CHAPTER 3
ACTIVITY BASED COSTING - AN OVERVIEW

3.1 INTRODUCTION

The purpose of cost and management accounting system as identified by Drury (2012) is given below:

- Allocating costs between cost of goods sold and inventories for internal and external profit reporting;
- Providing relevant information to help managers make better decisions;
- Providing relevant information for planning, control and performance measurement.

The cost accounting system is essentially based on the principle that all production costs have to be absorbed into the cost object. Making a distinction between the costs that are directly traceable to the cost objects (direct costs) and those that are difficult to trace (indirect costs) would enhance the understanding of the cost accounting system. Direct costs are those costs that can be easily and accurately traced to a particular cost object. The term “accurate cost tracing” refers to the assignment of direct costs based on cause-and-effect relationship to a particular cost object. In contrast, indirect costs, commonly known as overheads, cannot be traced directly to a particular cost object because they are usually common for several cost objects. Indirect costs are therefore assigned to cost objects using cost allocations (Drury, 2012).

Drury (2012) shows the difference between direct and indirect costs and their assignment to the cost objects as follows (Figure 3.1):
There is no difference between conventional and contemporary costing systems in the treatment of direct costs, because these costs are associated with the cost object based on cause-and-effect relationship; however, it is different for allocation of overheads to the cost objects.

Costing systems vary in terms of which costs are assigned to cost objects and their level of sophistication. Two types of systems can be used to allocate indirect costs to cost objects. They are traditional costing systems and activity based costing (ABC) system (Drury, 2012).

From the 50s through the 70s of the last century, the overheads represented approximately 25 percent of the total cost of the product, while today it represents approximately 50 percent of the total cost of the product due to the steady increase in the size of companies and the trend in replacing humans with machines (automation), and the improved production technology in a modern manufacturing environment (Crosson & Needles, 2011). Further, the overheads have increased significantly due to the complex products and services. Thus, such traditional allocation of cost does not produce accurate costs. An alternative method, ABC emerged to address this drawback.
Traditional costing system though used widely in the past is being considered inappropriate now. Why? Can ABC system be the acceptable alternative solution to overcome the challenges of traditional costing system?

To answer these questions, this chapter discusses the different approaches adopted by traditional costing system and ABC system for the treatment of overheads.

The chapter begins with description of traditional costing systems and the two stages allocation processes; moreover it considers drawbacks on the traditional systems in section 3.2. This is followed by section 3.3 which introduces ABC as the key alternative to traditional systems, illustrates the two-stage allocation process, considers the claimed benefits of ABC and the stages of ABC implementation. The last section 3.4 summarises and concludes the chapter.

### 3.2 TRADITIONAL COSTING SYSTEMS

Traditional costing system identified as volume-based systems, traditional absorption or conventional costing systems allocate overheads to the cost objects based on the volume of products, by using measures of output volume like direct labour hour and direct labour cost (Cooper & Kaplan, 1988a; Johnson & Kaplan, 1987).

The aim of this section is to outline the two-stage allocation process used in traditional costing system. This section will also critically appraise the drawbacks of traditional costing system and justify the choice of ABC as a better alternative.

#### 3.2.1 The Two-Stage Allocation Process in Traditional Costing Systems

In traditional costing system, the cost systems use two-stage allocation system: In stage one, costs are allocated to cost centres (production and service departments), also known as cost pools and in stage two, costs are allocated from the cost centres to the products (Cooper & Kaplan, 1988a). An illustration of a typical two-stage process for traditional costing systems is given in Figure (3.2).
In the first stage, traditional costing system used volume-based allocation bases to allocate or apportion several manufacturing overhead resource costs to cost centres (production and service departments). Service departments, such as equipment-maintenance and material-handling departments do not work directly on producing the final product but are necessary for production to take place. Consequently, Service department costs have been be re-allocated or re-apportioned to production departments (production cost centres) so that their overheads can be absorbed into the final product. Traditionally, there have been three alternative methods for allocating service department costs, namely direct method, sequential method and the reciprocal method (Atkinson, Kaplan & Young, 2012). These methods vary only on its perception of how the service departments serve other service departments and production departments.

In the second stage, the overheads that have been allocated to each production department will be assigned to cost objects using selected allocation bases.
In the first stage, the companies that practise traditional costing system use many different allocation bases, such as, floor area, number of employees, book value of items of plant and machinery, labour hours, machine hours to apportion the several overheads to cost centres. However, in the second stage, they tend to use a small number of volume-based allocation bases, for example, direct labour hours or direct machine hours. In 1988, on visiting more than 20 US companies, Cooper and Kaplan found that all companies use direct labour hours in the second stage to allocate overheads from the cost pools to the products, despite variations in allocation bases in the first stage (Cooper & Kaplan, 1988a). The traditional systems assume that direct labour or machine hours have a significant long-term influence on the level of overhead expenditure (Drury, 2012).

3.2.2 Drawbacks on Traditional Costing System

The steady increase in global competition has put pressure on organizations to outdo each other pertaining to quality, cost and delivery. The obsolete methods and processes used in costing systems hinder the progress of organizations. “There remains, however, a major – and largely unnoticed – obstacle to the lasting success of this revolution in the organization and technology of manufacturing operations. Most companies still use the same cost accounting and management control systems that were developed decades ago in a competitive environment drastically different from that of today” (Kaplan, 1984, p. 95).

The traditional cost accounting system is the product of evolution of the manufacturing operations, which was focussed on producing few products that had high direct labour input. These systems were highly efficient in dealing with mass production that was witnessed in the early twentieth century. Kaplan (1984) points that the traditional systems will not be sufficient to encompass all the processes of a manufacturing company. Further, in the today’s competitive environment, the products are delivered with low direct labour content; therefore, depending on the traditional systems will not provide an adequate picture of manufacturing efficiency and effectiveness.

The use of the traditional costing system is specifically beneficial when there is only one product or a few similar products that need the same production process
and production-related activities (Crosson & Needles, 2011). The cost allocation in traditional manufacturing is through routing manufacturing process which has direct labour costs or labour hours because it uses repeated processes that involves high labour content. Hoque (2005) defends that such allocation using direct labour hours or direct labour costs is sufficient. Cooper and Kaplan (1988b) argue that “distorted cost information is the result of sensible accounting choices made decades ago, when most companies manufactured a narrow range of products. In production, the costs of labour and materials were the most important production factors that could be traced to the individual products. Distortions from allocating factory and corporate overhead by burden rates on direct labour were minor” (p. 96). Further, the process of collecting and analysing the data is complicated and expensive resulting in allocation of costs to such sophisticated resources. However, today, the current scenario is different due to the development of product lines and marketing methods; the companies produce a wide variety of products (Cooper & Kaplan, 1988b; Drury, 2012). From this angle, direct labour no more encompass most of the production, instead is restricted to a small portion. As a result, the direct labour hours or machine hours of manufacturing do not provide adequate information for product calculation. At the same time, expenses involving factory support operations, engineering, distribution, marketing, and other overhead functions have increased (Cooper & Kaplan, 1988b; Glad & Becker, 1996, Garrison et al., 2006). From the 50s through the 70s of the last century, the overheads represented approximately 25 percent of the total cost of the product, while today it represents approximately 50 percent of the total cost of the product due to the steady increase in the size of companies and the trend in replacing humans with machines (automation), and the improved production technology in a modern manufacturing environment (Crosson & Needles, 2011). Due to these causes, the traditional costing system is unable to evaluate the cost of resources used for producing the products or services accurately (Atkinson et al., 2012; Cooper, 1990; Cooper & Kaplan, 1991).

Furthermore, it contributes to poor decision making and distortion of costs (Johnson & Kaplan, 1987) resulting in distorted signals about the relative profitability of different products (Atkinson et al., 2012) and global competitiveness (Freidank, 1997). It also has a cascading effect on product mix, pricing, process technology, etc., as decisions are made on the distorted cost information (Kishore, 2005).
The cost and the cause of costs should be established; unfortunately, the traditional costing system does not address this challenge. Almost all of the companies that employ the traditional costing system use it to assign overheads to product at unit-level allocation bases only, which is proportional to the number of units produced (e.g., direct labour hours, direct labour costs and machine hours) (Turney, 2005). The traditional costing system uses volume-driver allocation bases, which is founded on the assumption that when the number of hours put in is greater so also is its costs. However, this paradigm remains false for most of the components of the overheads (Cooper & Kaplan, 1988a).

3.3 ACTIVITY BASED COSTING

The previous section reviewed the concept of the traditional costing systems. This section introduces ABC system as a superior alternative to traditional systems and provides the background and the main features of ABC.

First, this section provides an overview of the origin and definitions of ABC system, followed by a review on the suitability of ABC system to organization, the allocation process adopted by ABC system, benefits of ABC and the implementation stages of ABC system.

3.3.1 The origin and development of ABC

Along with variance analysis, return on investment and balanced scorecard, ABC is considered as one of the most important innovation of the twentieth century by many academics and practitioners (Gosselin, 2007).

Johnson (1992) traced the origin of ABC back to the early 1960s, when General Electric (GE) developed a model of activity cost analysis to improve the quality of its information on indirect costs. The costs of the activities were determined by GE by analysing the effort of all the activities. Thus, GE demonstrated how costs were incurred by the activities. GE may have been the first organisation to use the term (activity) to describe work that causes cost (Hoque, 2005). Later, Staubus (1971) has studied the activity costing and explained some of the basic concepts of ABC system. In his book (Activity Costing and Input-Output Accounting) published
in 1971, Staubus analysed the concepts of cost, objects of cost and costing. Besides, he suggested a conceptual framework for cost accounting that defines activities as objects of costing (Hoque, 2005).

Jones and Dugdale (2002) contradict with the origin of the ABC system as a activity-based accounting approaches (Staubus approach) and the practices in GE as explained by earlier literature. They reject these references as occasional and vague references. According to them, these references do not define ABC clearly, at least as we know it nowadays. Moreover, they believe that these are recollected retrospectively after the “brand-named” product ABC system had been produced. On the contrary, they associate the origin of ABC system with the work of Professors Robin Cooper of the Claremont Graduate School and Robert Kaplan of Harvard Business School, and Tom Johnson, who brought “ABC” to global attention. They found that the ABC concept was being applied in a small number of large USA manufacturing business, which were dissatisfied with the conventional approaches to costing as apparent. The experiences of these organizations were published as Harvard Case Studies that initiated a series of articles which outlined and developed the application of ABC. Thus ABC owes its current status both to the practitioners who first designed and effected its practical implementation, and then to the academics who translated this work into a more general framework and contributed to its popularity and dissemination through their publications.

3.3.2 ABC Definition

Before defining the ABC system, it is imperative to understand what ABC system is. ABC system, which has become an important aspect of manufacturing or service organizations, can be considered as an alternative paradigm to traditional cost-based accounting systems. According to Hilton (2011, p. 172), ABC is a “two-stage procedure to assign overhead costs to products. The first stage identifies significant activities in the production of the three products and assigns overhead costs to each activity in accordance with the cost of the organization’s resources used by the activity. The overhead costs assigned to each activity comprise an activity cost pool. After assigning overhead costs to activity cost pools in stage one, cost drivers appropriate for each cost pool are identified in stage two. Then the overhead costs are
allocated from each activity cost pool to each product line in proportion to the amount of the cost driver consumed by the product line”.

Several definitions have been found in the literature that succinctly specifies the involved concept.

Cokins (1996) considered ABC system as “the mathematics used to reassign costs accurately to cost objects, that is, outputs, products, services, and customers. Its primary purpose is for profitability analysis” (p. 40).

For Turney (1996), ABC refers to a methodology that measures the cost and performance of activities, resources and cost objects. It assigns costs to activities based on their consumption of resources and then allocates costs to cost objects based on their required activities”.

The Computer Aided Manufacturing-international’s (CAM-I) defined ABC system in its glossary as a method that measures the cost and performance of process-related activities and cost objects, through the assignment of costs to activities, and cost to cost objects.

The Computer Aided Manufacturing-international’s (CAM-I) and Turney’s (1996) definitions of ABC system suggests that ABC is not just about product costing but tends to measure the performance of activities to ascertain the quality of work done pertaining to that activity.

According to a definition provided by Swenson’s (1995, p. 167) ABC system is “an information system that assists with decision making, essentially a decision-support system”. This definition focuses on the use of ABC as a decision-support system.

Horngren et al. (2012, p. 146) defined ABC system as a method that “refines a costing system by identifying individual activities as the fundamental cost objects”.

After examining the previous definitions, ABC system can be defined as an alternative costing technique for the traditional costing systems to assist in decision making and to improve the performance by allocating overheads in an objective and
reasonable way to cost objects. Using ABC, all activity cost pools can be identified in an organization and overheads assigned to all activities concerning product or service. Then, ABC allocates the activity cost pools to products and services based on cost driver.

3.3.3 The two-stage allocation process in ABC

According to Cooper et al. (1992), four basic steps are involved in ABC system: (1) identification of relevant activities, (2) assignment of the relevant overheads to activities, (3) identification of output and (4) assignment of cost of activities to outputs. As the first two steps are associated to first stage, and the other two stages to the second stage, these steps can be compressed into a two-stage process.

In the first stage, significant activities involved in manufacturing products are identified and classified, and manufacturing overheads are assigned to each activity according to the cost of the organization’s resources used by the activity. The overheads assigned to each activity comprise an activity cost centre (also called activity cost pool). The activity cost centres are identified and classified according to the manufacturing cost hierarchy. The manufacturing cost hierarchy is important to identify appropriate cost drivers for the activity cost centres (Horngren, et al., 2012). The manufacturing cost hierarchy categorizes the different activity cost centres on the basis of either different classes of cost drivers or different degrees of difficulty in determining cause-and-effect relationships (Bhimani et al., 2008; Horngren, et al., 2012). Cooper (1990) classified the activities into four different categories. Cooper’s hierarchy is shown in Figure (3.3).
Figure (3.3) shows four manufacturing cost categories:

1. **Unit-level activities**
   
   Costs are assigned to activities that act on each individual unit of product or service, such as direct labour or materials.

2. **Batch-level activities**

   Costs are assigned to activities associated with a batch or group of units of products, such as set-up costs, material movements or purchase orders.

3. **Product-sustaining activities**

   Costs are allocated to activities which are performed to support a specific product or service, such as process engineering, product specifications or engineering change notices.

4. **Facility-sustaining activities**

   Costs, which cannot be traced to individual units, batches, or products, are related to maintaining the buildings and facilities. This refers to the activities that are otherwise considered as operation’s support activities (service and administrative activities) such as providing security and safety, performing maintenance of general
purpose machines, managing the plant, taxes, building and grounds or heating and lighting.

FIGURE 3.4
ILLUSTRATION OF THE DIFFERENCES BETWEEN TWO-STAGE ALLOCATION PROCESS IN TRADITIONAL SYSTEM AND ABC SYSTEM

In the second stage cost drivers appropriate for each cost centre are identified. Then the overheads are allocated from each activity cost centre to each product in proportion to the amount of the cost driver consumed by the product.
Figure (3.4) illustrates the two-stage allocation process in ABC and the major differences with traditional costing system. The major distinguishing feature of ABC system is that it rely on a greater number of cost centres in the first stage. It also involves a greater number and variety of second stage cost drivers/allocation bases that can be at the unit-level, batch-level, and/or product-level. By using a greater number of cost centres and cost drivers that are desirably based on cause-and-effect allocations, ABC system should report more accurate product costs. According to Cooper (1988b), ABC utilizes the second-stage bases in order to allocate costs to products. The consumption of the inputs by some of these bases differs directly with the quantity of the products. Conversely, traditional allocation bases trace inputs which do not differ according to the quantity.

A further distinguishing feature is that traditional systems normally allocate service/support costs to production centres. Their costs are merged with the cost of production centres and thus included within the production centres’ overhead bases. In contrast, ABC system tends to establish separate cost drivers for support centres and assign the cost of support activities directly to cost objects without any reallocation to production centres. Roth and Borthick (1991) claimed that costs revealed by ABC are superior to traditional approach because of the two underlying assumptions: (a) the cost in each pool is driven by homogeneous activities and (b) the cost in each pool is strictly proportional to the activity. Along these lines, ABC system produces more accurate cost information and therefore is considered to be superior to traditional systems (Cooper, 1988b; Innes & Mitchell, 1991; Morrow, 1992; Turney, 1996; Krumwiede & Roth, 1997).

### 3.3.4 Implementation stages of ABC system

The implementation of ABC system refers to the process of carrying out the decision to adopt the system. Krumwiede and Roth (1997) claim that ABC system is an information technology (IT) innovation, which supports managers with information to make decisions, as opposed to a pure technical innovation. Accordingly, managers need to comprehend the stages of the IT implementation process to implement ABC system successfully.
Cooper and Zmud (1990) developed a theoretical model that explains the main stages of IT implementation. According to them, the IT implementation process is categorized into six sequential stages: initiation, adoption, adaptation, acceptance, routinisation and infusion. This model forms base on which other studies (for example, Anderson, 1995; Krumwiede, 1998a), with respect to implementation stages, have been built. Though the boundaries between these stages are not distinct, there are some characteristics that differentiate each stage.

Few years later, Krumwiede (1998a) refined Cooper and Zmud’s stage further to capture specific aspects of ABC system. He determined the implementation stages based on the level of development and the degree of usage of ABC system information for decision making outside the accounting department. He expanded the Cooper and Zmud’s model to ten stages: (A) Not considered, (B) Considering, (C) Considered then Rejected, (D) Approved for Implementation, (E) Analysis, (F) Getting Acceptance, (G) Implemented then Abandoned, (H) Acceptance, (I) Routine System and (J) Integrated System. He first tested what he called the adoption stages (A–D) among non-ABC adopters (Stages A–C) and ABC adopters (Stage D). Later, he tested the implementation stages (Stage E and beyond). Table (3.1) includes a brief description of the various implementation stages and the goals that should be achieved by the end of each stage. It shows how a firm makes progress towards the highest level of implementation.

Subsequently, Brown et al. (2004) used different terms to acknowledge Krumwiede’s stages. They first tested initiation of the interest in ABC system (Stages A to B and beyond), not having considered ABC system (Stage A) and having interest in ABC initiatives (Stages B, C and D). They then tested the adoption decision stages (Stage D and beyond) by comparing those who have adopted the innovation (Stage D) with those who have rejected the innovation (Stage C).
### TABLE 3.1
**KRUMWIEDE’S ABC IMPLEMENTATION MODEL**

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not considered</td>
<td>ABC system has not been seriously considered. Use either single or departmental / multiple plant wide allocation methods only.</td>
</tr>
<tr>
<td>Considering</td>
<td>ABC system is being considered and implementation is possible, but implementation has not been approved.</td>
</tr>
<tr>
<td>Considered then Rejected</td>
<td>ABC system has been considered (not implemented) but was later rejected as a cost assignment method.</td>
</tr>
<tr>
<td>Approved for Implementation</td>
<td>Approval has been granted to implement ABC system and devote / spend the necessary resources, but analysis has not yet begun.</td>
</tr>
<tr>
<td>Analysis</td>
<td>ABC implementation team is in the process of determining project scope and objectives, collecting data and / or analyzing activities and cost drivers.</td>
</tr>
<tr>
<td>Getting Acceptance</td>
<td>Analysis is complete and ABC model has project / implementation team support, but ABC information is not yet used outside of accounting department for decision making</td>
</tr>
<tr>
<td>Implemented then Abandoned</td>
<td>ABC system was implemented and performed but is not being pursued at this time</td>
</tr>
<tr>
<td>Acceptance</td>
<td>Occasionally used by nonaccounting upper management or departments for decision making. General consensus among nonaccounting departments that model provides more realistic costs. Still considered a project or model only with infrequent updates.</td>
</tr>
<tr>
<td>Routine System</td>
<td>Commonly used by nonaccounting upper management or departments for decision making and considered normal part of information system.</td>
</tr>
</tbody>
</table>

Source: Krumwiede (1998a)
3.3.5 ABC Benefits and Pitfalls

This section outlines the basic feature of the benefits and pitfalls of ABC system.

3.3.5.1 The Benefits of the ABC System

The conventional cost systems used before the origination of ABC systematically distorted product costs, leading to wrong decisions being taken on the basis of these costs (Johnson & Kaplan, 1987; Cooper & Kaplan, 1988a). The ABC system originated as a means of improving product cost information in a manufacturing context, particularly to provide accurate information to managers about the costs of making and selling diverse products. It has been designed to produce more accurate and detailed information of production and thereby gets rid of the distortions of information in the traditional costing system (Cooper & Kaplan, 1988a; Innes & Mitchell, 1991; Cooper et al., 1992; Swenson, 1995; Clarke et al., 1999; Majid, et al. 2008; Yousif & Yousif, 2012). The ABC was posed as a more accurate costing method, particularly where non-volume related overheads are significant, and a diverse product line is manufactured (Innes & Mitchell, 1990). It has been claimed that accurate product costs are critical to pricing decisions, new product introductions, decisions to drop out-of-date products and decisions on how to respond to the products of competitors correctly and on time, since product costs identify causes of resource consumption and ways of saving resources, especially at the product and process design stage (Chongruksut, 2002).

Several studies report that the key benefits of the ABC system are cost control and cost reduction, in addition to improved profitability (Innes & Mitchell, 1991, 1995; Bailey, 1991; Nicholls, 1992; Adler, et al., 2000; Cohen et al., 2005; Majid & Sulaiman, 2008). Cost-reduction analysis conducted through the ABC system does not reduce cost directly, instead it will help in identifying the activities that are responsible for additional cost and by reorganizing these activities (e.g., decreasing the time to set up a machine or cutting down redundant activities) and redeploying the redundant resources, cost can be reduced (Turney, 1996). Cost analysis, thus conducted by the ABC system improves the operations and increases profitability (Kaplan, 1992).
In addition, the ABC system is necessary to enhance the collection of comprehensive cost data for performance measurement (Swenson, 1995; Innes & Mitchell, 1991, 1995; Chongruksut, 2002; Cohen et al., 2005; Turney, 2010), to collect more relevant data for management to make better decisions on product pricing, product design, product mix, process improvement, market segments and customer mix and profitability (Cooper & Kaplan, 1988b; Kaplan, 1992; Swenson, 1995; Innes & Mitchell, 1991, 1995; Anand et al., 2005; Turney, 1996 & 2010). Turney (2010) considered ABC system as the heart of integrated performance management systems. ABC can be utilized to measure performance, especially when the ABC is used as a part of performance management in the organizations. The performance measures are built into the process dimension of a scorecard. The activity costs are used to set targets and score goals around performance of the process.

The emphasis of cost management system on activities can help management to identify non-value-added costs and eliminate the activities that cause them (Hilton, 2011; Akyol, Tuncel, & Bayhan, 2005; Turney, 2010; Horngren et al., 2012). By eliminating non-value added or non-productive activities, the ABC system can help decision makers and quality practitioners understand the true cost of quality and improve operations and cost structures (Narong, 2009). Horngren et al. (2012) claim that the ABC system take a long-term perspective and focus on improving processes by eliminating non-value-added activities and reducing the costs of performing value-added activities. Innes and Mitchell (1991) added that ABC provides a reliable indication of long-term variable product cost, which is particularly relevant to managerial decision making at a strategic level. ABC system, therefore, is more useful for long-term pricing, cost control and capacity management.

Kaplan (1992) points that the ABC system is capable of supporting product designers in taking decisions at critical moments of adjustment between minimizing cost and adequate performance. Additionally, the product designers have an opportunity to evaluate the cost information of diverse designs and compare them to produce the most cost-effective product designs (Cooper & Turney, 1989). At the same time, Atkinson et al. (2012) points that when product costing technique is used at the design stage, it would support the prediction of target costing as the product
cost can measure the diverse products to manufacture and sell. Further, the evaluation of profitability by product group or customer type can be made (Morrow, 1992).

Profitability analysis is essential for the management to make decisions about the market and customer and the cost involved in any realignment of the equation in any market segment (Morrow, 1992). This analysis can be created by building of cost layers which in turn enhances the revenue values. As the ABC system brings about an understanding between each customer and market segment and the resources used by them, clarity can be obtained in the collection of costs at each cost layer. Kaplan (1992) therefore suggests that ABC information will be a useful tool to evaluate the market segments and customers in order to satisfy them profitably.

Budgeting and performance measurement is yet another advantage gained by managers on implementing the ABC system as the objectives of each activity can be drawn from the activity-based budgets (Chongruksut, 2002; Cohen et al., 2005;). and future resource needs can be assessed (Innes & Mitchell 1995; Turney 1996). A network of activity-based budgets can be connected between activities, the organizational acts and the resources consumed; and the underlying difference between resource consumption and resource provision (Morrow 1992). Thus, activity-based budgets provide control over operations and performance measurement.

The ABC system improves the ability of an analyst to estimate the cash flows associated with a proposed project by separating costs into activity cost pools and identifying a cost driver for each pool. Hence, analyst can more accurately determine the levels of various costs that will be incurred, if the project is implemented (Hilton, 2011).

3.3.5.2 ABC Pitfalls

The proponents of ABC have written much of the ABC literature and little attention has been given to its potential limitations. Kaplan and Anderson (2007, p. 138) stated that “over the past 15 years, activity-based costing has enabled managers to see that not all revenue is good revenue and not all customers are profitable customers. Unfortunately, the difficulties of implementing and maintaining traditional ABC system have prevented them from being adopted on any significant scale”.
Before deciding on the implementation of the ABC system, it is essential that the companies look into the usefulness of the system and applicability of the system to the company. It is not advisable to implement a costing system with weighing the advantages of the system alone. The link between the cost and the benefits from the adapting the system must be carefully assessed to evaluate the usefulness of the new system if it is going to substitute the old one. Since the ABC system is a more expensive system than the traditional ones due to its wide ranging preparations and the range of functions relating to the evaluation of data, it involves high amounts of inputs in terms of finances, technology and staff. Among the limitations of ABC, ABC system is more costly to maintain than a traditional costing system, data concerning numerous activity measures must be periodically collected, checked, and entered into the system. The benefits of increased accuracy may not outweigh these costs. Moreover, top management normally resists the change to ABC system, due to the fact of human nature that changes in organizations inevitably face resistance. “This underscores the importance of top management support and the full participation of line managers, as well as the accounting staff, in any activity-based costing initiative. ABC data can easily be misinterpreted and must be used with care when used in making decisions” (Garrison et al., 2006, p. 338).

Kaplan and Anderson (2007, p. 5) summarized the main pitfalls of the ABC system:

- The interviewing and surveying process is time-consuming and costly.
- The data for the ABC model are subjective and difficult to validate.
- The data were expensive to store, process, and report.
- Most ABC models are local and do not provide an integrated view of the enterprise wide profitability opportunities.
- The ABC model could not be easily updated to accommodate changing circumstances.
- The model is theoretically incorrect when it ignores the potential for unused capacity.
3.4 CONCLUSION

ABC addressed serious shortcoming in traditional costing systems when originally introduced in the 1980s. Typical of the traditional costing systems, the three cost categories are: direct labour, direct materials, and overheads. In most manufacturing companies their cost systems allocate the indirect or support costs as the "overhead" with measures already being recorded, such as direct labour hours and direct labour dollars and also trace directly to the individual products.

During the 20th century, the percentage of the overheads had continually increased as the direct labour content of products decreased, through replacement of humans with machines (automation) and the improved production technology in a modern manufacturing environment. Thus, it became necessary to improve cost measurement techniques because of the limitations of traditional costing systems. ABC system is one such technique being used. ABC system seemingly solved the inaccurate allocation of overheads from traditional costing systems by tracing the overheads first to the activities performed by the company’s shared resources, and then allocating the activity costs down to cost objects in proportion to the amount of the cost driver consumed by the cost object.

As a result, managers used the more relevant and accurate information to make better decisions on product pricing, product design, product mix, process improvement, performance measurement, market segments and customer mix and profitability.