their commitment to its implementation.

It is suggested that installation failure is not effected by accounting staff sponsoring the project, but it may be influenced by the respect and esteem in which a firm’s employees hold the sponsor of the implementation of ABC. Therefore, an exploration into the sponsor’s reputation and credibility within the organisation effecting the successful implementation of ABC should be considered. This inquiry may be important for developing a complete theory of successful installation of ABC.

The factors that influence the success of techniques used to manipulate individuals’ resistance to change require examination. Although participation, communication, education, support, manipulation and coercion were employed at NMH, resistance to the implementation of ABC was not overcome. These areas are of interest as if theory differs from practice, then the theories may require alteration. Furthermore, if theories require alteration then managers may unknowingly be aggravating resistance to change, rather than minimising resistance, when they follow the theoretical recommendations.

IV. Summary

Despite the lack of generalisability and other limitations of this research, the body of knowledge concerning the implementation of ABC has been expanded and areas for further research have been recommended.

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