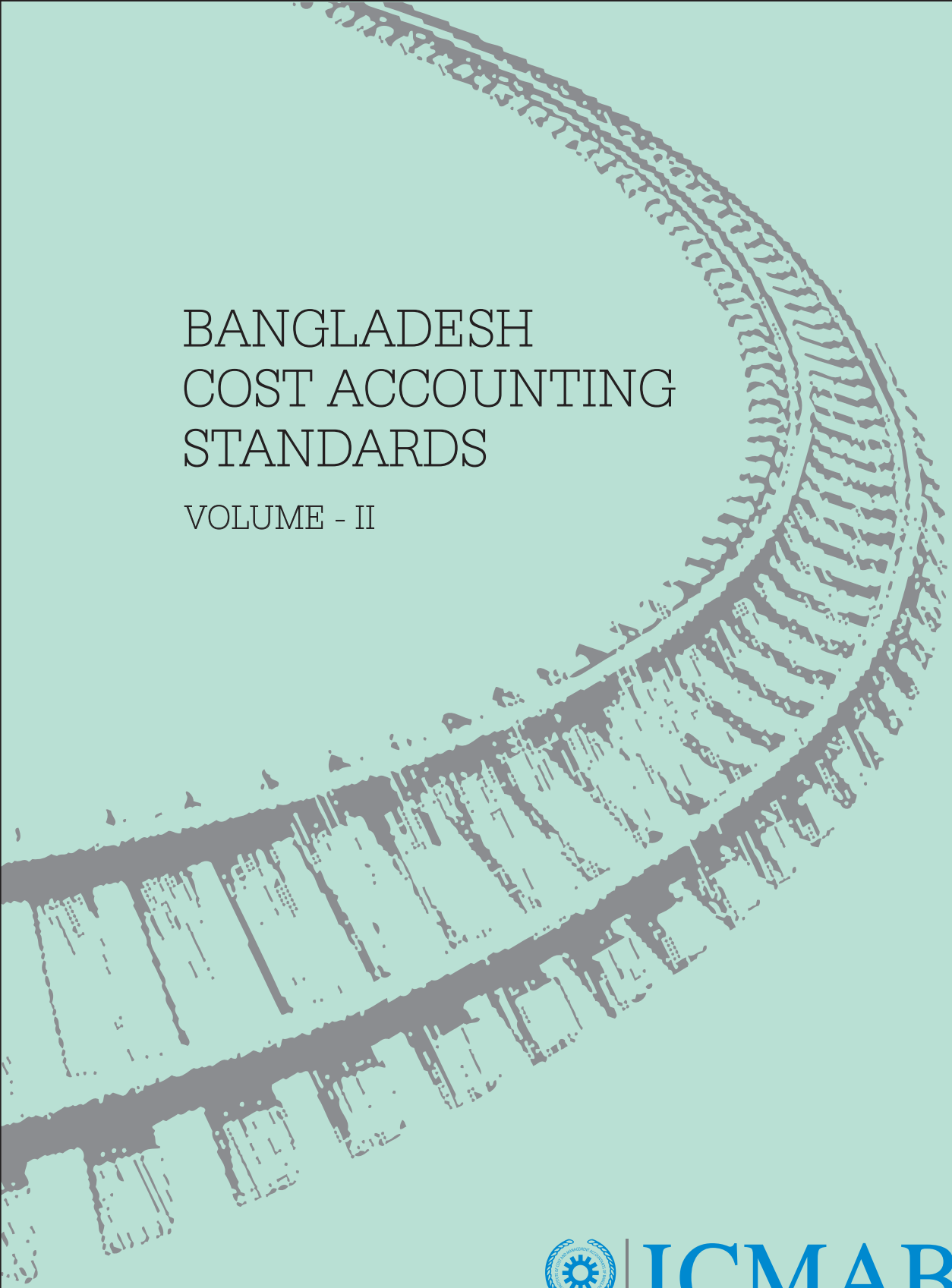
BANGLADESH COST ACCOUNTING STANDARDS

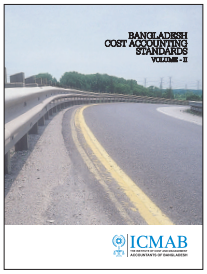
VOLUME - II



ICMAB
THE INSTITUTE OF COST AND MANAGEMENT
ACCOUNTANTS OF BANGLADESH

BANGLADESH COST ACCOUNTING STANDARDS

Volume -II



Bangladesh Cost Accounting Standards

Volume - II

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PREAMBLE

It is of immense pleasure to present the second volume of Bangladesh Cost Accounting Standards (BCAS). It consists of a total of thirteen new standards in addition to the ten standards previously published in Volume-I. Thus the portfolio reaches to a total of twenty-three standards. Cost accounting standards are required to provide guidance to the users to achieve uniformity and consistency in classification, measurement, assignment and allocation of costs to the products and services. The standards can provide a structured approach to the measurement of costs in manufacturing process or service industry by integrating, harmonizing and standardizing cost accounting principles and practices. The practicing members can be benefitted through use of Cost Accounting Standards in the attestation of Cost Statements. The standards can also assist in clear and uniform understanding of all the related issues by various user organizations, government bodies, regulators, research agencies and academic institutions.

In Bangladesh, in order to facilitate the practice of Cost Accounting, the government has so far issued cost accounting record rules and cost audit report rules. Issue of Bangladesh Cost Accounting Standards can take the cost accounting practice one step forward. In order to cater to this need, the Cost Accounting and Financial Reporting Standards Committee (CAFRSC) of ICMAB has taken this maiden venture. These standards can help as a guide for maintenance of cost accounting records and prepare cost audit reports, for the sectors where cost audit has been made mandatory. These can also help in other sectors and academicians as a guide.

The CAFRS Committee of the Institute is entrusted with, among others, the responsibility to develop, issue and update Bangladesh Cost Accounting Standards. In pursuance to this, the committee followed the process similar to that of international financial and cost accounting standards setting. The four sequential processes followed by the committee for setting the BCAS are: Brainstorming Stage, Drafting Stage, Validation Stage and Finalization Stage. At the finalization stage, after approval of the CAFRS Committee, the standards are circulated as Exposure Draft. In order to get direct feedback/comments, workshops are also arranged. After accommodating all the legible feedbacks and comments of workshop, the standards are finalized once approval from the council is received.

Any standard cannot gain completeness at its first issue. To serve desired purpose it needs to be updated and modified from time to time. The CAFRS Committee would therefore be thankful to receive comments and feedback on the standards to make them more useful and up to date with the fast changing business environment.



M. Abul Kalam Mazumdar FCMA
Chairman
Cost Accounting and Financial
Reporting Standards Committee
ICMAB, Dhaka

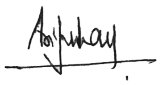
FOREWORD

I like to express my heartfelt thanks and gratitude to the Cost Accounting and Financial Reporting Standards Committee (CAFRSC) for releasing Second volume of Bangladesh Cost Accounting Standards (BCAS). This volume of standards contain a total of 13 standards. With this, the total standards issued by ICMAB becomes twenty-three. ICMAB is one of the very few institutes across the globe to have its own standards. These standards will provide a meaningful guideline to cost accounting and auditing practitioners. Undoubtedly, the ICMAB has achieved another milestone in its endeavor to develop the cost and management accounting profession as a world class profession in Bangladesh.

One of the important purposes of issuing cost accounting standard is to bring uniformity and consistency in cost accounting practices. These standards will bring professionalism in practicing cost and management accounting by the firms and other users while they are in the process of making decisions which are mainly forward looking. It is expected that these standards will supplement the other standards used by professional accountants to prepare general purpose financial statements. This publication is a part of the continuous endeavor of the ICMAB towards its thrust for achieving global standard in every possible ways.

On this milestone achievement, I congratulate the CAFRSC team and its Chairman whose untiring and relentless effort has resulted in this rich volume under the possession of the Institute. It has increased the preparedness of the Institute towards its dream of mandatory cost auditing requirements by companies across the industries. It signifies our motto *Together We Succeed* and I believe that gradually we will increase our storehouse of knowledge. It is really a matter of pride that within a short time, the ICMAB owns a total of twenty-three standards which is a commendable achievement.

I wish the practitioners and users of the standards would reap the benefits.



Arif Khan FCMA
President, ICMAB

ACKNOWLEDGEMENT

The issuance of the second volume of Bangladesh Cost Accounting Standards brings much excitement to me. A total of thirteen new standards make this volume a precious asset for CMA community. I am lucky to witness the whole process starting from budding to blooming. A dedicated team has worked very hard to cause this noble venture for the Institute and the Cost Accounting and Financial Reporting Standards Committee (CAFRSC) of ICMAB has supported the cause. The committee has ensured the standard setting process from a global perspective which is a very critical and gigantic task. In this rigorous task, few of the members of ICMAB have voluntarily taken the trouble to be associated with the process. Starting from the drafting to review, modification and editing the members of the CMA profession have worked very hard to bring the standards in its present shape. It is my moral obligation to acknowledge the contributions of those honourable members. The members who have taken the lead in initial drafting of the standards are: Mr. Md. Abul Bashir Khan (F-0549), Md. Sarwar Hossen (F-0732), Mr. Zillur Rahman (F-0749), Mr. Nikhil Chandra Shil (F-0771), Mr. Md. Abdul Hannan ACMA (A-1008), Mr. Mahmudul Hasan (A-1027), Mr. Nuruz-Zaman (A-1038), Mr. Safiul Azam (A-1111), Mr. Sandip Halder (A-1136) and Mr. Muhammad Khourshed Alam (A-1300).

The honourable members who have contributed in reviewing the draft standards are: Mr. D.P Bhattacharyya (F-0032), Mr. Md. Abdul Aziz (F-0151), Mr. Jamal Ahmed Choudhury (F-0311), Mr. Swapan Kumar Bala (F-0328), Mr. Md. Mohammad Alamgir (F-0499), Mr. Muhammad Nazrul Islam (F-0627), Md. Shafiqul Alam (F-0639), Mr. Muhammad Zahangir Alam (A-0734), Mr. A.S.M. Golam Sarwar (A-0794), Mr. Muhammad Zahirul Islam (F-0821), Mr. Rafiqul Islam (F-0891), Mr. Ranjan Kumar Mitra (A-0979), Mr. Mohammed Mehadi Masud Mazumder (A-1015), Mr. Mahmudul Hasan (A-1027), Mr. Mohammad Aminur Rahman (A-1118), Mr Sandip Halder (A-1136), Mr. Anup Kumar Saha (A-1147) and Mr. Md. Saiful Islam (A-1139).

Mr. Nikhil Chandra Shil (F-0771) has taken the pain of editing the standards to bring them in standard format. He has also presented the standards in workshop organized by the institute and deserves special thanks. The committee also acknowledges the valuable contribution of a considerable number of members of ICMAB for offering their comments on the Exposure Draft of the standards through their active participation in the workshop arranged for this purpose.

The contribution of all the above members would be engraved in the history of the Institute.

M. Abul Kalam Mazumdar FCMA
Chairman
CAFRS Committee, ICMAB, Dhaka.

November 17, 2016

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BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 11

Life Cycle Costing

BCAS 11: Life Cycle Costing

11.1 Introduction

Cost accounting provides information for both management accounting and financial accounting. It measures and reports financial and non-financial informations that relate to the cost of acquiring and consuming resources by an organization. Cost accounting as a main part of management accounting is continuously changing, developing and improving. To produce quality product or provide quality services with optimum prices, managers of business organization are using various cost accounting techniques. Life Cycle Costing (LCC) is an advanced technique that can be used by the business organizations according to their requirements. The concept of LCC first came in the United States while they used the term in a military related document. After that many practices and theory of LCC have been developed and many publications on it have appeared. Mainly the development of the LCC techniques have been evolved in USA, UK, Japan and Germany. LCC is a tool which synthesizes data and contributes to making a logical decision. LCC analysis is a method of economic evaluation of alternatives which consider all relevant costs (and benefits) associated with each alternative activity or project over its life. LCC analysis is primarily suited for the economic comparison of alternatives. Its emphasis is on determining how to allocate a given budget among competing projects so as to maximize overall net return from that budget. It refers to all costs associated with the system as applied to the defined life cycle. In general, LCC includes research and development cost, production and construction cost, operation and support cost, retirement and disposal cost. This standard provides general guidelines on the application of LCC.

11.2 Objectives

The main objective of this standard is to ensure that each element of cost of the life cycle has been considered during planning stage. Planning and controlling costs requires not only an understanding of the elements of the life-cycle cost but also the magnitude and timing of each element.

11.3 Scope

11.3.1 This standard shall be applied to identify all pertinent cost over each phase of the life cycle.

11.3.2 More specifically, the concept of life cycle costing is important in evaluating product, long term projects, construction contracts, long term service agreements and other related ancillary issues covering a longer period of time subject to externalities. It can be used in following two cases:

a) The design, development, and production (or construction) of a new system.
b) The evaluation of an existing system capability, with the objective of implementing a "continuous-product/process-improvement" approach to increase the effectiveness while reducing the life-cycle cost of that system.

11.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

11.4 Key Features

The key features of this standard are pointed below -

- a) Presenting the concept of life cycle costing as a part of cost management;
- b) Identifying different costs incurred during different phases of development;
- c) Bringing total cost of ownership as an important part of decision making process;
- d) Bringing the concept of invisible costs as a part of total costs for analytical issues; and
- e) Presenting different methods of applying life cycle costing.

11.5 Definition

The following terms are used in this standard with the meanings specified -

11.5.1 11.5.1 Life Cycle Cost: The Life Cycle Cost (LCC) of an asset is defined as the total cost throughout the life including planning, design, acquisition and support costs and any other costs directly attributable to owning or using the asset. LCC adds all the costs of alternatives over their life period and enables an evaluation on a common basis for the period of interest (usually using discounted costs). This enables decisions on acquisition, maintenance, refurbishment or disposal to be made in the light of full cost implications.

11.5.2 Development stages: The appraisal of costs is usually made with reference to all the development stages of a product or service life which generally include design, introduction, growth, maturity, decline and eventually abandonment.

11.5.3 11.5.3 Product: Product refers to goods or services since the general concept applies equally to both.

11.6 Standards

11.6.1 The life-cycle cost should include all costs that a product imposes on the organization. The life-cycle cost calculation should be presented so that it identifies the amount, type, and timing of each life-cycle cost element. Moreover, the cost estimate should include reasonable allowances for cost savings due to reengineering, continuous improvement (kaizen activities), and activity-based management activities during the product's lifetime.

11.6.2 Life-cycle costing should support the process of evaluating product profitability. The overall profitability of a product should be evaluated during the product planning and design stage. The present value of the product's estimated life-cycle costs should be compared with the present value of the product's estimated revenue in order to determine whether the product's projected net present value is positive.

11.6.3 **Each element of the product lifecycle cost should be estimated using the principle of cause and effect. Product life-cycle cost components should not be estimated during the planning stage using allocations of existing costs.**

11.6.4 For internal costing and decision making purposes, a product's life-cycle cost estimate should be allocated uniformly to each period of the product's lifetime. Costs should not be charged to the product as an expense attributable entirely to the period in which the cost was incurred.

11.6.5 There are five distinct phases in a product's life-cycle:

- a) Planning and development;
- b) Introduction and growth;
- c) Maturity;

- d) Decline; and
- e) Abandonment or renewal.

11.6.6 Since product renewal generally results in what is effectively a new product, renewal returns the product life-cycle to phase one. Therefore, the discussion in this standard will treat the product as effectively being abandoned. The life-cycle cost includes the following costs:

- a) design cost
- b) development costs;
- c) introduction costs;
- d) manufacturing costs;
- e) selling and logistical costs;
- f) service and warranty costs; and
- g) abandonment costs.

11.6.7 A complete life cycle cost projection analysis may also include other costs, as well as other accounting/financial elements (such as, interest rates, depreciation, present value of money/discount rates, etc.).

11.6.8 There are four broad purposes for life-cycle costing. LCC targets -

a) to identify whether the operating profits earned during the product's active or manufacturing phase will cover the costs incurred in the planning and abandonment phases;
b) to identify, during the planning period, significant nonmanufacturing costs associated with a given product design (such as warranty or product environmental costs) and to motivate changes to the product design to eliminate or reduce those costs;
c) to support cost comparisons among different product designs. For example, one product design might promise lower manufacturing costs but higher warranty costs. By comparing the total product life-cycle costs of alternative product designs, planners can make more informed choices among alternatives; and
d) to identify the nature and timing of costs so that they can be effectively planned and controlled. Product life-cycle costing is particularly valuable for products that create significant cost burdens at discrete points, rather than continuously during the product's life. Examples include planning and development costs for a new jet aircraft and decommissioning costs for a nuclear generating facility.

11.6.9 **Because different types of costs tend to predominate in different phases of the product life-cycle, by identifying the timing and nature of significant costs in advance organizations can develop more effective means of budgeting and controlling these costs.**

11.6.10 For example, research and development costs tend to predominate during the product's planning and development phase, whereas warranty and service costs tend to predominate during the late stages of product maturity when the greatest numbers of products are in the customers' hands. Therefore, while the primary role of life-cycle costing is to support during the product planning stage, the analysis of the product's lifetime profitability, life-cycle costing information also helps planners to control costs more effectively since it focuses on cost behavior during each unique phase of the product life-cycle. Effective planning and control of the individual elements of product life-cycle costs requires both an understanding and recognition of the varying nature of costs during the product life-cycle. Moreover, there is evidence from practice that the

failure to recognize the uneven flow of costs during the product's life cycle can motivate undesired and inappropriate decision-making.

11.6.11 The Life Cycle Costing process can be as simple as a table of expected annual costs or it can be a complex (computerized) model that allows for the creation of scenarios based on assumptions about future cost drivers. The scope and complexity of the life cycle cost analysis should generally reflect the complexity of the assets under investigation, the ability to predict future costs and the significance of the future costs to the decision being made by the organization.

11.6.12 The life cycle cost of an asset can be expressed by the following formula:

Life Cycle Cost = initial (projected) capital costs + projected life-time operating costs + projected life-time maintenance costs + projected capital rehabilitation costs + projected disposal costs - projected residual value.

11.6.13 **Cost Breakdown Structure can also be used to visualize and estimate life cycle cost precisely and accurately.**

11.6.14 The application of LCC may result any of the following intervention or treatment:

a) Do-nothing - The Do-Nothing option is literally not investing any money on any form of maintenance or renewal, including that recommended by the design engineer.
b) Status Quo - The Status Quo option is defined as maintaining the current operations and maintenance behavior, typically that is defined by the manufacturer or the design engineer.
c) Renewal (Major Repair, Rehabilitation or Replacement) - Assessment of different rehabilitation or replacement strategies requires an understanding of the costs and longevity of different asset intervention strategies. Each strategy is costed for the expected life of that strategy, converted to an equivalent present worth, adjusted for varying alternative life lengths, and compared to find the least overall cost.
d) Non-Asset Solutions - In certain circumstances the non-asset solution (providing the same level of service without a major additional investment) can be a viable alternative (for example, using pricing strategies to reduce the consumption of water).
e) Change Levels of Service - Most life cycle costing assumes a constant Level of Service across options being compared. When such is not the case (which is not infrequent in reality), comparisons across alternatives with different levels of service (that is, different levels of benefit) must introduce a projected benefits section for each alternative in addition to the cost projections. This, of course, takes the analysis into the realm of benefit cost analysis.
f) Dispose - Disposal of the asset is retiring the asset at the end of its useful life. Perhaps the function or level of service originally desired from the asset is no longer relevant.

11.6.15 A single intervention option for the entire life cycle is not likely to be the best approach to maximizing the life extension for an asset. Multiple strategies and options will need to be studied to determine the optimal strategy or combination of strategies for maximum life extension.

11.6.16 The application of Life Cycle Cost analysis to find that alternative with the lowest life cycle costs is important, but there will also likely be organizational cash flow issues that need to be considered. There will always be competing demands for the available cash resources of the organization at any given time.

11.6.17 **Life cycle costing should consider both visible and invisible costs into its formulation to make the decision worthy. Understanding the 'iceberg effect' may provide a useful guideline to understand the invisible costs attached with a decision scenario.**

11.6.18 In addressing the issue of cost-effectiveness, one often finds that there is a lack of total cost visibility. For many systems, the costs associated with design, production, the initial procurement of capital items, etc., are relatively well known. We deal with, and make decisions based on, these costs on a regular basis. However, the costs associated with utilization and the maintenance and support of the system throughout its planned life cycle are somewhat hidden. In essence, we have been successful in addressing the short-term aspects of cost, but have not been very responsive to the long-term effects. Importance of hidden cost is very significant which may even change the decision.

11.7 Recording and Reporting

11.7.1 Life cycle costs associated with activities such as research, design, production, operation, maintenance, and disposal must be viewed on an integrated and long term basis.

11.7.2 Life Cycle Costing to be used as Life Cycle Cost Management is life cycle thinking from producer, user, consumer and societal or environmental perspective.

11.7.3 Procurement and production costing technique considers all life cycle costs. In procurement, it aims to determine the lowest cost of ownership of a fixed asset considering the quality (purchase price, installation, operation, maintenance and upgrading, disposal, and other costs) during the asset's economic life.

11.7.4 In manufacturing it aims to estimate not only the production costs but also how much revenue a product will generate and what expenses will be incurred at each stage of the value chain during the product's estimated life cycle duration.

11.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

Appendix 11A

This section provide an example of using life cycle costing

Life-cycle costing is motivated by the observation that life-cycle costs do not occur uniformly over the product's lifetime for two reasons.

First, different types of costs tend to predominate during each phase of the product life-cycle. For example, research and development costs tend to be concentrated in the planning and development phase; investment in plant and facilities, marketing costs, and advertising expenses tend to be highest in the introduction and growth phase; and product service and warranty costs tend to be highest during the decline phase.

Second, some types of costs tend to be higher than others. Therefore, if a cost type is concentrated in a particular product phase, that phase will show a high level of costs. The recognition that product life-cycle costs have important individual components that can vary in terms of amount and timing has two important decision-making implications.

Although characteristics vary by product, Table 1 summarizes the activity levels for each of the product life-cycle stages.

Table-1: Activity Levels in Product Life-Cycle

Cost Using	Planning and Development	Introduction and Growth	Maturity	Decline	Abandonment
Research	High	Moderate	Low	Low	None
Design	High	Moderate	Low	Low	None
Investment	High	Moderate	Low	Low	None
Cost control	Moderate	Low	High	High	Moderate
Reengineering	None	Low	High	Moderate	None
Profit levels	Low	Moderate	High	Moderate	Low

Appendix 11B

Steps in Applying Life Cycle Cost Analysis

A systematic use of Life Cycle Cost Analysis requires the following steps:

1) Define System Requirements,
2) Describe the System Life Cycle and Identify the Major Activities in Each Phase,
3) Develop a Cost Breakdown Structure,
4) Estimate the Costs for Each Phase of the Life Cycle,
5) Select a Computer-Based Model to Facilitate the Analysis Process,
6) Develop a "Baseline" Cost Profile,
7) Develop a Cost Summary and Identify the High-Cost Contributors,
8) Determine the Cause-and-Effect Relationships Pertaining to High-Cost Areas,
9) Conduct a Sensitivity Analysis,
10) Conduct a Pareto Analysis to Identify Major Problem Areas,
11) Identify and Evaluate Feasible Alternatives,
12) Select a Preferred Design Approach.

Appendix 11C

Cost Breakdown Structure

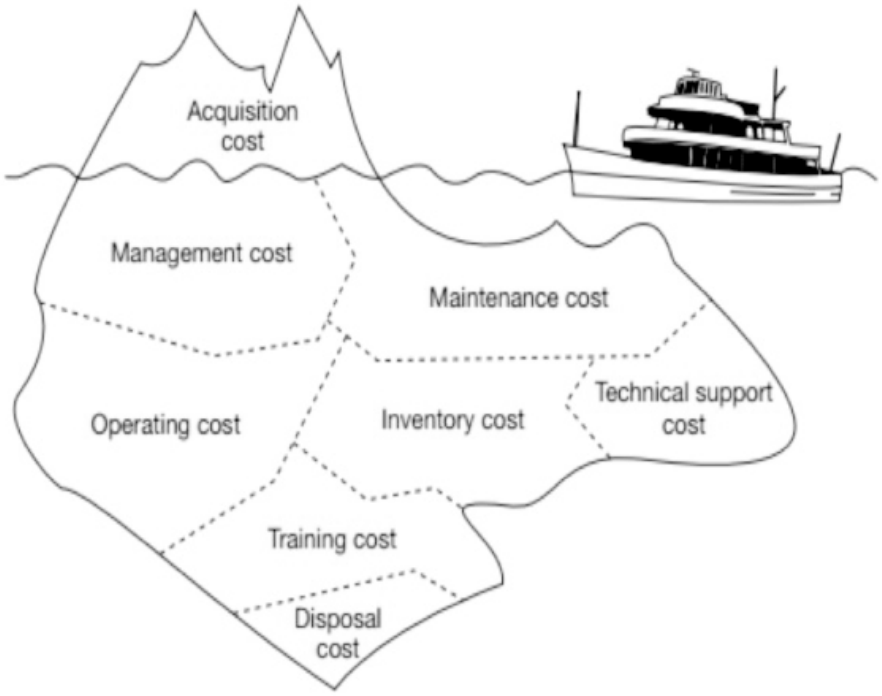
Cost Break-Down Structure in a hypothetical example following top-down approach is presented in the figure below:

Total LCC				
One - Off Costs			Recurring Costs	
Purchase Activities Cost	**Purchase Cost**	**Disposal Cost**	**Operational Cost**	**Maintenance Cost**
Purchase Management + Set up new Facilities + Documentation + Transportation & Installation	Equipment + Support Equipment + Initial Spares	Salvage Value (net)	Operational Management + Operator Manpower + Insurance + Fuel & Consumable + Utilities	Maintenance Management + Maintenance manpower + Spares + Spares Storage + Modification

Appendix 11D

Iceberg Effect

The following figure shows the invisible costs in a hypothetical scenario.





BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 12

Kaizen Costing

BCAS 12: Kaizen Costing

12.1 Introduction

Kaizen costing is a system of cost reduction via continuous improvement. It tries to maintain present cost levels for products currently being manufactured via systematic efforts to achieve the desired cost level. The word kaizen is a Japanese word meaning continuous improvement. It has two dimensions. One dimension considers product (narrow perspective) and another dimension covers asset and organization (broader perspective). Asset and organization specific kaizen costing activities planned according to the exigencies of each deal. However, product model specific costing activities carried out in special projects with added emphasis on value analysis. It is applied to products that are already in production phase. Prior to kaizen costing, when the products are under development phase, target costing is applied. After targets have been set, they are continuously updated to display past improvements, and projected (expected) improvements. Adopting Kaizen costing requires a change in the method of setting standards. Kaizen costing focuses on "cost reduction" rather than "cost control".

12.2 Objectives

The objective of this standard is to provide guidance to the practitioners regarding the scope and methodology of applying kaizen costing for establishing an environment of continuous improvement. It also tries to differentiate kaizen costing from life cycle costing, target costing and standard costing so that practitioners can use it keeping its original essence and zeal. It is important to get the maximum output from using kaizen costing.

12.3 Scope

12.3.1 This standard is applicable to such companies who want to deploy cost reduction efforts as a part of its continuous policy during manufacturing stage.

12.3.2 Particularly, this standard provides specific guideline who wants to apply kaizen costing as a method of continuous improvement through waste management and cost reduction (or control).

12.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

12.4 Key Features

The key features of this standard are pointed below -

- a) Explain the applicability of kaizen costing;
- b) Provides the basic principles of kaizen costing;
- c) Provide a comparative presentation on kaizen, life cycle, target and standard costing;
- d) Explain the steps and principles of applying kaizen costing; and
- e) List the potential benefit of using kaizen costing.

12.5 Definitions

The following terms are used in this standard with the meanings specified -

12.5.1 Kaizen: Kaizen is the Japanese word for continuous improvement.

12.5.2 Kaizen Costing: It is a costing technique to reflect continuous efforts to reduce product costs, improve product quality, and/or improve the production process after manufacturing activities have begun. Kaizen costing involves making continual, incremental improvements to the production process during the manufacturing phase of the product/service lifecycle, typically involving setting targets for cost reduction.

12.5.3 Current Cost: Under target costing concepts, this is the cost that would be applied to a new product design if no additional steps were taken to reduce costs, such as through value engineering or kaizen costing. Under traditional costing concepts, this is the cost of manufacturing a product with work methods, materials, and specifications currently in use.

12.6.4 Continuous Improvement: Continuous improvement is the continual examination and improvement of existing processes and is very different from approaches such as business process re-engineering (BPR), which seeks to make radical one-off changes to improve an organization's operations and processes. The concepts underlying continuous improvement are:

a) The organization should always seek perfection. Since perfection is never achieved, there must always be scope for improving on the current methods.
b) The search for perfection should be ingrained into the culture and mindset of all employees. Improvements should be sought all the time.
c) Individual improvements identified by the work force will be small rather than far-reaching.

12.6 Standards

12.6.1 Kaizen Costing is an ongoing process that strives to reduce costs by making improvements and removing waste. Successful continuous improvement requires full commitment from senior managers, along with effective, well-documented policies and procedures designed to log, examine and develop all new ideas.

12.6.2 The process of continual cost reduction that occurs after a product design has been completed and is now in production. Cost reduction techniques can include working with suppliers to reduce the costs in their processes, implementing less costly re-designs of the product, or reducing waste costs.

12.6.3 Once the design has been approved, production can begin, which is where Kaizen costing starts. The method can be defined as a focus on obtaining small, incremental cost reductions (rather than big changes at longer intervals) during the production phase of the product's life cycle. Kaizen costing is based on the belief that nothing is ever perfect, so improvements and reductions in the variable costs are always possible.

12.6.4 Like TQM, it becomes part of the culture, involving all members of the organization. Everyone is encouraged to offer ideas that, however small, could lead to a reduction in variable costs, which could in turn lead to a reduction in the selling price and, hopefully, a growth in sales. Alternatively, the price could be maintained and the resulting increase in profits could be used to reward the shareholders or be reinvested in other projects. It is easy to see how Kaizen costing is aligned closely with lean manufacturing, whose main aim is to cut waste through continuous improvement. This is achieved by identifying the best resources and most efficient processes to remove waste from production.

12.6.5 Kaizen costing takes into consideration costs related to manufacturing stage, which include:

- a) Costs of supply chain;
- b) Costs of product redesign;
- c) Legal costs;
- d) Manufacturing costs;
- e) Waste;
- f) Recruitment costs;
- g) Marketing, sales and distribution; and
- h) Product disposal.

12.6.6 **The major difference between target and kaizen costing is that target costing is applied during the design stage whereas Kaizen costing is applied during the manufacturing stage of a product's life. So, while target costing relates to planning and Kaizen costing covers manufacturing, total life-cycle costing is relevant to all stages of a product's life.**

12.6.7 **Kaizen cost targets are usually set monthly (see Appendix 12A). However, under standard costing, standards are usually set before the year to which they relate and do not change for the whole period, unless a major cost or change in circumstances renders them obsolete.**

12.6.8 One of the main criticisms of standard costing is that, as long as adverse variances are avoided, no attempt is made to seek further cost savings. Kaizen costing is a more proactive approach that assumes improvements can always be made; it promotes a culture in which all employees are constantly seeking to reduce production costs.

12.6.9 The objective of kaizen costing is to reduce actual costs to manufacture a product below the standard cost. Standard cost system generally aim to achieve the cost standards set by management while kaizen costing systems are more concerned with reducing actual costs below standard costs. The potential cost reductions are smaller with kaizen costing because the products are already in the manufacturing stage of their life cycles and a significant portion of costs will have become locked-in.

12.6.10 So, if the standard cost of a product is set at, say, BDT 10 and its actual cost is found to be BDT 9, no cost-cutting action is even considered under the standard costing approach, because there is a favorable variance. But a Kaizen user will examine ways of cutting this figure to BDT 8.90, BDT 8.80 and so on.

12.6.11 Kaizen costing tracks the cost reduction plans on a monthly basis. Variance analysis is carried out at the end of each period to compare the target cost reduction with the actual cost. The kaizen costing targets are expressed in the physical resources terms. If the head of a group fails to achieve the kaizen costing target by 1 percent, it should be reviewed by senior.

12.6.12 Kaizen costing has been developed to support the continued cost reduction of existing components and products. One of the main ways to reduce costs is through the elimination of the seven main types of waste:

- a) Over-production - produce more than customers have ordered.
- b) Inventory - holding or purchasing unnecessary inventory.
- c) Waiting - production delays/idle time when value is not added to the product.
- d) Defective units - production of a part that is scrapped or requires rework.
- e) Motion - actions of people/equipment that do not add value.

f) Transportation - poor planning or factory layout results in unnecessary transportation of materials/work-in-progress.

g) Over-processing - unnecessary steps that do not add value.

12.6.13 Kaizen costing efforts may be directed to any one or both of the following two approaches to kaizen costing at the discretion of management where management may confirm reasonable assurance of the success of applying kaizen costing.

a) Asset specific - all improvement activities are related to reduction of use of chosen asset or resource

b) Product specific - improvement activities are related to different resources related to one product

12.6.14 While implementing the concept of kaizen, following few rules are to be observed:

a) Identify your own problems.
b) Grade your problem like minor, difficult and major.
c) Select the smallest minor problem and start with it. After tackling this, move on to next graded problem and so on.
d) Always ensure that improvement is a part of daily routine.
e) Never accept status quo.
f) Never reject any idea before trying it.
g) Share the experiments with colleagues
h) Eliminate already tried but failed experiments, while sharing the problems with your colleagues.
i) Never hide problems, always highlight them.

12.7 Recording and Reporting

12.7.1 Organization should have a kaizen costing team consisting of members from every division who will be involved in planning, monitoring and appraisal process.

12.7.2 Organization should have a mechanism of setting target cost with reference to particular assets, products or both which should be recorded in particular form as prescribed by the kaizen costing team and reported internally for using by respective authority.

12.7.3 Kaizen costing variances should be reported and analyzed by competent authority for further action.

12.7.4 Organization should have a formal communication process of preparing and dissemination kaizen costing related information.

12.7.5 At the end of the year, the achievement of kaizen costing and its impact on bottom line should be analyzed internally and management must have a formal appraisal process in any form due to such achievement if commendable.

12.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

Appendix 12A

Kaizen cost targets

In order to achieve cost reduction, variable as well as fixed costs are considered. However, since fixed costs are needed to maintain continuous growth, Kaizen cost is achieved mainly by reduction in the variable costs, direct material and direct labor costs. In non-manufacturing departments, reduction is achieved through fixed cost items. Targets for kaizen costs are set monthly based on following procedure:

1. Per product actual cost in the previous year = Total actual cost of last year Ö Actual production in last year
2. Estimated amount of total current year actual cost = Per product actual cost in the previous year x Estimated production for the current year
3. Kaizen cost target for the current year = Estimated amount of total current year actual cost x Ratio of cost reduction target
4. Assignment cost to each plant (assignment ratio)= Cost directly controlled in single plant Ö cost directly controlled in all plants
5. Kaizen cost target for each plant = Kaizen cost target for the current year x Assignment ratio

The Kaizen costing can use **Hoshin kanri** approach of bottom-up path, where lower managers propose reduction levels. This however requires highly engaged staff. **Hoshin kanri** is a system approach to planning that fosters continuous improvement. It involves every employee into processes of strategic management. It is a Japanese version of management by objectives (MBO). Hoshin kanri begins with a strategic plan developed by top management. Then mid-level managers develop tactical objectives on departmental level that allow achieving strategic objectives. On the floor level, team leaders and managers work out the operational objectives and details. The important method is "catchball" - extensive communication between management levels in order to keep high level of compatibility between objectives. Results are being monitored weekly or monthly and appropriate adjustments are made if necessary.

Appendix 12B

Kaizen costing principles

Successful application of Kaizen Costing requires careful planning and monitoring of target cost setting and its implementation. Following principles may be of significant use to target costing practitioners:

a) It lays no emphasis on the present existing situation, by disregarding all ideas implemented in the production process.
b) The system does not strive for perfection, rather seeking gradual improvements in the existing situation, at an acceptable cost.
c) It allows managers to exercise discretion in the application of their knowledge and personal skills.
d) It encourages collective decision making, i.e., the ideas of many are better than that of one single person.
e) There are no limits to the level of improvements that can be implemented.
f) Kaizen involves setting standards and then continually improving these standards to achieve long-term sustainable improvements.
g) The focus is on eliminating waste, improving processes and systems and improving productivity.
h) Involves all employees and all areas of the business.

Appendix 12C

Kaizen Costing becomes part of the Package

At the start of 2002 a UK company called Kappa Packaging (now part of the Smurfit Kappa Group) had a factory in Greater Manchester that made, among other products, cartons to hold bottles of drink. That year the firm introduced a new approach to cutting the amount of waste paper and cardboard it was producing, which stood at 14.6 per cent of the raw materials consumed. The new approach included the following initiatives:

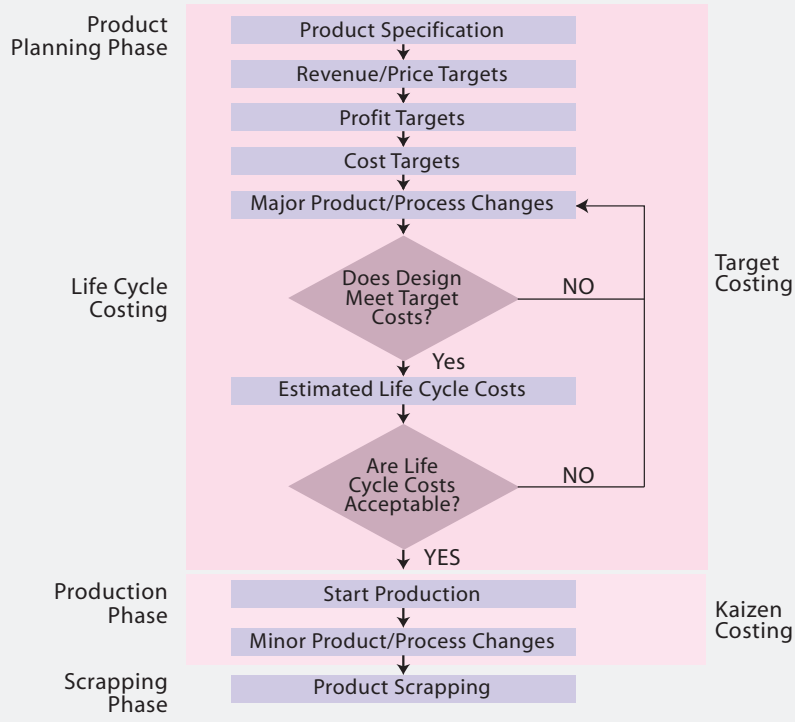
a) Making employees more aware of how much waste was being produced.
b) Requiring them to monitor the amount of waste for which they were individually responsible.
c) Establishing a Kaizen team to find ways of reducing waste.

As a result, Kappa was able to reduce waste from 14.6 per cent to 13.1 per cent of raw materials used by the end of 2002 and down to 11 per cent in 2003. Each percentage-point saving was worth an estimated £110,000 a year.

Source: "Accurate measurement of process waste leads to reduced costs", www.envirowise.gov.uk, 2003.

Appendix 12D

Kaizen Costing Implementation Stages



Source: Industrial and Financial Systems (2001)



BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 13

Standard Costing

BCAS 13: Standard Costing

13.1 Introduction

Standard costing is an important area of cost accounting. Standard costs are usually associated with a manufacturing company's costs of direct material, direct labor, and manufacturing overhead. Rather than assigning the actual costs of direct material, direct labor, and manufacturing overhead to a product, many manufacturers assign the expected or standard cost. This means that a manufacturer's inventories and cost of goods sold will begin with amounts reflecting the standard costs, not the actual costs, of a product. Manufacturers, of course, still have to pay the actual costs. As a result there are almost always differences between the actual costs and the standard costs, and those differences are known as variances. Standard costing and the related variances is a valuable management tool for control purpose. If a variance arises, management becomes aware that manufacturing costs have differed from the standard (planned, expected) costs that warrant careful attention. This standard covers standard costing and resulting variance analysis mechanisms as applied in firms.

13.2 Objectives

The objective of this standard is to provide guidelines to firms using or planning to use standard costing. More particularly, this standard targets to present guidelines to ease implementation of standard costing on following areas:

- a) Establishing budgets;
- b) Controlling costs and motivating and measuring efficiencies;
- c) Promoting possible cost reduction;
- d) Simplifying costing procedures and expediting cost reports; and
- e) Assigning costs to materials, work in process, and finished goods inventories.

13.3 Scope

13.3.1 The purpose of this standard is to define the managerial role of variance reporting and the role played by standard costs in identifying variances.

13.3.2 More particularly, the standard prescribes -

- a) Standard setting principles
- b) Category of variances
- c) Keeping record of variances and its disposal
- d) Application of variance analysis
- e) Managerial issues in standard setting and analysis of variances

13.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

13.4 Key Features

The key features of this standard are pointed below -

- a) Presents different type of standards;
- b) Introduces standard cost card;
- c) Puts light on the application of standard costing and resultant variance analysis;

- d) Shows the recording process and its disposal;
- e) Presents the formula of computing different types of variances; and
- f) Highlights the use of performance report.

13.5 Definitions

The following terms are used in this standard with the meanings specified -

13.5.1 Budget: A budget is a quantitative expression of a plan for a defined period of time. It may include planned sales volumes and revenues, resource quantities, costs and expenses, assets, liabilities and cash flows. It expresses strategic plans of business units, organizations, activities or events in measurable terms.

13.5.2 Cost: As defined in BCAS 1.5.1.

13.5.3 Price: Price is the quantity of payment or compensation given by one party to another in return for goods or services.

13.5.4 Overheads: Overhead expense refers to an ongoing expense of operating a business; it is also known as an "operating expense". Overheads are the expenditure which cannot be conveniently traced to or identified with any particular cost unit.

13.5.5 Fixed overhead: "Fixed" manufacturing overhead costs remain the same in total even though the volume of production may increase by a modest amount. For example, the property tax on the manufacturing facility might be Tk. 50,000 per year and it arrives as one tax bill in December. The amount of the property tax bill was not dependent on the number of units produced or the number of machine hours that the plant operated. Other examples include the depreciation or rent on production facilities; salaries of production managers and supervisors; and professional memberships and training for personnel in the manufacturing area. Although the fixed manufacturing overhead costs present themselves as large monthly or annual expenses, they are, in reality, a small part of each product's cost.

13.5.6 Variable overhead: Variable overhead is those manufacturing costs that vary roughly in relation to changes in production output. The concept is used to model the future expenditure levels of a business, as well as to determine the lowest possible price at which a product should be sold.

13.5.7 Material price variance: The materials price variance is the difference between the actual and budgeted cost to acquire materials, multiplied by the total number of units purchased. The variance is used to spot instances in which a business may be overpaying for raw materials and components. The formula is:

(Actual price - Standard price) x Actual quantity used = Material price variance

The key part of this calculation is the standard price, which is decided upon by the engineering and purchasing departments, based on estimates of usage, probable scrap levels, required quality, likely purchasing quantities, and several other factors. Politics can enter into the standard-setting decision, which means that standards may be set so high that it is quite easy to acquire materials at prices less than the standard, resulting in a favorable variance. Thus, the decision-making process that goes into the creation of a standard price plays a large role in the amount of materials price variance that a company report.

13.5.8 Material quantity variance: Material Quantity variance is the difference between the actual

and expected unit quantity needed to manufacture a product. The variance is used in a standard costing system, usually in conjunction with the purchase price variance. These variances are useful for identifying and correcting anomalies in the production and procurement systems, especially when there is a rapid feedback loop. Standards for raw materials are typically set by the engineering department and recorded in a bill of materials for each product.

13.5.9 Labor rate variance: The labor rate variance measures the difference between the actual and expected cost of labor. It is calculated as the difference between the actual labor rate paid and the standard rate, multiplied by the number of actual hours worked. The formula is:

(Actual rate - Standard rate) x Actual hours worked = Labor rate variance

13.5.10 Labor efficiency variance: The labor efficiency variance measures the ability to utilize labor in accordance with expectations. The variance is useful for spotlighting those areas in the production process that are using more labor hours than anticipated. This variance is calculated as the difference between the actual labor hours used to produce an item and the standard amount that should have been used, multiplied by the standard labor rate. If the variance outcome is unfavorable, there will likely to be a review by industrial engineers to see if the underlying process can be improved to reduce the number of production hours required, using such means as:

- A simplified product design to reduce assembly time
- A reduction in the amount of scrap produced by the process
- Increasing the amount of automation
- Altering the work flow

If this cannot be done, then the standard number of hours required to produce an item is increased to more closely reflect the actual level of efficiency. The formula for computing labor efficiency variance is:

(Actual hours - Standard hours) x Standard rate = Labor efficiency variance

13.5.11 Mixed variance: Mixed Variance is the measure of difference between the cost of standard proportion of materials and the actual proportion of materials consumed in the production process during a period.

13.5.12 Material yield variance: Where there is a difference between the actual level of output for a given set of inputs and the standard output for a given set of inputs, a materials yield variance arises.

13.5.13 Idle time variance: Idle time variance is the part of labor variance which happens due to abnormal idle time. We can calculate idle time variance by multiplying standard wage rate with abnormal idle time.

13.5.14 Two variance method: Two variances are controllable variance and volume variance usually used in analyzing manufacturing overhead variance.

13.5.15 Three variance method: Three variances are spending variance, efficiency variance and idle capacity variance which is an extension of two variance method.

13.5.16 Four variance method: Four variances are spending variance, variable efficiency variance, fixed efficiency variance and idle capacity variance.

13.5.17 Idle capacity variance: It is the difference between the budget allowance based on actual hours worked and actual hours worked multiplied by the standard overhead rate.

13.6 Standards

13.6.1 The appropriate approach to choosing a cost standard will reflect the organization's unique circumstances. There is no single approach of choosing a cost standard that is best in all settings.

13.6.2 The cost standard chosen should reflect the organization's objectives for using that cost standard and the variances that result from implementing it.

13.6.3 Since the organization is free to define standard cost to suit its internal purposes, and since there is no commonly accepted or recommended method to derive a standard cost, the label "standard cost" implies no authority in terms of using that cost for contracting purposes.

13.6.4 Setting standard cost is very crucial for ensuring expected profit margin irrespective of the nature of company; however, in manufacturing companies it is more critical. There are number of prerequisites for setting up standard costing via setting standards across different cost categories. These prerequisites may be pointed as below:

- a) Define bills of material parameters;
- b) Define resources;
- c) Define the cost centre;
- d) Assign resources to cost centre;
- e) Define overheads and assign to cost centre;
- f) Review routing and bill structures to confirm that costs will roll-up properly;
- g) Control overheads by resource;
- h) Confirm that the WIP parameters, Recognize *Period Variance* and *Require Scrap* Account are set as required; and
- i) Confirm that the Work in Process accounting classes and their valuations and accounts are properly set up.

13.6.5 After defining the bill and routing structures, items and unit costs, the person assigned for setting the standard costing should run the summary audits to ensure information integrity. These audits check for bill of material structures with no headers, valued items with no costs and so on.

13.6.6 It is very technical to set the standard materials quantity. How much unit of input materials and how many types of input materials is required for one unit of output is generally set out by the Product Development (PD) or Research & Development (R&D) or such technical department of an entity. They prepare a Bills of Material (BOM) or Recipe or formula of a product. The person (generally from Costing Department) assigned for calculating the unit standard cost of a product will collect the BOM or Recipe or formula and perform general review of the same, can be checked with previous trend to ensure the BOM or recipe is updated.

13.6.7 Special care should be given while setting the standard for material price. Generally, the price of any existing material can be collected from the historical information from the purchase department and then an average standard can be determined. In the case of new item, price can be collected through market survey, from the suppliers or indenters. For imported material, it is desirable to consider the variance resulting from exchange

rate changes. The person assigned for setting the standard cost should collect this information and apply his professional judgment to ensure the accuracy of the cost price.

13.6.8 Setting the standard labor hour demands some technicalities. How much standard hour of labor is required for each unit/batch of production is usually fixed up by the production department. Time and motion study is a good tool to find out the standard labor hour. Time card and such other documents can be used to generate the data. Historical labor hour can also be considered to set the standard hour required for each unit/batch of output. Standard can be set for skilled, semi skilled and other categories of labor.

13.6.9 Special care should be given while setting the standard labor rate due to the involvement of human factor in it. The standard hourly labor rate can be set from the previous information of the Human Resources Department. Labor rate can be segregated as skilled, semi skilled and other categories. In the case of hourly standard rate, inflationary adjustment and minimum wages requirements of the country, if any should be considered.

13.6.10 Setting standard rate for overheads requires some managerial issues to be addressed with caution. The overhead rate can be segregated into fixed and variable categories. Activity based costing can be used for setting the standard. Historical information works as one of the base for setting such standard. Overhead rate can be applied either on the basis of direct labor hour or machine hour depending on the relevance or cause-effect analysis.

13.6.11 Perform cost rollup as appropriate to set initial standard costs. With the initial cost rollup/update, complete the setup of the manufacturing cost structure and begin normal processing, including purchase order receipts, material issues, job/schedule creation, shop floor moves, and so on. Later, analyze, report, and distribute costs through the period process.

13.6.12 Similar to work in process costing, the cost rollup does not cost the routings assigned to phantom assemblies. The bill of material phantom determines how the component is treated. If one is rolling up the phantom assembly, the cost of the routing is included in this level cost of the assembly. But, for the parent assembly, when the subassembly's supply type is Phantom, the routing costs from the lower level assembly are not included in the cost of the parent assembly. If one change the supply type and the subassembly is no longer a phantom, the parent assembly includes the lower level routing cost in the parent assembly's previous level costs.

13.6.13 Perform a cost update for manufacturing costing after rolling up assemblies. This revalues inventory and implements new costs.

13.6.14 A provision for normal loss (tolerable limit for variances) can be prescribed for guiding the variance analysis procedure to control any sort of undesirable outcome.

13.6.15 Standard cost accounting can hurt managers, workers, and firms in several ways. For example, a policy decision to increase inventory can harm a manufacturing manager's performance evaluation. Increasing inventory requires increased production, which means that processes must operate at higher rates. When (not if) something goes wrong, the process takes longer and uses more than the standard labor time. The manager appears responsible for the excess, even though s/he has no control over the production

requirement or the problem. Thus, it supplements the application of 'Management by Exception' principle.

13.7 Recording & Reporting

13.7.1 Variances should be journalized in such a way that will supplement variance analysis for evaluation and control purpose. Standard costing systems assist in this process and often involve recording transactions using standard cost information. When accountants use a standard costing system to record transactions, companies are able to quickly identify variances. In addition, inventory and related cost of goods sold are valued using standard cost information, which simplifies the bookkeeping process.

13.7.2 Two journal entries are needed to record transactions relating to direct materials that include these variances. Typically, many more journal entries would be made throughout the year for direct materials. For the purposes of this example, we will make one journal entry for each variance to summarize the activity for the year. The entry to record the purchase of direct materials and related price variance is -

Raw Materials Inventory		Dr.	
Materials Price Variance (UNF)		Dr.	
Trade Payables			Cr.

13.7.3 Notice that the raw materials inventory account contains the actual quantity of direct materials purchased at the standard price. Payable reflects the actual cost, and the materials price variance account shows the unfavorable variance. Unfavorable variances are recorded as debits and favorable variances are recorded as credits. Variance accounts are temporary accounts that are closed out at the end of the financial reporting period.

13.7.4 The entry to record the use of direct materials in production and related quantity variance is

Work in process Inventory		Dr.	
Materials Quantity Variance			Cr.
Raw Materials Inventory			Cr.

13.7.5 Work-in-process inventory reflects the standard quantity of direct materials allowed at the standard price. The reduction in raw materials inventory reflects the actual quantity used at the standard price and the materials quantity variance account shows the favorable variance.

13.7.6 Labor is not inventoried for later use like materials; thus, only one journal entry is needed to record transactions relating to direct labor. Again, many more journal entries would typically be made throughout the year for direct labor. For the purposes of this example, we will make one journal entry to summarize the activity for the year. The entry to record the cost of direct labor and related variances is -

Work in process Inventory		Dr.	
Labor Rate Variance (UNF)		Dr.	
Labor Efficiency Variance (F)			Cr.
Wages Payable			Cr.

13.7.7 Work-in-process inventory reflects the standard hours of direct labor allowed at the standard rate. The labor rate and efficiency variances represent the difference between work-in-process inventory (at the standard cost) and actual costs recorded in wages payable.

13.7.8 The entry to record actual overhead expenditures is -

Manufacturing Overhead		Dr.	
Various Accounts			Cr.

The credit goes to several different accounts depending on the nature of the expenditure. For example, if the expenditure is for indirect materials, the credit goes to accounts payable. If the expenditure is for indirect labor, the credit goes to wages payable. Following entry will transfer manufacturing overhead to WIP Inventory -

Work in process Inventory		Dr.	
Manufacturing Overhead			Cr.

The following entry is made to transfer the costs out of work-in-process inventory and into finished goods inventory -

Finished Goods Inventory		Dr.	
Work in process Inventory			Cr.

When finished product is sold, the following entry is made:

Costs of Goods Sold		Dr.	
Finished Goods Inventory			Cr.

Note that the entry shown previously uses standard costs, which means the cost of goods sold is stated at standard cost until the next entry is made.

13.7.9 Most commonly used method of disposal of variances is to adjust with the cost of goods sold. When accounts are closed out to cost of goods sold, after which point cost of goods sold will reflect actual manufacturing costs for the products sold during the period. The following entry is made to accomplish this goal:

Cost of Goods Sold		Dr.	
Materials Quantity Variance		Dr.	
Labor Efficiency Variance		Dr.	
Material Price Variance			Cr.
Labor Rate Variance			Cr.

13.7.10 However, there is a "Variance proration" method of variance disposition which allows apportionment of all variances among Work in Process Inventory, Finished Goods Inventory, and Cost of Goods Sold. This accounting treatment reflects the impact of all unusual inefficiency or efficiency in all of the accounts through which the manufacturing cost flow.

13.7.11 The following three steps should be incorporated into a company's inventory accounting processes to assist in managing its standard cost:

a) **Review the company's capitalizable costs:** When setting standard costs, have all appropriately capitalizable costs been considered, such as incoming freight for

procured inventories or overhead for produced inventories? For instance, freight is subject to potentially significant variations due to factors such as the carrier or the quantities being ordered.

b) **Update standard costs regularly:** Updating standard costs on an annual basis is a good start but is probably not frequent enough to ensure accurate inventory costing (not to mention the potential effects on the company's income statement every time inventory is expensed inaccurately). If the cost of procuring or producing a product has changed since the standard cost was last modified, inventory will be misstated accordingly.

c) **Maintain a "standard-to-actual" reserve in the balance sheet:** Every time that any component of inventory is acquired or produced at a cost different than the assigned standard cost, that variance hits the income statement and inventory is misstated. If feasible, at the end of every reporting period an analysis of purchase and production costs for capitalizability should be performed. When complete, capitalizable variances should be recorded in a "standard-to-actual" reserve within inventory on the balance sheet with the remainder being appropriately expensed through the income statement. This reserve has the effect of adjusting the company's inventory balances to "actual," which is appropriate under accounting standard.

13.7.12 Standard cost card is an important document which needs to be developed, maintained, reviewed and complied.

13.8 Effective date

This standard will be effective from January 1, 2017 onwards.

Appendix 13A

Summary of Actual Costing, Normal Costing and Standard Costing

The following table summarizes and compares three commonly-used costing systems.

Cost Types	Actual Costing System	Normal Costing System	Standard Costing System
Direct Costs:	(Actual prices or rates x actual quantity of inputs per output) x actual outputs	(Actual prices or rates x actual quantity of inputs per output) x actual outputs	(Budgeted prices or rates x standard inputs allowed for each output) x actual outputs
Overhead Costs:	Actual overhead rates x actual quantity of the allocation base incurred	Budgeted overhead rates x actual quantity of the allocation base incurred	Budgeted overhead rates x (standard inputs allowed for actual outputs achieved)

The following points are worth noting:

a) All three costing systems record the cost of inventory based on actual output units produced. The static budget level of production does not appear anywhere in this table.
b) Actual costing and normal costing are identical with respect to how direct costs are treated.
c) With respect to overhead costs, actual costing and normal costing use different overhead rates, but both costing systems multiply the overhead rate by the same amount: the actual quantity of the allocation base incurred.
d) Normal costing and standard costing use the same overhead rate.
e) Standard costing records the cost of inventory using a flexible budget concept: the inputs "that should have been used" for the output achieved.

There are costing systems other than these three. For example, some service sector companies apply direct costs using budgeted prices multiplied by actual quantities of inputs. For example, many accounting firms track professional labor costs using budgeted professional staff hourly rates multiplied by actual staff time incurred on each job.

Appendix 13B

Different bases of setting up standard costing method for product costing

There are a number of bases in the process of standard costing. These bases may be pointed as below:

1. **Historical standards** are based on past performance. For example, this period's standard cost might be 95% of last period's standard cost.
2. **Theoretical standards** are based on the assumption of ideal performance in ideal settings. These standards are, in effect, an estimate of the highest possible performance level for a given process configuration.
3. **Practical standards** reflect tight or stretch performance levels. These standards reflect the performance level that should result from a high level of improvement effort over the current level of performance.
4. **Benchmark standards** reflect the performance level of the best performer of that activity. The choice of the method used to set the standard will reflect the goal of variance analysis in the organization and the assumptions underlying the motivational effect of variance analysis.

There is no generally preferred or recommended approach to setting a cost standard.

Appendix 13C

Determination of Standard Cost

How should the ideal standards for better controlling be determined? Consider the following issues:

1. Determination of Cost Center

"A cost center is a department or part of a department or an item of equipment or machinery or a person or a group of persons in respect of which costs are accumulated, and one where control can be exercised." Cost centers are necessary for determining the costs. If the whole factory is engaged in manufacturing a product, the factory will be a cost center. In fact, a cost center describes the product while cost is accumulated. Cost centers enable the determination of costs and fixation of responsibility. A cost center relating to a person is called personnel cost center, and a cost center relating to products and equipments is called impersonal cost center.

2. Current Standard

A current standard is a standard which is established for use over a short period of time and is related to current condition. It reflects the performance that should be attained during the current period. The period for current standard is normally one year. It is presumed that conditions of production will remain unchanged. In case there is any change in price or manufacturing condition, the standards are also revised. Current standard may be ideal standard and expected standard.

3. Ideal Standard

This is the standard which represents a high level of efficiency. Ideal standard is fixed on the assumption that favorable conditions will prevail and management will be at its best. The price paid for materials will be lowest and wastes etc. will be minimum possible. The labor time for making the production will be minimum and rates of wages will also be low. The overheads expenses are also set with maximum efficiency in mind. All the conditions, both internal and external, should be favorable and only then ideal standard will be achieved. Ideal standard is fixed on the assumption of those conditions which may rarely exist. This standard is not practicable and may not be achieved. Though this standard may not be achieved, even then an effort is made. The deviation between targets and actual performance is ignorable. In practice, ideal standard has an adverse effect on the employees. They do not try to reach the standard because the standards are not considered realistic.

4. Basic Standard

A basic standard may be defined as a standard which is established for use for an indefinite period which may be a long period. Basic standard is established for a long period and is not adjusted to the preset conditions. The same standard remains in force for a long period. These standards are revised only on the changes in specification of material and production technology. It is indeed just like a number against which subsequent process changes can be measured. Basic standard enables the measurement of changes in costs. For example, if the basic cost for material is Tk. 20 per unit and the current price is Tk. 25 per unit, it will show an increase of 25% in the cost of materials. The changes in manufacturing costs can be measured by taking basic standard, as a base standard cannot serve as a tool for cost control purpose because the standard is not revised for a long time. The deviation between standard cost and actual cost cannot be used as a yardstick for measuring efficiency.

5. Normal Standard

As per terminology, normal standard has been defined as a standard which, it is anticipated, can be attained over a future period of time, preferably long enough to cover one trade cycle. This standard is based on the conditions which will cover a future period of five years, concerning one trade cycle. If a normal cycle of ups and downs in sales and production is 10 years, then standard will be set on average sales and production which will cover all the years. The standard attempts to cover variance in the production from one time to another time. An average is taken from the periods of recession and depression. The normal standard concept is theoretical and cannot be used for cost control purpose. Normal standard can be properly applied for absorption of overhead cost over a long period of time.

6. Organization for Standard Costing

The success of standard costing system will depend upon the setting up of proper standards. For the purpose of setting standards, a person or a committee should be given this job. In a big concern, a standard costing committee is formed for this purpose. The committee includes production manager, purchase manager, sales manager, personnel manager, chief engineer and cost accountant. The cost accountant acts as a co-coordinator of this committee.

7. Accounting System

Classification of accounts is necessary to meet the required purpose, i.e. function, asset or revenue item. Codes can be used to have a speedy collection of accounts. A standard is a pre-determined measure of material, labor and overheads. It may be expressed in quality and its monetary measurements in standard costs.

Appendix 13D

Standard Cost Card

Let us assume that Mr. Ashraf runs a retail outlet that sells T-Shirt of two sizes. Mr. Ashraf suggests that you get into the manufacturing side of the business. So on January 1, 2016 you start up a T-Shirt manufacturing company named as 'Bay Company'. Using the best information at hand, two of you compiled the following estimates to use as standards for 2016:

Standards Table for T-Shirt Works

Particulars	Details	Large	Small
Materials required for each T-Shirt		2.00 yd	1.00 yd
Time required to cut and sew each T-Shirt		30 minutes	15 minutes
Materials cost per sq yd (in Tk.)	3.00		
Labor cost per hour (in Tk.)	10.00		
Electricity and supplies used per hour of labor (in Tk.)	2.00		
Rent for equipment (in Tk.)	600.00		
Planned production for the year 2016		5,000 pcs	3,000 pcs
Planned yards in 2016	13,000 yd	10,000 yd	3,000 yd
Planned hours to cut and sew in 2016	2,100 hr.	2,500 hr.	750 hr.

Materials come on rolls that are one yard wide. So one yard (yd.) of cloths is the same as one square yard of cloths. Based on the above information, standard cost card can be designed which will include standards across different cost elements for each product.

A standard cost card contains an itemization of the standard amounts of materials, labor, and overhead required to create one unit of a product. The card also multiplies the standard cost of each of these line items to arrive at the total standard cost of a product. The card has two purposes:

- To derive the standard cost of a product
- To serve as the basis for variance analysis when actual costs for the product are compiled

A sample standard cost card for large T-Shirt is drawn below based on above information:

Standard Cost Card			
Element of Cost	**Standard Quantity or Hours**	**Standard Price or Rate**	**Standard Cost**
Direct Materials	2.00 yard	Tk. 3.00 per yard	Tk. 6.00
Direct Labor	0.5 Hours	Tk. 10.00 per hour	Tk. 5.00
Variable Manufacturing Overhead	0.5 Hours	Tk. 2.00	Tk. 1.00
Total Standard Cost Per Unit			Tk. 12.00

Appendix 13E

Illustration: The X Company, Standard Costing Example

The X Company in Bangladesh makes jeans and jackets. Each product line has its own assembly line on the factory floor. The following table shows actual and budgeted information for the year. There was no beginning or ending work-in-process.

Particulars	**Budgeted**	**Actual**
Units produced:		
Jeans	500,000	500,000
Jackets	500,000	400,000
Total	1,000,000	900,000
Direct Costs:		
Jeans:		
Materials (denim)		
Price per yard	Tk. 384	Tk. 400
Yards per jeans	x 1.10	x 1.00
Material cost per jeans	Tk. 422.4	Tk. 400
Direct labor		
Wage rate	Tk. 300	Tk. 290
Hours per jeans	x 0.50	x 0.40
Labor cost per jeans	Tk. 150	Tk. 116
Jackets:		
Materials (cotton twill)		
Price per yard	Tk. 352	Tk. 360
Yards per Jackets	x 1.10	x 1.20
Material cost per Jackets	Tk. 387.2	Tk. 432
Direct labor		
Wage rate	Tk. 300	Tk. 290
Hours per Jackets	x 0.70	x 0.75
Labor cost per Jackets	Tk. 210	Tk. 217.5
Factory Overhead	Tk. 3,600,000	Tk. 3,300,000

Assume that, the budgeted overhead rate of Tk. 250 per direct labor hour and that same overhead rate is used by the standard costing system. Based on this information, the standard costing system would debit the finished goods inventory account as follows:

Particulars	Jeans	Jackets
Standard cost per unit:		
Materials	Tk. 422.4	Tk. 387.2
Labor	Tk. 150.0	Tk. 210.0
Overhead	Tk. 250 x 0.50 = Tk. 125.0	Tk. 250 x 0.70 = Tk. 175.0
	Tk. 697.4	Tk. 772.2
Actual units produced	x 500,000	x 400,000
Total	Tk. 34,87,00,000	Tk. 30,88,80,000

As per record The X Company sold 400,000 jeans and 350,000 Jackets. The entries to record the movement of inventory from the finished goods inventory account into the cost-of-goods-sold account would multiply these sales volumes by Tk. 697.4 per jeans and Tk. 772.2 per jackets.

Appendix 13F

Performance Report

A performance report provides a clear-cut idea regarding the status of achieving target by the management and possible areas for improvement. A specimen format may be as follows which may be customized to suit the specific needs of the particular firm.

ABC Company
Performance Report
For the Month ended on June 30, YYYY

Element of Cost	Actual Costs	Standard Cost at Actual Volume	Cost Variance - (F)/UFV
Direct Materials	Tk. 40,150	Tk. 37,500	Tk. 2,650
Direct Labor	Tk. 38,500	Tk. 36,000	Tk. 2,500
Variable Manufacturing Overhead	Tk. 22,400	Tk. 24,000	(Tk. 1,600)
Total Standard Cost Per Unit	Tk. 101,050	Tk. 97,500	Tk. 3,550

* Figures are hypothetical
* Standard cost should be computed based on the information on standard cost card



BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 14

Activity Based Costing

BCAS 14: Activity Based Costing (ABC)

14.1 Introduction

In this ever changing dynamic business environment, managers or decision makers have to identify different ways to focus on business strategy. Cost leadership is one of the important generic startegies that a company can follow to generate the value for the stakeholders. ABC is believed to be the most innovative tool developed in last century in the field of cost and management accounting focusing on product costing and management strategy. During the late 1980s, Kaplan & Bruns had defined this term in their book. Usually it is treated as the modern alternative to absorption costing. It enables the business to identify the relevant information in terms of value addition which in turn helps to take more effective decisions for the buisness and society at large. ABC is an approach that identifies the activities that a firm/ organization performs and then assigns indirect costs to products via those activities. This approach or system recognizes the relationship between costs, activities and products, and through this relationship, it assigns indirect costs to products less arbitrarily than traditional methods. ABC focuses attention on cost drivers, the activities that cause costs to increase. Traditional absorption costing tends to focus on volume related drivers, such as labor hours or machine hours, while activity-based costing uses a varieties of drivers by understanding the causal relationship. In this way, long-term variable overheads, traditionally considered fixed costs, can be traced to products more scientifically. This standard provides guidelines on the applicability of ABC and other peripheral issues surrounding the use of ABC which will change the role of Management Accountant from scorekeeper to Strategic Advisor.

14.2 Objectives

The main objective of this standard is to provide guidelines to organizations so that cost can be scientifically traced with the cost objects benefiting all the counterparties being affected by misleading allocation. It can be used to identify areas that would benefit from process improvement.

Activity-based costing provides a more accurate method of product/service costing, leading to more accurate pricing decisions. It increases understanding of overheads and cost drivers and makes costly and non-value adding activities more visible, allowing managers to reduce or eliminate them. ABC enables effective challenge of operating costs to find better ways of allocating and eliminating overheads. It also enables improved product and customer profitability analysis. It supports performance management techniques such as continuous improvement and scorecards.

14.3 Scope

14.3.1 This standard provides guidelines to trace indirect cost with cost objects more scientifically.

14.3.2 More specifically, the standard addresses the following pertinent issues relating to cost allocation -

- a) Identifying different activities
- b) Analyzing activities
- c) Selecting appropriate cost pools and cost drivers
- d) Differentiating resource drivers and activity drivers
- e) Proposing a cost allocation system

14.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

14.4 Key Features

The key features of this standard are pointed below -

- a) Presenting the concept of Activity Based costing as a part of strategic managerial decision;
- b) It focuses on allocation of indirect cost only;
- c) It relates with internal decision making perspective which in turn helps all stakeholders;
- d) Identifying different cost pool and driver which are related to goods or services; and
- e) Accumulating all relevant cost to the particular goods or services.

14.5 Definitions

The following terms are used in this standard with the meanings specified -

14.5.1 Activity Based Costing: Activity-based costing (ABC) is an accounting method that identifies the activities that a firm performs and then assigns indirect costs to cost objects.

14.5.2 Indirect Cost: As defined in BCAS 4.5.1.

14.5.3 Activity: As defined in BCAS 3.5.1.

14.5.4 Activity Cost pool: As defined in BCAS 3.5.4

14.5.5 Activity Cost Driver: As defined in BCAS 3.5.6.

14.5.6 Cost Object: As defined in BCAS 3.5.5.

14.5.7 Cost Hierarchy: The cost hierarchy is a classification system used in activity-based costing that designates activities based on how easily they can be traced to a product.

14.5.8 Unit Level Activities: These activities are performed each time a unit is produced.

14.5.9 Batch Level Activities: Batch level activities are performed each time a batch is handled or processed, regardless of how many units are in the batch.

14.5.10 Product Level Activities: These activities are related to specific products and typically must be carried out regardless of how many batches are run or units of product are produced or sold.

14.5.11 Customer Level Activities: These activities are related to specific customers and include activities such as sales calls, catalogue mailings and general technical support that are not tied to any specific product.

14.5.12 Organization Sustaining Activities: Theses activities are carried out regardless of which customers are served, which products are produced, how many batches are run, or how many units are made.

14.6 Standards

14.6.1 **Under ABC, activities in an organization are identified, costs are accumulated with reference to each identified activities and the cost of each activity is assigned to all products and services according to their respective consumption.**

14.6.2 Charging direct material and direct labor costs are the same under both traditional cost accounting method and ABC method.

14.6.3 **This standard acknowledges that ABC results more pragmatic cost per unit to support strategic management decision.**

14.6.4 **Factors to be considered for implementation of ABC are -**

- **a) The commitment of top level management;**
- **b) Level of competition;**
- **c) Severity of product cost cross-subsidization;**
- **d) Varieties of product lines and stock keeping units; and**
- **e) Benefits of implementing ABC outweigh the cost.**

14.6.5 **Traditional costing runs under the principle that 'products consume resources'. However, ABC believes that 'activities consume resources and products are the outcome of activities'.**

14.6.6 The successful implementation of ABC depends on the identification of different steps in applying ABC along with adherence to the steps. The steps are -

- a) Identification of major activities involved in the production process;
- b) Classification of each activity according to the cost hierarchy;
- c) Identification and accumulation of total costs of each activity;
- d) Identification of the most appropriate cost driver for each activity;
- e) Calculation of total units of the cost driver relevant to each activity;
- f) Calculation of the activity rate i.e. the cost of each activity per unit of its relevant cost driver;
- g) Application of the cost of each activity to products based on its activity usage by the product.

14.6.7 A rational number of activities need to be identified to make the system cost effective. Otherwise more number of activities will make the system chaotic and will make the method difficult to implement. However, there is no standard for fixing rational number of activities.

14.6.8 **All the identified activities should be categorized as per cost hierarchy. There are four such categories, (a) unit level, (b) batch level, (c) product level, and (d) facility level.**

14.6.9 Unit level activities are activities that are performed on each unit of product. Batch level activities are activities that are performed whenever a batch of the product is produced. Costs at the batch level depend on the number of batches processes rather than on the number of units produced, number of units sold or other measures of volumes. In pharmaceutical industry, batch level production takes place frequently. Proper identification of required tasks of any particular batch need to be scientifically identified. Product level activities are activities that are carried out separately for each product. Facility level activities are activities that are carried out at the plant level. The unit-level activities are most easily traceable to products while facility-level activities are least traceable.

14.6.10 **Respective cost driver needs to be identified for each activity which must be driven by causal analysis.**

14.6.11 Organization should have a policy on identification of resource drivers and activity drivers. The resource driver is the measure of the frequency and intensity of the demands placed on resources by activity. Activity driver measures the frequency and intensity of the demands placed on activities by cost objects enabling costs to be assigned to cost objects. A typical flow is given below:



14.6.12 ABC prefers to convert indirect cost into direct if logically feasible and economically justifiable. The ABC focuses on directly tracing as many overhead costs as possible to the ultimate cost objects.

14.6.13 The costs of any department are divided among the activity cost pools in first stage allocation process by using respective resource drivers.

14.6.14 ABC system determines the total activity for each cost pool that would be required to produce the company's present product mix and to serve its customers.

14.6.15 **The activity rates are computed by dividing the total cost for each activity by its total activity.**

14.6.16 The Overhead rates, or activity rates, may be based on the level of activity at capacity rather than on the budgeted level of activity.

14.6.17 All cost pool is not relevant. Some cost pools need to be excluded. Other cost pool consists of organizational sustaining costs and costs of idle capacity that are not allocated to products and customers.

14.6.18 Costs are assigned to cost objects in the second stage allocation by using activity drivers. This assignment requires the status of resources consumed by each unit of cost objects.

14.6.19 **ABC eliminates product cost cross subsidization. Under traditional costing high volume products are usually overcharged and low volume products are undercharged. Thus, one group of customers subsidizes another group.**

14.7 Recording and Reporting

14.7.1 Activity based costing is ordinarily used as a supplement to, rather than as a replacement for, the organization's usual costing method.

14.7.2 Non manufacturing as well as manufacturing costs may be assigned to cost objects.

14.7.3 A number of overhead cost pools are used, each of which is allocated to products and other cost objects using its own unique measure of activity.

14.7.4 It is important to record the following information for smooth application of ABC:

- a) List of activities;
- b) Classification of activities as per different cost hierarchy;

- c) List of cost drivers with the breakdown of resource and activity driver;
- d) Resource consumption patterns of cost objects; and
- e) Any other pertinent information for use.

14.7.5 Organization is encouraged to have its own manual of applying ABC as it requires a dedicated and highly committed team having required expertise.

14.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

Appendix 14 A

Cost Pool, Cost Driver and Cost Hierarchy

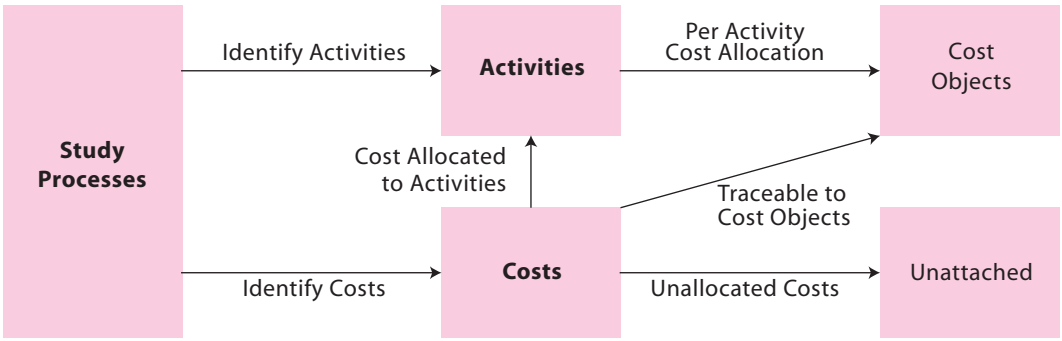
The following table presents a comparative example of cost pool, driver and hierarchy which is avery important requirement in ABC implementation.

Cost Pool	Cost Drivers	Cost Hierarchy
Machining parts	Number of machine hours	Unit level
Purchasing	Number of purchase orders or ordering hours	Product or batch level
Receiving and Storing	Number of purchase orders or shipments received	Product or batch level
Engineering	Number of engineering work orders or hours	Product level
Packing	Number of shipments, number of cubic feet or packing hours	Product or batch level
Shipping	Number of pounds shipped	Product or batch level
Machine Setup	Number of setups or setup time	Batch level
Materials handling	Number of times handled or material handling hours	Product or batch level
Inventory control and materials planning	Number of part numbers or administrative hours	Product or batch level
Inspection and quality control	Number of inspections or inspections time	Product or batch level

Appendix 14 B

ABC Process

The objective of ABC is to derive improved measures of cost. By introducing activity cost pools, one is better able to allocate the costs (resources) to end objects (products, customers, etc.). The necessary steps to develop an ABC system are summarized as follows:

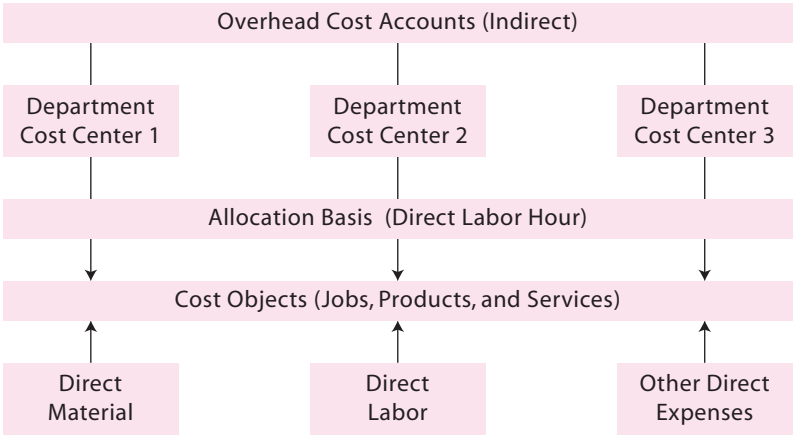


Appendix 14C

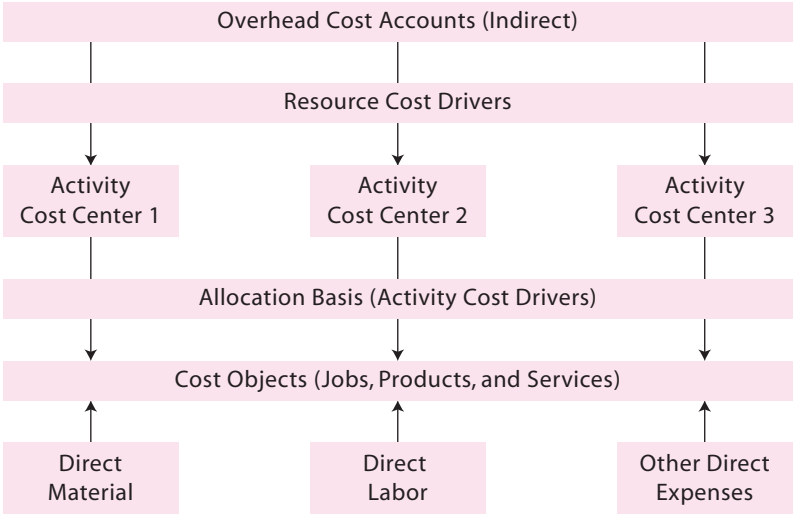
Traditional vs. ABC Systems

Activity Based Costing measures the cost and performance of activities, resources, and cost objects. Resources are assigned to activities, then activities are assigned to cost objects based on their use. Activity based costing recognizes the causal relationships of cost drivers to activities. However, costs are assigned to cost objects through different cost centers under traditional costing by using volume based plant wide drivers.

a) Under Traditional System:



b) Under ABC System:



Appendix 14D

An Example of ABC

This appendix presents a numerical example on the application of ABC for product costing comparing the same with the traditional costing.

Brothers Furniture runs the business as a sole proprietorship. While it has 50 skilled carpenters and 5 salesmen on its payroll, it has been taking care of the accounting by itself. Now, it intends to offer 40% of the ownership to public in next couple years and is willing to make changes and has hired you as the management accountant to organize and improve the accounting systems. Brothers' total budgeted manufacturing overheads cost for the current year is Tk. 5,404,639 and budgeted total labor hours are 20,000. It applied traditional costing method during all of the 10 years period, and based the pre-determined overhead rate on total labor hours.

Brothers' sofa range includes the 2-set, 3-set and 6-set options. Platinum Interiors recently placed an order for 150 units of the 6-set type. The order is expected to be delivered in 1 month time. Since it is a customized order, Platinum will be billed at cost plus 25% as an established policy practiced by Brothers.

You are not a fan of traditional product costing system. You believe that the benefits of activity-based costing system exceeds its costs, so you sat down with Ms. Emily Nathan, the chief engineer, to identify the activities which the firm undertakes in its sofa division with which you have to start for implementing ABC as you have learnt while you was at graduate school. Next, you calculated the total cost that goes into each activity, identified the cost driver that is most relevant to each activity and calculated the activity rate. The results are summarized below:

Activity	Costs (Tk.)	Activity Drivers		Rate
Production of components	2,313,132	Machine hours	25,000	93
Assembly of components	1,231,312	Number of labor hours	20,000	62
Packaging	213,123	Units	5,000	43
Shipping	231,230	Units	5,000	46
Setup costs	34,243	Number of setups	240	143
Designing	123,132	Designer hours	1,000	123
Product testing	24,234	Testing hours	500	48
Rent	1,234,233	Labor cost	Tk. 1,645,644	75%

Once the order was ready for packaging, Emily gave you a summary of total cost incurred and a statement of activities performed (also called the bill of activities) as shown below:

Order No: 15X2013 Customer: Platinum Interiors Units: 150 Type: 6-Set Sofa		
Cost of direct materials	:Tk. 25,000	
Cost of purchased components	:Tk. 35,000	
Labor cost	:Tk. 15,600	
Activity	**Relevant Cost Driver**	**Activity Usage**
Production of components	Machine hours	320
Assembly of components	Number of labor hours	250
Packaging	Units	150
Shipping	Units	150
Setup costs	Number of setups	15
Designing	Designer hours	70
Testing	Testing hours	22
Rent	Labor cost	15,600

Part A: Costing under Traditional Costing System

Under the traditional costing system, cost equals materials cost plus labor cost plus manufacturing overheads charged at the pre-determined overhead rate. The pre-determined overhead rate based on direct labor hours as practiced by Brothers is Tk. 270 (Tk. 5,404,639/20,000) per labor hour. The actual number of labor hours spent on the order is 250 as given by Ms. Emily. Once these data are available, traditional costing system will result the following cost estimate for the whole order:

Cost Components	Amount (Tk.)
Direct materials	25,000
Purchased components	35,000
Labor cost	15,600
Manufacturing overheads (Tk. 270 × 250)	67,500
Total cost under traditional product costing system	143,100

Platinum is billed at cost plus 25%, so the amount of sales to be booked would amount to Tk. 178,875 (Tk. 143,100 x 1.25).

Part B: Costing under Activity Based Costing System

The same calculation can be done under ABC system more scientifically which will result improved product costing and pricing decision based on the additional information Ms. Emily Nathan has provided.

Activity-based costing doesn't result any variation on how direct costs are treated. Thus, direct materials cost, cost of purchased components and labor cost remains the same as these are considered in traditional product costing system. However, the value of manufacturing overheads assigned is more accurately estimated under ABC. The following worksheet estimates the manufacturing overheads that should be assigned to the order of Platinum Interiors:

Activities	Activity Rate	Activity Usage	Activity Cost Assigned
	[A]	[B]	[A × B]
Production of components	93	320	29,760
Assembly of components	62	250	15,500
Packaging	43	150	6,450
Shipping	46	150	6,900
Setup costs	143	15	2,145
Designing	123	70	8,610
Product testing	48	22	1,056
Rent	75%	15,600	11,700
			82,121

Once overhead cost for the order is computed, it should be added with all the direct cost to calculate the total cost of the order as shown below:

Cost Components	Amount (Tk.)
Direct materials	25,000
Purchased components	35,000
Labor cost	15,600
Manufacturing overheads	82,121
Total cost under ABC product costing system	157,721

Based on the more accurate estimation of the order cost, the invoice should be raised at Tk. 197,151 (Tk. 157,721 x 1.25) instead of $178,875 as calculated under traditional product costing system. A comparative calculation is shown below:

Cost Components	Under Traditional Costing System	Under ABC System
Direct materials	25,000	25,000
Purchased components	35,000	35,000
Labor cost	15,600	15,600
Manufacturing overheads	67,500	82,121
Total cost	143,100	157,721
Margin @ 25%	35,775	39,430
Price	178,875	197,151

This comparative presentation clearly specifies how ABC System improves product costing and pricing decision by ensuring more accurate tracing of manufacturing overheads with the cost object. Distortion in pricing and product cost cross-subsidization are checked through implementing ABC. At the same time, it will ensure profitability for the firm and value for money for the customer.



BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 15

Product Mix Decisions

BCAS 15: Product Mix Decisions

15.1 Introduction

Product mix (also called product assortment) is the set of all product lines and items that a particular manufacturer plans to produce. A manufacture's product mix will have a certain width, length, depth, and consistency. The width of product mix refers to how many different products lines the company carries. The length of product mix refers to the total number of items the company holds in its product mix. The depth of product mix refers to how many variants are offered of each product in the line. The consistency of the product mix refers to how closely the various product lines are related in end use, production requirements, distribution channels, or some other ways. Product mix decision refers to the decisions regarding adding a new or eliminating any existing product from the product mix, adding a new product line, lengthening any existing line, or bringing new variants of a brand to expand the business and to increase the profitability. This standard attempts to provide a general guideline on these issues to companies involved with these types of decisions.

15.2 Objectives

In the product mix decision the organization identifies which products, i.e., goods or services; it will produce and deliver to its customers. The purpose of this standard is to identify the role of cost information in product mix decision.

15.3 Scope

15.3.1 The purpose of this standard is to guide the respective management with the rational combination of product lines in typical product mix decisions.

15.3.2 More particularly, the standard supports to take basic product mix decisions including -

a) Reviewing the mix of existing product lines;
b) Adding new lines to and deleting existing lines from the product mix;
c) Determining the relative emphasis on new versus existing product lines in the mix;
d) Determining the appropriate emphasis on internal development versus external acquisition in the product mix;
e) Gauge the effects of adding or deleting a product line in relationship to other lines in the product mix; and
f) Forecasting the effects of future external change on the company's product mix.

15.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

15.4 Key Features

The key features of this standard are pointed below -

a) Presents a comparative picture of planning and operation phase;
b) Identifies capacity related costs and flexible costs;
c) Brings theory of constraints and its application in capacity related decisions;
d) Differentiates between long term and short term capacity decisions with impact on product mix decisions;

- e) Analyses relevant information in product mix decisions critically; and
- f) Aligns production budget with long term capacity related decisions.

15.5 Definitions

The following terms are used in this standard with the meanings specified -

15.5.1 Flexible costs: As defined in BCAS 2.5.2.

15.5.2 Capacity-related costs: As defined in BCAS 2.5.3.

15.5.3 Contribution margin: Contribution margin, defined as selling price minus variable cost, is a measure of the ability of a company to cover variable costs with revenue.

15.5.4 Production budget: The production budget calculates the number of units of products that must be manufactured, and is derived from a combination of the sales forecast and the planned amount of finished goods inventory to have on hand (usually as safety stock to cover unexpected increases in demand).

15.5.5 Theory of constraints: The theory of constraints (TOC) is a management paradigm that views any manageable system as being limited in achieving more of its goals by a very small number of constraints. There is always at least one constraint, and TOC uses a focusing process to identify the constraint and restructure the rest of the organization around it.

15.6 Standards

15.6.1 **Management should clearly identify capacity planning phase and operation phase with respective roles to be played by designated personnel to align product mix related decisions properly.**

15.6.2 During the capacity planning phase, planners compare the contribution margin expected to be provided by a production budget with the cost of the capacity that enables that production budget. The capacity is acquired if the contribution margin that it enables exceeds its cost.

15.6.3 During the operations phase, which takes the level and mix of capacity as given, it is imperative that the costs used in choosing the optimal product mix do not include any capacity-related costs. Capacity-related costs include the cost of any productive resource whose cost depends on the amount acquired rather than the amount used. Generally, capacity-related costs will include the cost of machinery and equipment, the cost of other general overhead resources, and, for some organizations, the cost of labor.

15.6.4 **The management should align long run and short run decisions relating to capacity properly so that capacity can be utilized for the maximum benefit of the company.**

15.6.5 The long-run is defined as the time period over which capacity levels can be adjusted. The focus of long-run planning is to choose the level and mix of capacity that will be made available in the short-run.

15.6.6 The short-run is defined as the time period over which capacity cannot be adjusted. The focus of short-run planning is to use the existing capacity in the best possible way to

achieve the organization's objectives.

15.6.7 The notion that cost considerations are different in the long-run and the short-run is well established in both economic and accounting thinking. Economists speak of short-run and long-run costs. Accountants speak of flexible (variable) and capacity-related (fixed) costs. The economist's notion of short-run cost is captured by the accounting notion of flexible cost. The sum of a product's flexible cost and its allocated share of the cost of the capacity that it consumes capture the economist's notion of long-run marginal cost. Therefore, a product's long-run marginal cost includes its share of the cost of the capacity that it uses. In equation format, for a specific product:
Long-run marginal cost = Flexible cost + Capacity-related cost

15.6.8 The economic principle is that, in the long-run, product viability demands that a product's price be equal to, or greater than, its long-run marginal cost. Once capacity is in place, the long-run marginal cost becomes the target price the organization aims to achieve. When the organization has the ability to set prices, planners try to keep the price from falling below the long-run marginal cost. The long-run marginal cost defines the minimum price required to sustain the product in the long run, since that is the only price that will recover all costs and create a profit for the organization.

15.6.9 However, if the product price is determined by the market, once capacity is in place the role of capacity related costs ceases and they are no longer relevant. The economic principle is to maximize the short-run contribution margin of products, where the contribution margin is defined as price less flexible cost.

15.6.10 There are many approaches that have been used during capacity planning phase to choose the mix and level of capacity that will be made available in the short-run. The most systematic of these approaches is the capital budgeting model. The capital budgeting model compares the capacity-related costs, which are usually expressed as up-front costs, with the annuity (revenues less flexible costs) provided by the production budget that uses that capacity.

15.6.11 Therefore, the capital budgeting model provides a systematic comparison of the costs and benefits of capacity and results in putting a mix and level of capacity in place. The approach is to ensure that the cash outflows associated with acquiring capacity are met or exceeded by the net cash inflows associated with using the capacity.

15.6.12 During the operational phase, decision makers use the available mix and level of capacity to choose the mix of goods or services that the organization will create and distribute to its customers or clients.

15.6.13 The operational objective is to develop a production budget that provides the highest possible contribution to the organization's objectives. This standard assumes that the objective is profits.

15.6.14 The short-run product mix decision is part of the family of relevant cost decisions. This means that during operation phase, only flexible costs should be considered in choosing the production budget. Capacity-related costs are not relevant in the short-run because these costs are committed (sunk) and will not be affected by how the capacity is used.

15.7 Recording and Reporting

15.7.1 Management should form a focused team to deal with product mix decisions which usually manned by top level management. It is a part of organizational culture patronized

by top level management.

15.7.2 Organization should have its own mechanism to generate the following information and reporting the same through proper channel so that product mix decisions can be easily undertook:

- a) Contribution margin
- b) Level and mix of capacity
- c) Capacity related costs
- d) Total capacity (long term) and operational capacity (short term)
- e) Flexible costs
- f) Capacity utilization status
- g) Production budget
- h) Any other types of reporting as required.

15.7.3 Reporting under this standard must be destined to proper authority as this information is critical to the organization.

15.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

Appendix 15A

No Long-Run Decisions

An organization has two products, Product X and Product Y. There is a marketing constraint such that a maximum of 3,000 units of Product X and 5,000 units of Product Y can be sold.

The two products each use different raw materials, which are purchased as required from an external supplier. The two products each use labor time, which the organization acquires as needed from an external supplier. The organization pays the external supplier Tk. 200 for every labor hour supplied. There is an unlimited supply of this labor.

The two products consume indirect supplies in proportion to the number of units made and sold. These indirect supplies are purchased from an external supplier as needed.

The two products consume machine time on a machine that is rented from an external supplier. The rental agreement is that the organization will pay the external supplier Tk.600 for every machine hour used. There is a maximum of 10,000 machine hours available for rent. That is, the constraint on machine time is 10,000 hours.

The organization incurs flexible selling and distribution costs to sell and distribute the two products to customers.

The objective is to choose a product mix that provides the greatest contribution to capacity-related costs, which include only general and administrative expenses and amount to Tk. 500,000 per period.

Note that in this initial example there are no long-term considerations since the organization acquires no capacity. The focus is entirely on the short-run since all costs, except general and administrative costs, are flexible.

The following table summarizes the per unit revenue and cost (flexible) information for the two products.

	Product X			Product Y		
	Units	Tk./Units	Total Tk.	Units	Tk./Units	Total Tk.
Revenue	**1**	**3,000**	**3,000**	**1**	**3,500**	**3,500**
Cost Items:						
Materials	3	180	540	2	150	300
Labor	3	200	600	1	200	200
Supplies	4	120	480	2	100	200
Machine hour (MH)	2	600	1,200	4	600	2,400
Selling and distribution	1	100	100	1	120	120
Total Cost			**2,920**			**3,220**
Contribution			**80**			**280**
Contribution per MH		(Tk. 80/2 hour)	**40**		(Tk. 280/4 hour)	**70**

The method used to allocate short-run capacity when there is a single constraining factor of production. In this case, machine time is the constraining factor and the profit contribution per machine hour is highest for Product Y.

This means that the organization should produce as much of Product Y as it can sell. Because of the machine hour's limitation, the maximum the organization can produce is 2500 units (10,000/4) of Product Y. Since the maximum sales of Product Y are 5,000 units, the organization will produce and sell 2,500 units of Product Y. **Therefore, the optimal short-run production budget is to make 2,500 units of Product Y.**

This production budget will, if expectations are realized, create a contribution of Tk.700, 000 ([Tk. 3,500-Tk. 3,220] x 2,500) to general and administrative expenses, resulting in a periodic profit of Tk. 200,000 (Tk. 700,000 - Tk. 500,000).

Long-Run Considerations

Assume now that the organization must rent the machine from another external supplier. The machine capacity is 10,000 hours and the periodic rent for the machine is Tk. 6,000,000 irrespective of how many hours it is used. The machine cost now becomes a capacity-related or committed cost and joins the general and administrative costs as part of the group of costs that cannot be varied in the short-run. The constraint on machine hours is 10,000.
The following table summarizes the relevant costs.

	Product X			Product Y		
	Units	Tk./Units	Total Tk.	Units	Tk./Units	Total Tk.
Revenue	**1**	**3,000**	**3,000**	**1**	**3,500**	**3,500**
Cost Items:						
Materials	3	180	540	2	150	300
Labor	3	200	600	1	200	200
Supplies	4	120	480	2	100	200
Selling and distribution	1	100	100	1	120	120
Total Flexible Cost			**1,720**			**820**
Contribution Margin			**1,280**			**2,680**
Contribution per MH		(Tk.1,280/2 hour)	**640**		(Tk.2,680/4 hour)	**670**

Note that the machine cost component of total cost has now been eliminated, since machine cost is now a committed (fixed) capacity-related cost and therefore is not relevant in the decision. This is the characteristic of capacity-related costs whose level depends on the amount of capacity acquired rather than the amount of capacity used.

The ranking of the two products remains the same as in the first example. Therefore, the optimal production budget will be the same as in the first example produce 2,500 (10,000/4) units of Product Y. This production budget will provide a contribution of Tk. 6,700,000 (2,500 x [Tk. 3,500 - Tk. 820]) to capacity-related costs, which include general and administrative expenses and the rent for the machine.

Note that the profit in the first example was Tk. 200,000. The profit was also Tk. 200,000 (Tk. 6,700,000 - Tk. 6,000,000 - Tk. 500,000) in the second example again; this is because the rankings of the two products remain the same as in the first example and because the optimal production budget calls for the use of all the available capacity.

Labor as a Committed Cost

Suppose we now assume that, in addition to machine costs, labor costs are also committed. This would reflect a situation where employees are fixed employment for the planning period. The following table summarizes these circumstances.

	Product X			Product Y		
	Units	Tk./Units	Total Tk.	Units	Tk./Units	Total Tk.
Revenue	**1**	**3,000**	**3,000**	**1**	**3,500**	**3,500**
Cost Items:						
Materials	3	180	540	2	150	300
Supplies	4	120	480	2	100	200
Selling and distribution	1	100	100	1	120	120
Total Cost			**1,120**			**620**
Contribution			**1,880**			**2,880**
Contribution per MH	(Tk. 1,880/2 hour)		**940**	(Tk. 2,880/4 hour)		**720**

Assuming that only machine time provides a constraint on production, the optimal production budget now includes Product X since it provides the highest contribution per unit of machine time. Therefore, the organization would produce as much Product X as the machine time and marketing constraints allow, given the assumption that there is sufficient labor, indirect supplies, and selling and distribution capacity to handle any production budget.

Therefore, the organization will produce 3,000 units of Product X, which is what the marketing constraint allows. This will leave 4,000 (10,000 - [3,000 x 2]) hours of machine time that can be used to make a maximum of 1,000 (4,000/4) units of Product Y. Since the marketing constraint allows the sale of 5,000 units of Product Y, the organization will make the 1,000 units of Product Y that the machine hour constraint allows.

More Long-Run Considerations

Suppose we now assume that all costs, except materials costs, are capacity-related or committed costs. We will assume that the committed costs for labor, suppliers, and selling and distribution activities are such that none of these will constrain any production budget.

The following table summarizes these circumstances and introduces a new term, "throughput" which is revenue minus materials cost.

	Product X			Product Y		
	Units	Tk./Units	Total Tk.	Units	Tk./Units	Total Tk.
Revenue	1	**3,000**	**3,000**	1	**3,500**	**3,500**
Cost Items:						
Materials	3	180	540	2	150	300
Total Cost			**540**			**300**
Contribution			**2,460**			**3,200**
Contribution per MH	(Tk.2,460/2 hour)		**1,230**	(Tk.3,200/4 hour)		**800**

When we consider only materials costs flexible, Product X again provides the highest contribution per hour of machine hour, and, as calculated above, the optimal production budget would be to produce 3,000 units of Product X and 1,000 units of Product Y.

From the above examples it is evident that the optimal short-run production plan will depend critically on, among other things, the assumptions made regarding the behavior of the various product-related costs. The product mix decision will depend critically on what are deemed to be flexible or relevant costs.

Since the optimal decision depends on the behavior of the individual costs, it follows that misclassifying a flexible cost as a committed cost or misclassifying a committed cost as a flexible cost will misinform decision makers and may lead, as in the examples above, to a suboptimal decision. The treatment of the cost must be consistent with its behavior in a particular setting.

For example, if employees are paid by the hour and only if work is available, then labor cost is flexible and is relevant in short-run capacity use decisions. If employees are paid a salary, irrespective of whether work is available, then labor cost is capacity related, or committed, and is not relevant in short-run capacity use decisions.

Multiple Production Constraints

We have made the assumption that while machine time and labor hours is committed only machine hours will constrain production.

Continuing the example where only material costs are flexible, suppose that the number of labor hours committed is 8,000 and this commitment provides a capacity-related cost of Tk. 1,600,000. In this scenario, the production budget found above to produce 3,000 units of Product X and 1,000 units of Product Y is infeasible since it calls for the use of 10,000 ([3,000 x 3] + [1,000 x 1]) labor hours.

In this situation the theory of constraints advocates attacking the labor constraint by making labor more efficient or redesigning the production process or product to use less labor which are both reengineering activities.

In the presence of multiple constraints, we can no longer use the method of sequentially allocating productive capacity based on contribution per unit of the constraining factor of production, since it is not clear which constraint we should consider first.

Assuming that neither production constraint can be relaxed, we can show that the optimal production budget is to produce 2,200 units of Product X and 1,400 units of Product Y. This production budget consumes all the available machine time (10,000 hours) and labor time (8,000 hours). Choosing this optimal production budget involves the consideration of only flexible costs. Capacity-related costs are, again, irrelevant and not considered in the analysis.

The theory of constraints that have been particularly critical of the role of costing in supporting decision-making, the choice of the optimal production budget and the choice of the best allocation of continuous improvement activities does not rely on, any consideration of capacity-related costs.



BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 16

Transfer Pricing

BCAS 16: Transfer Pricing

16.1 Introduction

Transfer pricing mainly deals with the procedure and method of setting prices of the products (goods or services) while transferred from one segment to another segment in a decentralized setting. In modern management accounting system organizations are decentralized (and becoming decentralized) where decision making responsibility has been delegated to the responsibility centers. When the decision making responsibility is delegated or decentralized to responsibility centers, transfer pricing becomes a very important tool and thus highly used to measure and evaluate the performance of those responsibility centers; to motivate the managers of the responsibility centers so that they make intra-responsibility center decisions that are in the best interest of overall organizations avoiding sub-optimal decisions. Therefore, a standard practices of setting transfer prices is required which will ensure accuracy and appropriateness of the transfer prices set and, hence, ensure to achieve the objectives of transfer pricing, as mentioned above, more accurately and appropriately.

16.2 Objectives

The primary purpose of the standard is to prescribe the ways and procedures of setting transfer prices of goods or services. Specific objectives of the standard can be pointed as below:

a) The standard tries to standardize the methods of setting transfer prices for the benefits of organizations and practitioners as well.
b) The standard facilitates management in evaluating financial performance of responsibility centers, motivating responsibility center to take decisions in the best interest of the organization as a whole, facilitating inventory costing of the transferee etc.
c) The standard helps fair practice in setting arm's length transfer prices in international transactions, and, hence, protects government interest.

16.3 Scope

16.3.1 This standard shall be applied in setting transfer prices of goods or services that are transferred intra-company, between associated enterprises inside border, and between associated enterprises across the border.

16.3.2 More specifically, the standard shall be applied in cost and management accounting practices relating to goods or services that are transferred -

a) between processes, departments, divisions, segments, units etc. of an individual company, between associated enterprises under the local group inside the border (domestic transfer pricing)
b) between associated enterprises under the multinational groups across the border (international transfer pricing)

16.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

16.4 Key Features

The key features of this standard are pointed below -

a) Present mechanism of setting transfer pricing in different situations;
b) Address the impact of sub-optimal decision on ultimate corporate goals;
c) Bring management accounting application of transfer pricing;
d) Protect the interest of respective government; and
e) Establish fair practices in pricing to resolve any potential conflicts between transferring unit and transferred unit.

16.5 Definitions

The following terms are used in the standard with the meanings specified:

16.5.1 **Transfer price:** A transfer price is the price charged when one segment/ division/ unit of a company transfers goods or services to another segment/ division/ unit of the same company/ group.

16.5.2 **Responsibility centers:** a responsibility center is any part of an organization whose manager has control over cost, revenue or investment of funds. Cost centers, profit centers, and investment centers all are known as responsibility centers.

16.5.3 **Market price:** It is the price charged for an item in an open market.

16.5.4 **Highly competitive market:** Highly competitive market implies the condition that the producing division can sell as much of the product as it wishes to outside customers, and the purchasing division can purchase or acquire as much as it wishes from outside supplier without affecting the price.

16.5.5 **Intermediate product:** An intermediate product is a product that might require further processing before it is saleable to the ultimate consumer. This further processing might be done by the producer or by another processor. The further processing of the intermediate product might also be done by another division/ segment of the same company.

16.5.6 **Associated enterprise:** Associated enterprise, in relation to another enterprise, means an enterprise which, at any time during the income year, has the following relationship with the other enterprise -

(a) one enterprise participates, directly or indirectly, or through one or more intermediaries, in the management or control or capital of the other enterprise; or
(b) the same person or persons participate, directly or indirectly, or through one or more intermediaries, in the management or control or capital, of both enterprises; or
(c) one enterprise holds, directly or indirectly, shares carrying more than twenty five percent of the voting power in the other enterprise; or
(d) the same person or persons controls shares carrying more than twenty five percent of the voting power in both enterprises; or
(e) the cumulative amount of borrowings of one enterprise from the other enterprise constitutes more than fifty percent of the book value of the total assets of that other enterprise; or
(f) the cumulative amount of guarantees provided by one enterprise in favour of the other enterprise constitutes more than ten percent of the book value of the total borrowings of the other enterprise; or

(g) more than half of the board of directors or members of the governing board of one enterprise are appointed by the other enterprise; or
(h) any executive director or executive member of the governing board of one enterprise is appointed by, or is in common with the other enterprise; or
(i) the same person or persons appoint more than half of the board of directors or members in both enterprises; or
(j) the same person or persons appoint any executive director or executive member in both enterprises; or
(k) one enterprise has the practical ability to control the decision of the other enterprise; or
(l) the two enterprises are bonded by such relationship of mutual interest as may be prescribed. [Sec 107A(2), ITO 1984]

16.5.7 **Arm's Length Price:** It is the price which is applied in a transaction between parties in uncontrolled conditions.

16.6 Standards

16.6.1 **Transfer pricing should be practiced ethically keeping the interests of all the related parties and at the same time it should not compromise goal congruence.**

16.6.2 **There is no single transfer pricing method or policy or transfer price that will be best suited in all situations. Rather the method of transfer price to be used depends on the particular situation and the organization's objectives in using transfer pricing. The transfer pricing method to be chosen should reflect a careful consideration of how the method chosen has impact on the motivation of the managers of the responsibility centers as well as the interest of the organization as a whole. For pricing transfers between associated enterprises under the same group, careful consideration should be given to compliance requirements of Income Tax Ordinance 1984 and other applicable regulatory requirements.**

16.6.3 **There are four widely used approaches to set transfer prices as follows:**

- **a) Market price;**
- **b) Cost based price**
  - **i) Variable (flexible) cost,**
  - **ii) Full (absorption) cost,**
  - **iii) Standard cost,**
  - **iv) Hybrid cost;**
- **c) Administered price; and**
- **d) Negotiated price.**

16.6.4 **Where a highly competitive market exists for an intermediate product, market price should be used as the transfer price.**

16.6.5 In the highly competitive market environment market provides an objective valuation of the intermediate product and that price (market price) should be used to price transfers and guide decisions within firm. If the purchasing division cannot make a long run profit at the outside market price (assuming market price is a reasonable approximation of the long-run price and not simply a short-run distress price), then the company is better off to not produce the product internally and to go to external market for its supply. Similarly, if the purchasing division cannot make a long-run profit when it must acquire the product

at the external market price, the division should cease acquiring and processing this product and should allow the producing division to sell its output to the external market. With a highly competitive market for the intermediate product, the market price provides an excellent basis for allowing the decisions of the producing and purchasing divisions to be independent of each other.

16.6.6 Some modifications to pure market price rule facilitate its use in practice. The company will usually benefit if the transaction occurs internally rather than having a producing division sell a certain amount externally while the purchasing division is acquiring the same amount from its own outside suppliers. Internal transfer, in comparing with external transfers, may have some savings on expenses e.g. savings on selling, marketing, distribution expense etc. to the selling division and savings on ordering, collection expenses etc. to the buying division. In this case internal transfer may be priced at market price ± certain adjustments. The adjustments may be to deduct the savings on expenses regarding selling, delivery, service, warranty etc. associated with external sales comparing with internal transfer. Whereas, some additional cost may need to be incurred by selling division for internal transfer e.g. costs incurred to product quality or product confidentiality requirements as required by purchasing division which are not normally required for external sales. Theses cost may be adjusted with/added to the market price.

16.6.7 When the selling division has idle capacity, market price may not be the best choice for transfer pricing. Market price may be adjusted for idle capacity which will set the transfer price less than the market price.

16.6.8 **Where there is no market price available for the intermediate product, cost-based prices are appropriate to use for pricing transfers.**

16.6.9 The cost-based transfer price that uses variable (flexible) costs will include all the variable costs that are associated with manufacturing and delivering/ transferring the intermediate product. The ground on which variable cost may be used as transfer price is responding to periodic change in demand or factor prices. If that need is absent, variable cost transfer pricing has no apparent justifications and is not recommended to use.

16.6.10 The cost-based transfer price that uses full (absorption) costs will include both variable and fixed costs associated with manufacturing and delivering/ transferring the intermediate product. The justification for using the full cost transfer pricing is that it is believed that full cost is the proxy of long-run marginal costs and hence transferring intermediate goods at full costs will be best for the organizations in the long-run. However, full costs suffer from many limitations e.g. i) it may lead to suboptimal decisions in the situation where selling division has idle capacity; ii) the selling division will never show a profit in any internal transfer, which may de-motivate the selling division; iii) it may not provide incentives to selling division to control costs as the actual costs of one division are simply passed on to the next; iv) it may be miss-cost transfers if the capacity related costs are allocated improperly without considering the cause-effect relationship; v) it may undercost transfers as the full costs usually don't include the allowance for cost of capital etc.

16.6.11 Transfer may be made using standard costs of intermediate product instead of actual costs. The ground for using standard costs is that it will provide incentive to selling division to control costs which was absent in transferring at full costs.

16.6.12 A cost-based transfer price that uses hybrid cost approach will include either of variable

costs or full costs or standard costs plus an allowance for cost of capital (i.e. a mark up to recover invested capital).

16.6.13 **Where transactions occur frequently and where it is felt that market price will create unreasonable results, administered transfer prices may be set in organizations, and in this case an administrator or policy maker sets the transfer price.**

16.6.14 Administered transfer price often reflect non-economic objectives, and are practical way of avoiding transfer price confrontations. However, it may violate the spirit of accountability which was the basic objective of creating responsibility centers in first place.

16.6.15 **Where an outside market exists for the intermediate product but is not perfectly competitive and a small number of different products are transferred, a negotiated transfer price will be best suited, where the buying and selling division will negotiate and set the transfer price.**

16.6.16 There will be a range of acceptable transfer prices - range of transfer prices within which the profits of both the participating divisions will increase. In the range of acceptable transfer prices, the lower limit will be determined by the situation of selling division and upper limit will be determined by the situation of buying division. Actual transfer price agreed to by the participating divisions may fall anywhere between these two limits. And the sharing between the participators of difference between upper limit and lower limit will be determined by the bargaining power of the divisions.

Lower limit of transfer prices (seller division's perspective) can be calculated as follows:

$$\text{Transfer price} \geq \text{variable cost per unit of product} + \frac{\text{Total contribution margin on lost sales}}{\text{Number of units transferred}}$$

Upper limit of transfer price (buyer division's perspective) can be calculated as follows:

$$\text{Transfer price} \leq \text{cost of buying from outsider supplier}$$

16.6.17 The justifications for negotiated transfer prices are firstly, it preserves the autonomy of the divisions and is consistent with the spirit of creating responsibility centers or decentralization of organization; and secondly, the managers of the participating divisions are likely to have much better information about potential costs and benefits regarding the transfer than others in the company. However, negotiated transfer price, and their resulting organizational unit profits, may reflect the negotiating ability rather than underlying financial realities of the organizational units.

16.6.18 **International transfer pricing has two dimensions - internal and external. For internal dimension of international transfer pricing considerations may be given to factors like minimizing foreign exchange risks; increasing competitive position of the foreign subsidiary; and improving relations with foreign governments. For external dimension of international transfer pricing consideration should be given to the regulatory requirement and its tax implications and, in this case, Organization for Economic Cooperation and Development (OECD) transfer pricing guidelines for multinational enterprises and tax administration should be followed while ensuring that local regulations regarding transfer pricing between related parities of multinational enterprises are not violated.**

16.6.19 Usually in international transfer pricing considerations given to minimizing global taxes, duties and tariffs; minimizing foreign exchange risks; increasing competitive position of the foreign subsidiary; and improving relations with foreign governments. Motivational factors, divisional autonomy etc. which are the basic objectives of domestic transfer pricing become secondary in international transfer pricing. Tax authorities understand this incentive and have taken initiatives, enacting rules & regulations regarding transfer pricing, to moderate corporate behavior so that multinational companies cannot set arbitrary transfer price and avoid local taxes. In Bangladesh a chapter on transfer pricing has been added to The Income Tax Ordinance 1984 (Chapter-XIA: Transfer Pricing). Rules regarding transfer pricing as per the ITO of Bangladesh are also in conformity with OECD guidelines, like most other countries.

16.6.20 The OECD guidelines emphasize arm's-length principle in case of setting transfer prices among associated enterprises. Under arm's length principle transfer price should equal a price determined by reference the interaction of unrelated firms in the market place. But it is often difficult to obtain sufficient information application of arm's length principle in practice. Therefore, focus is given on best practice in determining the equivalent of market price for inter-company transactions within multinational groups.

16.6.21 The OECD transfer pricing guidelines for multinational enterprises divide transfer pricing into two main methods- traditional transaction methods and transactional profit methods- for determining arm's length price. The 'traditional transaction methods' includes comparable uncontrolled price (CUP), cost-plus, and resale price method. The 'transactional profit methods' include transactional net margin methods and transactional profit split methods. The OECD guidelines require most appropriate method should be selected taking into strengths and weaknesses of OECD recognized methods considering several elements, including availability of reliable information. The OECD guidelines state that if the CUP method and another transferring method can be applied equally reliable manner, the CUP method should be preferred.

16.6.22 Comparable uncontrolled price (CUP) method offers the most direct way of determining an arm's length price. It compares the price charged for goods or services transferred in a controlled transaction to the price charged for goods or services transferred in a comparable uncontrolled transaction. If the price so identified differs from the price of the international transaction, the differential will be calculated first, with which (differential amount) the price of the international transaction will then be adjusted to reflect the arm's length price.

16.6.23 Under resale price method an arm's length price is determined by deducting an appropriate discount for the activities of reseller from the actual resale price. The appropriate discount is the gross margin, expressed as percentage of net sales, earned by reseller on the sale of goods that is both purchased and resold in an uncontrolled transaction in the relevant market.

16.6.24 Under cost-plus method arm's length price is determined by adding an appropriate mark-up on the cost of production. The appropriate mark up is the percentage earned by a manufacturer on unrelated party sales that are the same or very similar to the inter-company transaction. The cost base to be used for mark-up will also be determined on the same or very similar basis as determined by the unrelated comparable company.

16.6.25 Under profit split method transfer pricing is established by dividing the profit of a multinational enterprise in a way that would be expected of independent enterprise in a joint-venture relationship. Profit split would be done either of the ways- a) each of the

associated enterprises will allocated a basic return based on the basic functions (manufacturing, distribution, providing services etc) they perform as to be determined by independent enterprise in similar transaction. This basic return will not account for use of any unique and valuable assets by the associated enterprises. The residual profit (which may be attributed to such unique and valuable assets), to be calculated by deducting the sum of basic returns allocated to associated enterprises from the combined profit, is then to be apportioned to the associated enterprise based on their relative contribution and taking into account how independent enterprises in similar circumstances would have divided such residual profit; OR b) basic return will not be allocated to the associated enterprises; the combined profit will be divided among the associated enterprises based on the relative contribution of each of the associated enterprises to that profit. It might be appropriate to use this method for highly integrated operations for which a one sided method would not be appropriate. It may also be most appropriate method in cases where both parties to the transaction make unique and valuable contributions to the transaction.

16.6.26 Transaction net margin method (TNMM) compares the net profit margin relative to an appropriate base (e.g. costs, sales, assets) that a company makes from a controlled transaction with the net profit margin relative to the same base achieved in comparable uncontrolled transactions. Appropriate adjustment is made to the net profit margin to consider the difference in nature of transactions and that adjusted net profit is applied to be base to arrive at arm's length price.

16.6.27 Any other method can be used for setting up transfer price in international transactions, where it can be demonstrated that- i) none of the above five methods can be reasonably applied to determine arm's length price for the international transactions; and ii) such other method yields a result consistent with arm's length price.

16.7 Recording and Reporting

16.7.1 Companies are required to record and report the following information relating to transfer pricing issues:

- a) Product cost related information like variable costs, fixed costs, manufacturing costs, non-manufacturing costs etc.
- b) Capacity related information like installed capacity, idle capacity etc.
- c) Regular pricing mechanism like pricing methods, mark-up, margin etc.
- d) Any other particular deems to be important.

16.7.2 Organizations should have a formal appraisal system of setting transfer prices, teams to negotiate the price and other infrastructure relating to transfer pricing.

16.7.3 Organizations should have its own mechanism of preparing transfer pricing report containing all relevant information to the satisfaction of regulators.

16.7.4 All the calculations and documents should be preserved by a designated person or department so that such documents could be produced before competent authority on demand.

16.7.5 There should be a mechanism of reporting transfer pricing related information within the organization as required.

16.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

Appendix 16A

This appendix shows the application of transfer pricing methods based on the information as given in the Table below and scenarios as mentioned thereafter in the relevant sections.

		Case - A	Case - B
Division X			
	Capacity in units	100,000	100,000
	Number of units being sold to outside customer	100,000	80,000
	Market price per unit (in BDT)	50	50
	Variable cost per unit (in BDT)	30	30
	Fixed costs per unit (based on capacity) (in BDT)	8	8
Division Y			
	Number of units needed for production	20,000	20,000

Case-A

In Case-A above, assuming a highly competitive market condition, there is no idle capacity. If the transfer is taken place at any price below the current market price (BDT 50/unit) Division X (the transferring division) will lose contribution by the amount less than current market price multiplied by the no. of units to be transferred. So, Division X will not agree on transfer. On the other hand if Division Y wants to purchase it from market it will have to pay the current **market price,** so, logically, Y will not disagree to take the transfer at BDT 50/unit from X. In this situation the optimum transfer price will be market price, at which both the transferring and transferee division should agree.

In above scenario assuming further that there is selling and distribution expense @ BDT 2 per unit for outside sale. In this scenario X could save BDT 2/unit of if the transfer is taken place. So, there could be some modification to pure market price rule. Here, if the transfer is taken at BDT 48/ unit (i.e. BDT 50 - BDT 2), X will not lose any contribution for the units transferred because loss in sales revenue will be compensated by the savings in selling and distribution expenses. From the company's point of view as whole BDT 2/unit will be saved on no. of units transferred. Therefore, transfer should take place rather than selling outside. However, it may be negotiated between two departments about the share of BDT 2 saved per unit.

Case-B

In Case-B above it is seen Division X has idle capacity of 20,000 units and demand from Division Y is 20,000 units also. Therefore, if transfer is not taken place X will not gain anything. As there will be no additional fixed cost for production up to 20,000 units, X will be benefited from transfer at any price above variable costs, being there is no loss of contribution from existing sales reduction. Therefore, the minimum transfer price from Division X's point of view will be as follows:

$$= \text{variable cost per unit of product} + \frac{\text{Number of units transferred}}{\text{Total contribution margin on lost sales}}$$

$$= \text{Tk. } 30 + [(0 * 20{,}000)/20{,}000]$$
$$= \text{Tk. } 30$$

Division Y will not agree on any price more than market price (BDT 50) and any price below market price will be savings in purchase cost to it. Therefore, negotiated pricing methods will be applicable here and the range of prices will be BDT 30 - BDT 50 within which the two participating divisions can negotiate so that both divisions get a rational share of benefit.

Appendix 16B

This appendix illustrates OECD Principles of transfer pricing which is very much closed to transfer pricing methods as required through Income Tax Ordinance, 1984.

a) Comparable Uncontrolled Price Method (CUPM)

ABC US, a US company exports printers to its subsidiary in Bangladesh ABC BD for resale. ABC US also exports printers other companies in Bangladesh, say XYZ Ltd, an unrelated party. The price charged by ABC US to ABC BD $150 (controlled transaction) and whereas the price charged to XYZ Ltd. is $120 per printer (comparable uncontrolled transaction).

As per the CUPM the arm's length transfer price would be as follows:

Price of controlled international transaction	$120
Price of comparable uncontrolled transaction	$150
Differential	-$30

Therefore, the arm's length price of the international transaction would be $120 (i.e. $150 - $30)

b) Resale Price Method (RPM)

XYZ BD is a distributor of refrigerators supplied by its UK parent XYZ UK. The end price to the consumers (i.e. retail price) is BDT 60,000 per unit. Rahim Ltd. is a local independent distributor in Bangladesh which performs the similar functions (importing refrigerators from UK and other countries and distribute them locally in Bangladesh) and gross margin of Rahim Ltd. is on an average 15% on its sales price.

As per the RPM the arm's length transfer price would be as follows:

Retail price in Bangladesh	BDT 60,000
Less: Gross margin of an uncontrolled similar transaction @ 15%	BDT 9,000
Transfer price using RPM	BDT 51,000

c) Cost Plus Method (CPM)

A Pharma (BD) is a local manufacture of drug item 'insulin' for its overseas associated company A Pharma (India). Both A Pharma (BD) and A Pharma (India) belong to the global group A Pharma Plc. in UK. There is an agreement between A Pharma (BD) and A Pharma (India) under which A Pharma (India) provides technical know-how for manufacturing and A Pharma (BD) supplies the output to A Pharma (India) as a contract manufacturer.

Analyzing the cost statements it is found A Pharma (BD) incurs cost BDT 1,000 to manufacture one unit of 'insulin'. An unrelated pharmaceutical company in Bangladesh (X Pharma Ltd.) manufactures a different drug item as contract manufacture for many other international companies. The company may be identified as a potential comparable company for the transaction. X Pharma Ltd. charges 25% mark-up on average for the contract manufacturing services to those international companies.

As per CPM arm's length transfer price of the international transaction would be as follows:

Cost incurred by A Pharma (BD) per unit	BDT 1,000
Add: Mark-up by comparable uncontrolled company for the similar transaction @ 25%	BDT 250
Transfer price using CPM	BDT 1,250

d) Profit Split Method (PSM)

Company A designs and manufactures an electronic component and transfer the same to Company B, a related company. Company B designs and manufactures rest of the component and transfers to Company C, an unrelated company, for marketing the same. Component transferred from "A" to "B" reflects the innovative technological advancement enjoyed by A in the market (and hence value for intangibles i.e. royalty). Assuming reliable comparable uncontrolled price is not available and hence CUP method cannot be used for determining arm's length transfer price.

Profit & loss of A and B before considering the arm's length transfer price of intangibles:

		A		B
Sales		5,000		10,000
Purchase		(1,000)		(5,000)
Manufacturing cost		(1,500)		(2,000)
Gross Profit		2,500		3,000
R&D	(1,500)		(1,000)	
Operating Expense	(1,000)	(2,500)	(1,000)	(2,000)
Net Profit		Nil		1,000

As per PSM the following steps are to be followed to determine the arm's length transfer price of the intangibles:

Calculation of total residual profit

It is established that third party comparable manufactures without innovative intangible property earn a return (excluding purchase) of 10%

Routine manufacturing profits/ basic returns of A and B will be determined as follows:

Routine return on costs attributed to A: 1500 X 10% = 150
Routine return on costs attributed to B: 2000 X 10% = 200

Total Residual profit = Combined net profit - basic returns of A and B
= 1000 - 150 - 200
= 650

Allocation of residual profit

It can reliably be estimated that respective R&D costs reflects the relative contribution to technological advancement/ intangibles. Therefore, residual profits can be split based on their share of total R&D costs as follows:

A's share of residual profit: 650 X [1500/ (1500+1000)] = 390
B's share of residual profit: 650 X [1000/ (1500+1000)] = 260

Calculation of split profit

Split profit = basic return + allocated residual profit
A's profit split = 150 + 390 = 540
B's profit split = 200 + 260 = 460

Therefore, the arm's length transfer price would be 5540 (i.e. 5000 + 540), sales price of A and purchase price of B.

e) Transactional Net Margin Method (TNMM)

Bangladesh Motors Ltd. (BML) is a Bangladeshi manufacturer of private car parts. All of BML's car parts are exported to China Motors Ltd., a motor company in China that sells car parts manufactured by BML. CUP method is not applicable because market price of comparable uncontrolled transaction is not available. However, a company has been found out, A Motorcycle Ltd., which manufactures motorcycle parts and exports globally. Financial statement of A Motorcycles Ltd. shows that net profit margin is 10%.

As per TNMM the transfer price of international transaction would be as follows:

BML's cost of goods sold per unit	BDT	30,000
BML's operating expenses	BDT	10,000
Total costs	BDT	40,000
Add: net profit margin @ 10%	BDT	4,000
Transfer price using TNMM	BDT	44,000



BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 17

Performance Measurement

BACS 17: Performance Measurement

17.1 Introduction

Performance measurement is an important tool of strategic analysis. It is the process of collecting, analyzing and/or reporting information regarding the performance of an individual, group, organization, system or component. It can involve studying processes/strategies within organizations, or studying engineering processes/parameters/phenomena, to see whether output are in line with what was intended or should have been achieved. Stakeholders will get a better indication of an organization's strategy from observing what it measures and does than from its declared goals or what it says it does. It is applicable to all industry sectors and to all types and sizes of organizations (public, private and not-for-profit). An important role of the management accountant is to provide decision making information for performance measurement and helping to develop or refine performance measurement systems. The management accountant should also ensure that measures implemented are consistent with the chosen management techniques, such as VBM or ABM. Due to the detailed nature of performance measurement techniques, readers should refer to the specific applications outlined in other topic gateways, such as the Balanced Scorecard. This standard targets to provide a further detail on performance measurement as a guide to corporate managers so that a discipline could be established in this field that will bring maximum benefits to vested interest groups. However, this standard should be read as supplement to other standards where performance measurement is also addressed like standard costing, life cycle costing etc.

17.2 Objectives

The standard provides a basic guideline of implementing performance measurement system in an organization irrespective of nature, type, size and objectives of the organization. More specifically, the standard explicitly addresses -

- a) Performance measurement system of an organization;
- b) Performance measurement parameters to be used by organization;
- c) Monitoring and evaluation of performance measurement system; and
- d) Post Performance measurement activities to be undertaken.

17.3 Scope

17.3.1 This standard provides guidelines for implementing performance measurement system in organizations.

17.3.2 This standard is applicable to measure performance of individual units, segments, processes, individuals and overall organizations.

17.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

17.4 Key Features

The key features of this standard are pointed below -

- a) Presenting performance measurement system;
- b) Identifying different steps in implementing performance measurement system;
- c) Bringing both financial and non-financial performance measures;

- d) Providing guidelines based on standard tools like logic model, post implementation audit tool, etc.; and
- e) Listing some common ratios, KPIs and template for common size financial statements.

17.5 Definitions

The following terms are used in this standard with the meanings specified -

17.5.1 Performance Measurement: Performance measurement is generally defined as regular measurement of outcomes and results, which generates reliable data on the effectiveness and efficiency of programs.

17.5.2 Inputs: Inputs are the resources (human resources, employee time, funding) used to conduct activities and provide services.

17.5.3 Outputs: Outputs are products and services delivered. Outputs are the completed products of particular activities, whether executed internally by the organization or by an external contractor.

17.5.4 Outcome: An outcome represents a specific result a program is intended to achieve. It can also be defined as the specific objective of a specific program. It is not what the program actually produced itself (the output), but the consequences of those products, services, or assistance.

17.5.5 Activities: Activities are individual tasks funded by projects or programs. Typically, every individual activity is the smallest "unit" of work.

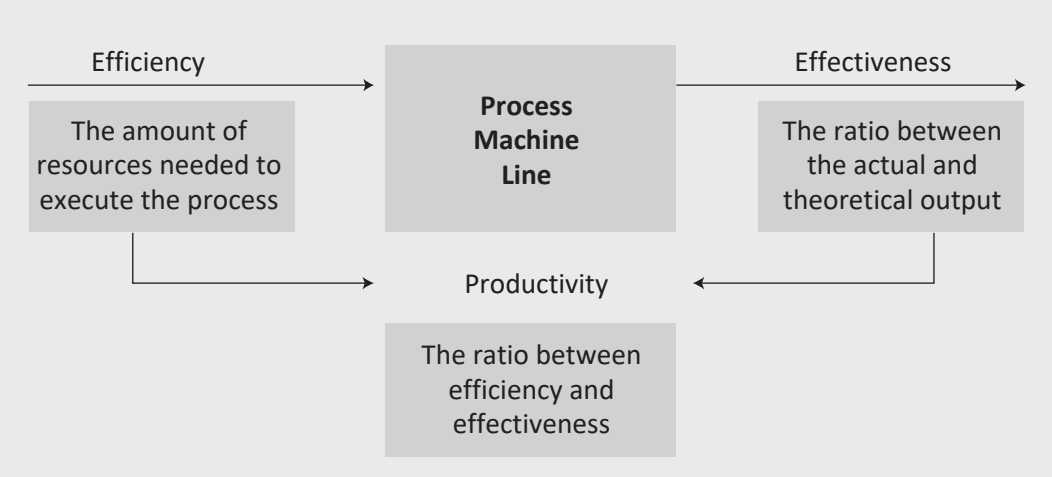
17.5.6 Efficiency: Efficiency is a ration of output to input, generally expressed as percentage. It is determined by the amount of time, money, and energy - i.e. resources - that are necessary to obtain certain results. In order to meet our daily production quota, we commit a specific machine that uses up energy, make operators and maintenance personnel available, and provide raw materials. For example, if we are able to meet our daily production with less energy and fewer operators, we have operated more efficiently.

$$\text{Efficiency} = \frac{\text{Resource Actually Used X 100\%}}{\text{Resource Planned to be Used}}$$

17.5.7 Effectiveness: Effectiveness refers to the extent of achievement of objectives. It is determined by comparing what a process or installation can produce with what they actually produce; therefore, effectiveness does not tell anything about the efficiency - the amount of resources that have to be committed to obtain that output. If we are successful in manufacturing better product in the same time period, effectiveness will increase. A valuable discussion could be whether 'good product' should be seen as 'Good product with customer demand' to prevent over-production.

$$\text{Effectiveness} = \frac{\text{Actually Output X 100\%}}{\text{Expected Output}}$$

17.5.8 Productivity: Productivity is defined as output per unit of input. Productivity is determined by looking at the production obtained (effectiveness) versus the invested effort in order to achieve the result (efficiency); in other words, if we can achieve more with less effort, productivity increases.



17.5.9 Common Size Financial Statement: A common-size financial statement is simply one that is created to display line items on a statement as a percentage of one selected or common figure. Creating common-size financial statements makes it easier to analyze a company over time and compare it with peers. Using common-size financial statements helps investors to spot trends that a raw financial statement may not uncover. Common-size analysis shows ratios in percentages (for example, current assets / total assets, long-term assets / total assets).

17.5.10 Vertical Analysis: Vertical analysis compares each item with a base item. For example, in an income statement analysis sales is the base item and in a common-size balance sheet analysis, total assets is the base item.

17.5.11 Horizontal Analysis: Horizontal analysis compares each item with an item for a selected base year.

17.6 Standards

17.6.1 **Performance measurement is fundamental to organizational improvement and thus every organization should have its own performance measurement system.**

17.6.2 The importance of performance measurement has increased with the realization that to be successful in the long-term requires meeting (and therefore measuring performance against) all stakeholders' needs including customers, consumers, employees, suppliers, local community stakeholders, and shareholders.

17.6.3 While the importance of performance measurement is difficult to quantify it is evident that in virtually all texts, research, and case studies on organizational improvement, that performance measurement plays a central role. It is worth noting that performance measurement is a requirement for benchmarking and business excellence.

17.6.4 **Performance measurement is one of the cornerstones of business excellence. Business excellence models encourage the use of performance measures, but in addition and more importantly, they consider the design of performance**

measurement systems to ensure that measures are aligned to strategy, and that the system is working effectively in monitoring, communicating, and driving performance.

17.6.5 All organizations measure performance to some extent. However, there is a large disparity among organizations in terms of which performance measures are used with many primarily focusing on financial measures. There has, however, been a general move away from financial measurement since the early 1980's. This was accelerated in the 1990's and 2000's by the worldwide acceptance of business excellence models and performance measurement frameworks that address all stakeholders' needs.

17.6.6 The performance measurement revolution has seen a move away from the problems of past measurement systems. Five common features of out-dated performance measurements systems were:

a) Dominant financial or other backward-looking indicators;
b) Failure to measure all the factors that create value;
c) Little account taken of asset creation and growth;
d) Poor measurement of innovation, learning and change; and
e) A concentration on immediate rather than long-term goals.

17.6.7 The focus in performance measurement is now on achieving a balanced framework that addresses the issues described above. Examples of these new frameworks are Kaplan and Norton's Balanced Scorecard, Skandia's navigator model and the Performance Prism. Others recommend that the results sections of business excellence models should be used to generate a balanced set of performance measures.

17.6.8 **In development of an effective performance measurement system, it is important to concise the following points:**

a) The performance measurement system must be integrated with the overall strategy of the business.

b) There must be a system of regular feedback and review of actual results against the original plan and the performance measures themselves.

c) The performance measurement system must be comprehensive. It needs to include the range of factors that contribute to the organization's success such as competitive performance, quality of service and innovation. This requires a range of financial and non-financial indicators.

d) The system must be owned and supported throughout the organization. The implementation must be top-down so that individuals setting strategy can determine the objectives and develop appropriate top-level measures. These should filter down to the rest of the organization. Other levels throughout the organization should set their own measures in consultation with the level above and these must be consistent with the top-level measures.

e) Measures need to be fair and achievable. Where performance measures are used to reward managers' performance, the evaluation should include only the elements they have direct control over.

f) The system and results reporting need to be simple, clear and understandable, particularly to non-finance professionals. There is a need to prioritize and focus so that only the key performance indicators for the business in strategic terms are measured.

17.6.9 There are a number of challenges that are faced when designing an effective Performance Measurement System, these include the following:

a) How to measure non-financial performance

b) What measures to choose and why

c) How to use them - what to do with the results

d) Who should be responsible for using the results

e) How and to whom, to communicate the results

f) The resources needed to consider the above and design and deploy the measurement system

17.6.10 There are other major requirements that an organization needs to consider before an effective performance measurement system can be designed or installed. Apart from lower level measures that may be vital for the operation of processes, all measures need to be chosen to support the attainment of specific performance or behavior identified by the organization's leaders as important or necessary to work towards the organizational goals. This being the case, there must be clearly defined goals/objectives and strategies chosen to reach them before measures can be chosen to support their attainment. Similarly the key processes, drivers of performance, and the core competencies required by employees need to be identified before effective performance measurement can be achieved.

17.6.11 In the best performance management systems, actions and results are logically related to one another by a theory of causality, or "logic model." Potential measures come from understanding the purpose of the organization and what is being done to accomplish the organization's mission. Logic models (given in appendix) are a useful tool for this.

17.6.12 Performance measures should be SMART: Specific, Measurable, Achievable, Relevant, Timely. In other way, good performance measures are:

a) Relevant

b) Understandable

c) Timely

d) Comparable

e) Reliable

f) Cost effective

17.6.13 **There is no set number or formula to determine how many performance measures an organization should have. A study found that tracking too many performance measures at once may cause managers and workers to lose sight of which ones contribute directly to strategic objectives. On the other hand, having too few measures may not tell a good story about your work.**

17.6.14 Keep these things in mind when thinking about the number of measures to engage:

a) Performance measures cost money, time, and staff resources. The more you use, the more it will cost to collect, store, report, monitor, and analyze the data.

b) Having just one performance measure would be similar to driving a car with only a gas gauge. You would have no idea how fast the car was traveling or if there were problems with the engine.

c) Using too many measures. You would have difficulty driving your car if the dashboard had as many dials and gauges as a jet plane. You would be trying to figure out what is happening while being bombarded by information from dozens of different instruments, dials, gauges and warning lights.

17.6.15 One rule of thumb is that it is difficult to simultaneously manage more than 10-15 measures at any given level of the organization. Each level (senior management, division, and work team) may have 10 to 15 measures that include some measures used by lower levels. Different levels in an organization will use performance measures.

17.6.16 It is essential to narrow the list of performance measures you use to a vital few that really mean something to the intended audience (Relevance). Narrowing the list requires judgment and knowledge about the organization's systems and customers. Keep in mind that the audience who receives the information set the standard for what is relevant and important.

17.6.17 Typically, internal audiences are interested in process-level measures and production outputs. Surveys may be measurement tools of last resort for qualitative subjects that defy attempts to measure them quantitatively, such as customer satisfaction. Survey scores can be useful to internal audiences, but usually mean little to external audiences.

17.6.18 External audiences involved in budget and policy development are more interested in efficiency and outcome (results) measures. Because ultimate outcomes are often influenced by many factors besides an agency's work, the most meaningful measures for judging effectiveness may be immediate or intermediate outcomes.

17.6.19 **Best performance measures are typical to the nature of the organization. Following points may be considered as a common guide to chose performance measures:**

a) Select the target for each key performance indicators keeping them aligned with critical success factors.

b) Balanced frameworks (both financial and non-financial measures), for example, Kaplan and Norton's Balanced Scorecard, Skandia's Navigator Model and the Performance Prism are more preferable to only financial measures.

c) Value based measures (e.g., EVA) are more preferable to non-value based measures.

d) A common-size financial statement should be prepared to facilitate comparison.

e) A list of ratio should be managed and monitored continuously.

17.6.20 **Performance measures should be monitored continuously and post monitoring activities should be undertaken for the betterment of organizational performance.**

17.7 Recording and Reporting

17.7.1 Organization should have a well designed manual documenting performance measurement system clearly so that everybody understands the organizations philosophy on performance measurement.

17.7.2 Organization should identify Critical Success Factors and related Key Performance Indicators with targets to be achieved. Such target should be shared with respective organizational units for achieving the targets.

17.7.3 Organization should have its own balanced framework, if any, designed and a culture should be installed to deploy strong level of commitment towards the framework.

17.7.4 Performance measurement cycle should be clearly designed along with the steps followed so that everybody could be well aware of the consequences of performance measurement system.

17.7.5 A selected list of ratios should be prepared so that performance can be monitored regularly with reference to those ratios at regular interval and corrective actions may be undertaken.

17.7.6 It is better to produce common size financial statements so that the financial performance can be compared with the peers and industry as well. A proposed industry averages are given in appendix as an example.

17.7.7 Organizations should have a guideline to audit performance measures regularly and initiate post-audit actions for further improvement.

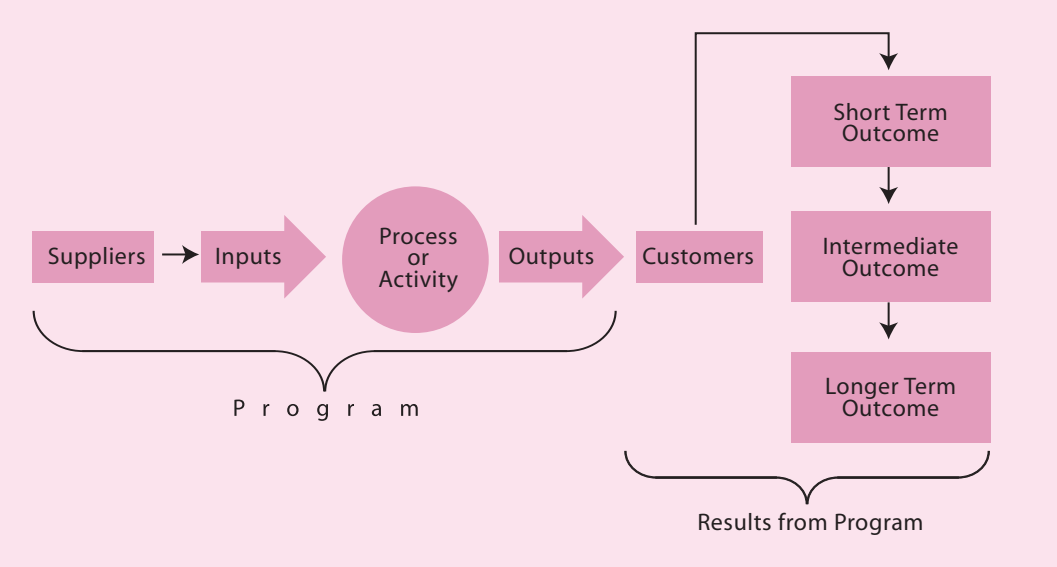
17.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

Appendix 17A

Logic Model

Logic Model is a picture of your program. By using graphic and text, the model illustrates the relationship between your program's activities and its intended outcomes and results. Each activity is accomplished through a business process. We can model almost any business process using the diagram below:



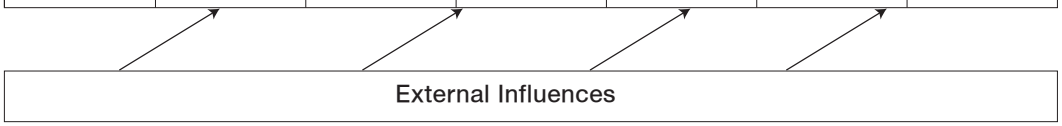
This is sometimes called a "SIPOC" model: Supplier, Input, Process, Output, and Customer. Two additional elements of the model are management, the individuals in the organization who are responsible for the process, and outcomes, what the customer wants to accomplish with the product.

Appendix 17B

Logic Model Implementation Template

Step 1: Clarify the program goal and define the elements of the program in a table

How			Who	What and Why		
				Outcomes		
Resources / Inputs	Activities	Outputs	Customers	Short-Term (Change in Attitude)	Intermediate (Change in Behavior)	Long-Term (Change in Condition)



Step 2: Verify the logic with stakeholders

a) Seek review from stakeholders.

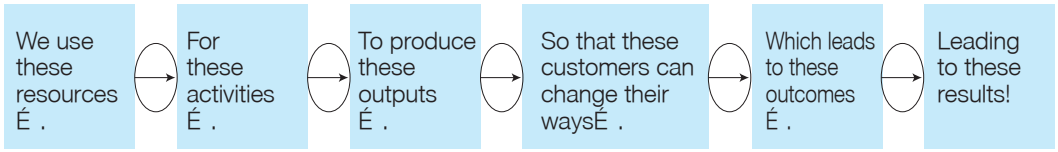
b) Check the logic

- ❖ How-Why Questions: Start with Outcomes and ask "How?" Start at Activities, ask "Why?"
- ❖ If-Then Questions: Start at Activities and move along to Outcomes asking, "If this, then that?"

c) Compare to what units in the organization do and define their contributions to the outcomes.

d) Check the logic by checking it against reality.

Step 3: Develop a diagram and text describing logical relationships



Draw arrows to indicate/link the causal relationships between the logic model elements.

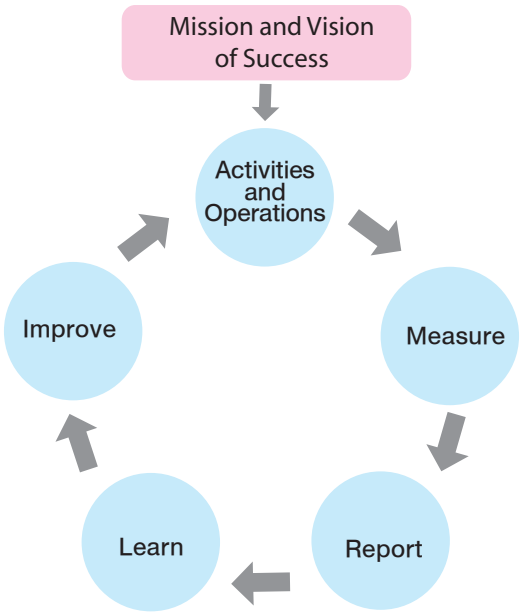
Appendix 17C

The Five-Step Process to Build a Performance Measurement System

Step 1: Planning to Measure
Step 2: Choosing What to Measure
Step 3: Determining how to Measure
Step 4: Preparing to use your data
Step 5: Putting your Performance Measurement System into Action

Appendix 17D

The Performance Measurement Cycle



Measure: Designated staff members will collect data for the indicators selected in Step 2 via the measurement processes and tools developed in Step 3.

Report: Designated staff members complete and send the management dashboard and any program-level dashboards developed in Step 4 to the appropriate review teams.

Learn: Following the review schedule for your dashboards, also developed in Step 4, the management and program-level review teams meet regularly to interpret and analyze reported data.

Improve: Based on the insights and conclusions drawn from the reported data, the review teams assign responsibilities for implementing improvements to the organization's strategy, activities, and operations.

Appendix 17E

Performance Measurement Audit Tool

The performance measurement audit will help you to identify anything that you are currently measuring; your systems for measuring, compiling, and reviewing data; and the degree to which measurement data get put to use internally and externally. To conduct the measurement audit, answer the questions listed below in order to fill out the table followed by.

a) What indicators are currently being tracked?
b) How and when are you tracking these indicators?
c) Where are you storing your data?

Indicator	How	When	Staff Involved	Data Storage Location

Appendix 17F

Critical Success Factors (CSF) and Key Performance Indicators (KPI)

CSF is defined as the critical areas whose high performance or success is important, as they decide the success of an organization. These are actually the steps taken to succeed. KPI, on the other hand, is defined as the tools to measure the performance of any organization. It indicates the success rate or level.

	CSFs Critical Success Factors	**KPIs** Key Performance Indicators
Answer a question	What should be done in order to get successful?	Are we successful?
The main role	Specify requirements for the success	Indicate what we are doing
Type of measurement	Qualitative	Quantitative
Dependency	Standalone	Depend on benchmarks
Business Insights	Use Insights	Generate Insights
Example:		
A restaurant	Market share	% of business within a 5km radius
	Customer satisfaction	% of customers who are satisfied
	Meal quality	% of meals returned because of poor quality
White Goods manufacturer	High product quality	Number of warranty claims per 100 units
	High process yields	% rolled throughput yield
	Low production costs	Average variable costs
	Market share	% of the market

Appendix 17G

Ratio Analysis

Such analysis provides a method of standardization. More importantly, it provides a profile of firm's economic characteristics and competitive strategies. Although extremely valuable as analytical tools, financial ratios also have limitations. They can serve as screening devices, indicate areas of potential strength or weakness, and reveal matters that need further investigation. Ratio analysis should be used in combinations with other elements of financial analysis. There is no one definitive set of key ratios; there is no uniform definition for all ratios; and there is no standard that should be met for each ratio. There are no "rules of thumb" that apply to the interpretation of financial ratios. Ratios are categorized from different perspectives. One of such categories is presented below:

a) **Activity ratios** - the liquidity of specific assets and the efficiency of managing assets

b) **Liquidity ratios** - firm's ability to meet cash needs as they arise;

c) **Debt and Solvency ratios** - the extent of a firm's financing with debt relative to equity and its ability to cover fixed charges; and

d) **Profitability ratios** - the overall performance of the firm and its efficiency in managing investment (assets, equity, capital)

Categories of ratios used by different stakeholder groups vary due to their varying needs. Some of such ratios are presented below as illustrative purpose. Companies should have their own list of ratios that mostly suit their own purpose.

Ratio	Formula	What it measures	What it tells you
Owners:			
Return on Investment (ROI)	$\frac{\text{Net Income}}{\text{Average Owners' Equity}}$	Return on owners' capital When compared with return on assets, it measures the extent to which financial leverage is being used for or against the owner.	How well is this company doing as an investment?
Price Earnings Ratio (P/E Ratio)	$\frac{\text{Market Value per Share}}{\text{Earning per Share}}$	The P/E Ratio measures its current share price relative to its per-share earnings.	What the market is willing to pay for a stock based on its current earnings?
Return on Assets (ROA)	$\frac{\text{Net Income}}{\text{Average Total Asset}}$	How well assets have been employed by management.	How well has management employed company assets? Does it pay to borrow?
Managers:			
Net Profit Margin	$\frac{\text{Net Income}}{\text{Sales}}$	Operating efficiency. The ability to create sufficient profits from operating activities.	Are profits high enough, given the level of sales?
Asset Turnover	$\frac{\text{Sales}}{\text{Average Total Asset}}$	Relative efficiency in using total resources to product output.	How well are assets being used to generate sales revenue?

Ratio	Formula	What it measures	What it tells you
Managers:			
Return on Assets	$\frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Asset}}$	Earning power on all assets; ROA ratio broken into its logical parts: turnover and margin.	How well has management employed company assets?
Average Collection Period	$\frac{\text{Average AR X 365}}{\text{Annual Credit Sales}}$	Liquidity of receivables in terms of average number of days receivables are outstanding.	Are receivables coming in too slowly?
Inventory Turnover	$\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$	Liquidity of inventory; the number of times it turns over per year.	Is too much cash tied up in inventories?
Average Age of Payables	$\frac{\text{Average AP X 365}}{\text{Net Purchase}}$	Approximate length of time a firm takes to pay its bills for trade purchases.	How quickly does a prospective customer pay its bills?
Short-Term Creditors:			
Working Capital	Current Asset - Current Liabilities	Short-term debt-paying ability.	Does this customer have sufficient cash or other liquid assets to cover its short-term obligations?
Current Ratio	$\frac{\text{Current Asset}}{\text{Current Liabilities}}$	Short-term debt-paying ability.	Does this customer have sufficient cash or other liquid assets to cover its short-term obligations?
Quick Ratio	$\frac{\text{Cash + Mktable Sec + AR}}{\text{Current Liabilities}}$	Short-term debt-paying ability without having to rely on sale of inventory.	Does this customer have sufficient cash or other liquid assets to cover its short-term obligations?
Long-Term Creditors:			
Debt-to-Equity Ratio	$\frac{\text{Total Debt}}{\text{Total Ratio}}$	Amount of assets provided by creditors for each dollar of assets provided by owner(s)	Is the company's debt load excessive?
Times Interest Earned	$\frac{\text{EBIT}}{\text{Interest Expense}}$	Ability to pay fixed charges for interest from operating profits.	Are earnings and cash flows sufficient to cover interest payments and some principal repayments?
Cash Flow to Liabilities	$\frac{\text{Operating Cash Flow}}{\text{Total Liabilities}}$	Total debt coverage. General debt-paying ability.	Are earnings and cash flows sufficient to cover interest payments and some principal repayments

However, ROI measures can be decomposed into some more ratios and thus such ratios provide more meaningful information as compared to other standalone ratios. The derivation of ROI measures are shown below:

Return on Asset (ROA)

$$= \frac{\text{Net Income + Interest Expense (net of Income Tax Savings)}}{\text{Average Total Assets}}$$

$$= \frac{\text{EBIT}}{\text{Sale}} \text{ X } \frac{\text{Sales}}{\text{Assets}} = \text{Profitability X Activity}$$

Return on Equity (ROE):

$$= \frac{\text{Earning before Taxes}}{\text{Equity}}$$

$$= \frac{\text{EBT}}{\text{Sales}} \text{ X } \frac{\text{Sales}}{\text{Assets}} \text{ X } \frac{\text{Assets}}{\text{Equity}}$$

$$= \left[\frac{\text{EBIT}}{\text{Sales}} \text{ X } \frac{\text{EBT}}{\text{EBIT}} \text{ X } \frac{\text{Net Income}}{\text{EBT}}\right] \text{ X } \frac{\text{Sales}}{\text{Assets}} \text{ X } \frac{\text{Assets}}{\text{Equity}}$$

= Profitability X Activity X Solvency

(Operations X Financing X Taxes)

Additional insights into the relationship of ROE & ROA

Note the in the three way disaggregation of ROE, the first two components are ROA calculated on an after interest basis

We can express ROE in terms of ROA directly as (again using pre-tax numbers to simplify matters)

$$\text{ROE} = \frac{\text{EBIT - Interest}}{\text{Assets}} \text{ X } \frac{\text{Assets}}{\text{Equity}}$$

$$\text{ROA} - \frac{\text{Interest}}{\text{Assets}} \text{ X } \frac{\text{Assets}}{\text{Equity}}$$

This term with some manipulation can be converted to*

ROE = ROA + (ROA - Cost of Debt) x [Debt / Equity]

Leveraging is only profitable if the return on assets is greater than the cost of debt

An obvious parallel to this equation for ROE (return on equity)

ROE = ROA + (ROA - Cost of Debt) x [Debt / Equity]

is the equation for the beta of a firm (β_e)

$\beta_e = \beta_a + (\beta_a - \beta_d)$ x [Debt / Equity]

where β_a and β_d are the unlevered beta and the beta of debt respectively.

Appendix 17H

Common Size Financial Statements

Differences in firm size may confound cross sectional and time series analyses. To overcome this problem, common size statements are used. A common size statement of financial position expresses each item on the statement as a percentage of total assets. A common size statement of profit or loss and other comprehensive income expresses each statement category as a percentage of total sales revenues.

Common size statements									
Statement of Financial Position									
Company Type	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Cash and short-term investments	2%	13%	37%	1%	1%	3%	1%	22%	6%
Receivables	17	8	22	28	23	5	11	16	8
Inventory	15	52	15	23	14	2	2	-	5
Other current assets	6	-	5	1	4	2	2	1	-
Current assets	40%	73%	79%	53%	42%	12%	16%	39%	19%
Gross property	86	40	26	44	63	112	65	1	106
Less: Accumulated depreciation	(50)	(19)	(8)	(15)	(23)	(45)	(28)	-	(34)
Net property	36%	21%	18%	29%	40%	67%	37%	1%	72%
Investments	3	1	-	-	3	14	16	55	-
Intangibles and other	21	5	3	18	15	7	31	5	9
Total assets	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Trade payables	11	21	22	13	26	7	11	-	20
Debt payable	4	-	3	6	4	6	2	46	4
Other current liabilities	9	43	-	-	1	4	1	16	8
Current liabilities	24%	64%	25%	19%	31%	17%	14%	62%	32%
Long-term debt	20	5	12	27	23	34	24	27	21
Other liabilities	16	-	1	21	16	12	13	5	12
Total liabilities	60%	69%	38%	67%	70%	63%	51%	94%	65%
Equity	40	31	62	33	30	37	49	6	35
Total liabilities & equity	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Statement of Profit or Loss and Other Comprehensive Income									
Company Type	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Revenues	100%	100%	100%	100%	100%	100%	100%	100%	100%
Cost of goods sold	58	81	58	63	52	-	59	-	-
Operating expenses	21	7	24	28	33	84	29	55	91
Research &development	7	5	9	-	1	-	-	-	-
Advertising	3	-	3	2	5	-	-	-	2
Operating income	11%	7%	6%	7%	9%	16%	12%	45%	7%
Net interest expense	1	(1)	-	2	2	6	3	41	1
Income from continuing Operations before tax	**10%**	**8%**	**6%**	**5%**	**7%**	**10%**	**9%**	**4%**	**6%**

Company Types

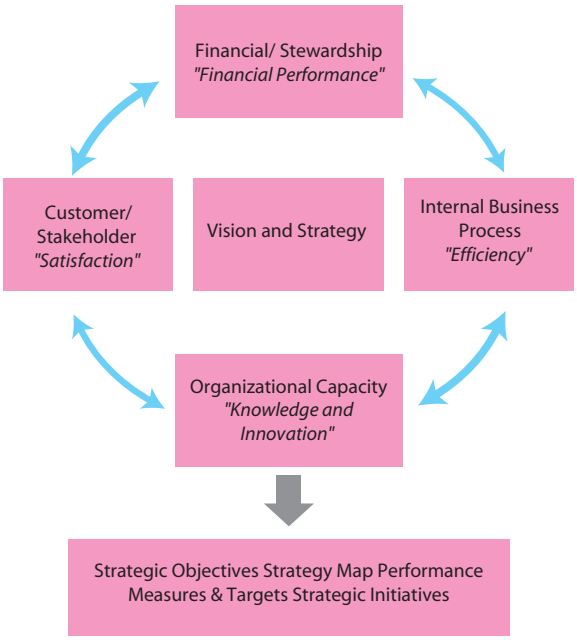
1. Aerospace
2. Airline
3. Chemicals & Drugs
4. Computer Software
5. Consumer Foods
6. Department Stores
7. Consumer Finance
8. Newspaper Publishing
9. Electric Utility

Appendix 17I

Balanced Framework

a) Balanced Scorecard

The balanced scorecard is a strategic planning and management system that is used extensively in business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals. It was originated by Robert Kaplan (Harvard Business School) and David Norton as a performance measurement framework that added strategic non-financial performance measures to traditional financial metrics to give managers and executives a more 'balanced' view of organizational performance. The balanced scorecard suggests that we view the organization from four perspectives, and to develop metrics, collect data and analyze it relative to each of these perspectives as identified in the figure.



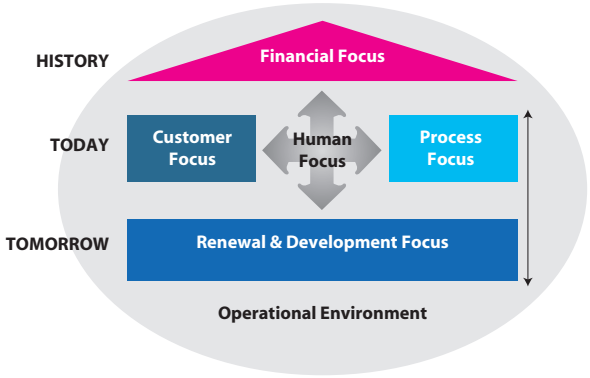
b) Skandia Navigator

Skandia AFS, a subsidiary of the Skandia insurance group, has chosen to turn the measurement of intangible assets into a tool for competitive differentiation. The company actively and publicly promotes its 'Business Navigator', which incorporates a large number of key indicators and is one of the driving forces in the intellectual capital movement. The Skandia Navigator is a future-oriented business-planning model providing a more balanced overall picture of operations. It represents a balance between the Past (the Financial Focus), the Present (the Customer, Human and Process Foci) and the Future (the Renewal & Development Focus). The Navigator allows the breakdown of Skandia's operational vision and objectives into concrete factors that can be coupled to an individual's own work. Skandia believes the investments made in renewing and developing the Human, Customer and Process capital drive financial success. The Navigator visualizes this belief and forms the basis for business planning processes. Skandia's Business Navigator incorporates a total of about thirty key indicators in various areas, which are monitored internally on a yearly basis.

c) Performance Prism

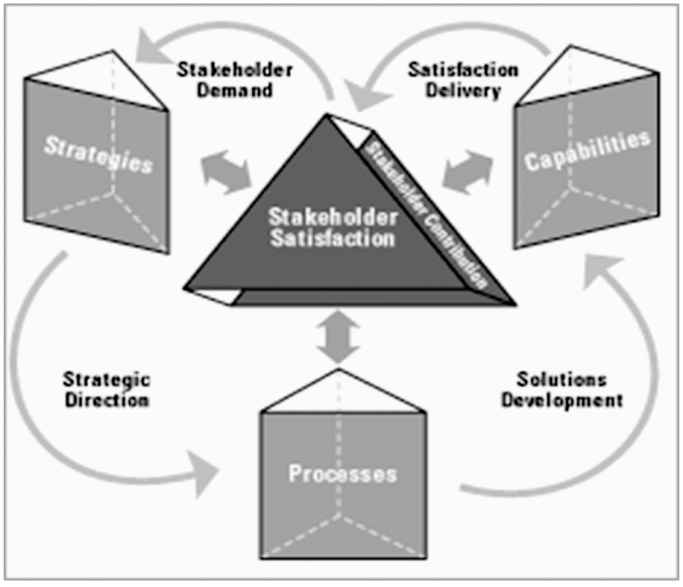
The Performance Prism (PP) is referred to by its Cranfield University developers as a 'second generation' scorecard and management framework. The distinguishing characteristic of the Performance Prism is that it uses as its starting point all of an organization's stakeholders, including investors, customers and intermediaries, employees, suppliers, regulators and

communities, rather than strategy. According to PP proponents, strategy should follow from stakeholder analysis. The PP framework also focuses on the reciprocal relationship between the organization and its stakeholders, as opposed to just stakeholder needs.



There are five 'facets' to the Performance Prism which lead to key questions for strategy formulation and measurement design:

1. **Stakeholder Satisfaction:** Who are our stakeholders and what do they want and need?
2. **Strategies:** What strategies do we need to satisfy these wants and needs?
3. **Processes:** What processes do we need to execute these strategies?
4. **Capabilities:** What capabilities do we need to operate our processes more effectively and efficiently?
5. **Stakeholder Contribution:** What do we want and need from our stakeholders if we are to develop and maintain these capabilities?





BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 18

Cash Flow

BCAS 18: Cash Flow

18.1 Introduction

Cash flow in a company is a very important issue from managerial perspective. Forecasting cash flows are very important for decision making purposes. Reporting cash flow related information for internal decision making process receives extra attention along with external reporting. At the same time, management of cash flows on a regular basis is an important task of treasury now-a-days. The firms need to maintain a delicate balance between holding too much cash resulting into sacrifice of profitable investment opportunities and too little cash triggering unnecessary borrowing to support daily transactions. The purpose of this standard is to consider issues in developing and using cash flow information from a forward looking perspective. Sometimes it has been observed that in spite of adequate profit in business, they are unable to meet their taxes and dividends, just because of shortage of cash. Improving cash flow is a smart move for any business. It does not matter how great the business model is, how profitable it is, or how many investors the business has lined up. The business cannot survive if it fails to manage its cash properly. Given these trends, it is becoming increasingly important that cash flow information be prepared in a consistent and reliable manner.

18.2 Objectives

The standard provides a basic guideline on forecasting cash inflows and outflows, reporting of cash flow related information, analyzing cash flow data and using cash flow data in different typical situations. The standard also highlights the importance of generating accurate cash flow information timely which is very important for cash flow management.

18.3 Scope

18.3.1 This standard provides guidelines for generating and using cash flow related information for decision making purpose.

18.3.2 More particularly, the standard covers the following area relating to cash flows:

a) Forecasting cash inflow and outflow related information;

b) Reporting cash flow information;

c) Analyzing cash flow information critically; and

d) Applying cash flow information.

18.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

18.4 Key Features

The key features of this standard are pointed below -

a) Identifying the use of cash flow information;

b) Presenting importance of cash flow;

c) Cash flow reporting across operating, investing, and financing activities;

d) Presenting cash flow related ratios; and

e) Explaining strategic four factor models.

18.5 Definitions

The following terms are used in this standard with the meanings specified -

18.5.1 Cash: The meaning of cash is cash in hand and cash at bank including deposits.

18.5.2 Cash and Cash Equivalents: Cash and cash equivalents imply readily convertible, highly liquid investments, the value of which in cash is well-known to us without risk of change in its realization amount. The purpose of keeping cash equivalents is to meet current and short-term commitment rather than for investments. Only those investments having short maturity terms qualify as cash equivalents.

18.5.3 Cash Flows: There are two types of flows: inflows and outflows. If the increase in cash is the effect of transactions, it is called inflows of cash; and if the result of transactions is decrease in cash, it is called outflows of cash.

18.5.4 Free Cash Flow: Free cash flow represents the cash that a company is able to generate after spending the money required to maintain or expand its asset base. It is calculated as operating cash flow minus capital expenditures.

18.6 Standards

18.6.1 **There are two broad perspectives of cash flow information: internal, which projects cash flows to provide a basis for planning and project evaluation along with complement external information with respect to asset valuation, and external, which provides summary information primarily for the purpose of reporting to shareowners.**

18.6.2 Developing external cash flow information has been the traditional domain of financial reporting. For this reason, and because internal cash flow information is the primary source of decision-making information and therefore closely related to the domain of management accounting, this standard will focus on developing internal cash flow statements. However, it presents cash flow statement as a reference at appendix which is also an integral part of this standard.

18.6.3 Three basic issues involved in preparing and reporting internal cash flow information are:
a) how the information is to be gathered;
b) how it will be presented; and
c) how it will be used.

18.6.4 Given the increasing reliance by decision makers inside and outside organizations on internal cash flow information, it is becoming more and more important that information be developed in a systematic and reliable way. Therefore, it is imperative that there be a systematic process in place to develop the cash flow forecasts that underlie internal cash flow statements. This process will require soliciting forecast information from operations personnel, who are most qualified to estimate that information, and triangulating those estimates with historical information, when available. Experience and sound judgment are required. Moreover, operations personnel should evaluate those forecasts once the internal cash flow statement has been constructed to determine the reasonableness of those forecasts.

18.6.5 **The presentation form and periodicity of the cash flow forecast should reflect the**

identified needs of the users of that information. However, such information will not contradict with the cash flow statement prepared for general purpose financial statements rather supplement that information to serve micro needs of internal decision makers.

18.6.6 Internal cash flow analysis plays a critical role in evaluating proposals to acquire new assets or in valuing existing assets. It is evident that accurate cash flow projections are critical in that they will directly affect the resulting asset valuations, which, in turn, will affect the decisions that rely on those valuations. In this regard, it will often be useful to develop an analysis to determine the sensitivity of the decision to the cash flow forecast.

18.6.7 Increased global competitiveness has caused managers to look for new ways to improve profitability and return on investment. One of the approaches used to increase return on investment has been to reduce the level of idle or underused assets in the organization. In this vein, proponents of economic value added have argued that one of its major benefits is to use a charge on invested capital to encourage managers to better manage the firm's asset base by identifying and eliminating underperforming assets. This general interest in managing assets more effectively has included a heightened interest in managing cash in particular. This, in turn, has increased interest in developing better ways of forecasting cash flows so that plans can be made to invest surplus cash or of identifying cash requirements far in advance in order to arrange operating loans at the most favorable interest rates.

18.6.8 Forecasting cash flow is a critical activity which should be a team work. It requires SORS analysis as given in appendix which is completely a management process. And for the quantitative part, it requires a careful analysis covering every unit who possess very important information for forecasting. The first issue in developing a cash flow forecast is to identify the group or individual responsible for managing the process. Few first hand guideline may be cited below:

a) Because of their experience and traditional responsibility for managing cash, the Treasury group will usually be responsible for managing the cash flow forecast. In developing these forecasts, the Treasury group should rely on those organizational members who are in the best position to provide reliable estimates.

b) The Marketing Group will be in the best position to estimate sales.

c) The Manufacturing Group will be in the best position to estimate manufacturing costs.

d) The senior finance committee will be in the best position to estimate discretionary expenditures such as net asset investments and research and development.

Beyond providing a basis from which to develop more reliable forecasts, involving other organizational groups provides a motivation for commitment to these forecasts. This commitment is both valuable and necessary when the cash flows are to be used for evaluation purposes.

18.6.9 Other sources for developing cash flow information are archival records such as the organization's accounting system and various costing statements. These records contain the historical relationship between cash flows and prior decisions and provide a basis for assessing current estimates.

18.6.10 **Another important issue in cash flow forecast is the timing issue. The cycle of developing and presenting information (periodicity) must be matched to the decisions that will be based on the information. For example, when financing**

decisions are made quarterly, it will be necessary to develop quarterly estimates of cash flow requirements or excess cash balances that will have to be invested so that they do not lie idle. The most common forecasts are quarterly or monthly. In general, the periodicity of the forecast requirement will shorten as the seasonality or the variance of cash flows increases.

18.6.11 **Next important issue in developing the cash flow forecast is to choose the appropriate format. There are two approaches: the financial statement approach, which develops the information from the published financial statements, and the traditional approach, which computes cash inflows and outflows directly. Follow the appendix to understand the technicality.**

18.6.12 It would appear that the financial statement approach is the most widely used approach by analysts outside the organization who develop cash flow information based on published financial information. When prospective cash flow forecasts are developed internally, the traditional approach is widely used. There is no single approach to developing cash flow information that is best in all circumstances. The appropriate approach to use is the one that is best in the particular circumstances in terms of meeting the users' requirements.

18.6.13 **For external reporting purpose, cash flow analysis is done across three different activities, e. g., operating, investing and financing. If decrease in cash is due to cash management rather than its operating, investing, and financing activities, it will be excluded from cash outflows. Cash management means investment of cash in cash equivalents.**

18.6.14 The primary external role of cash flow information is valuation. The periodic cash flows attributable to an asset, whether it is an entire organization or a single asset, are discounted at an appropriate rate to determine the intrinsic value of the asset. Internally, prospective cash flow information is used to value existing or prospective investments. Beyond this, prospective cash flow information is used to manage treasury operations so as to minimize the cost of borrowing and minimize opportunity losses from holding idle cash. In addition, prospective cash flow information may be used in a control setting by providing a basis from which actual cash flows are evaluated.

18.6.15 Established businesses often have a buffer of extra cash to get them through shortfalls. Growing businesses often don't because they are always reinvesting. Years with the biggest growth-including the first few years-are also the most challenging when it comes to cash flow. This is one of the reasons it's so hard to get a new business off the ground.

18.7 Recording and Reporting

18.7.1 Organization should have a policy to handle cash flow. There should be a clear demarcation line between internal and external use of cash flow information.

18.7.2 Organization's policy should mention, to the minimum, the following issues:

a) Persons responsible for forecasts
b) Persons responsible for finalization
c) Range of use of cash flow information
d) Timing of cash flow forecast
e) Formal channel of communicating cash flow information
f) Any other pertinent issues

18.7.3 To evaluate the performance of forecasting, using, managing and controlling cash flow information, following ratios can be used:

a) Operating Cash Flow / Sales Ratio: This ratio, which is expressed as a percentage, compares a company's operating cash flow to its net sales or revenues, which gives investors an idea of the company's ability to turn sales into cash.

b) Free Cash Flow / Operating Cash Flow Ratio: This ratio measures the relationship between free cash flow and operating cash flow.

c) Operating Cash Flow per Share: Cash flow per share is a financial ratio that measures the operating cash flows attributable to each share of common stock. It is a variation of the earnings per share which substitutes net income with net cash flows from operations.

d) Cash Flow Coverage Ratio: This ratio measures the ability of the company's operating cash flow to meet its obligations - including its liabilities or ongoing costs.

i. Short-Term Debt Coverage = [Operating Cash Flow Ö Short-term Debt]
ii. Total Debt Coverage = [Operating Cash Flow Ö Average Total Debt]
iii. Capital Expenditure Coverage = [Operating Cash Flow Ö Capital Expenditures]
iv. Dividend Coverage = [Operating Cash Flow Ö Cash Dividends]
v. CAPEX + Cash Dividends Coverage = [Operating Cash Flow Ö (Capital Expenditures + Cash Dividends)]

e) Dividend Payout Ratio: This ratio identifies the percentage of earnings (net income) per common share allocated to paying cash dividends to shareholders. The dividend payout ratio is an indicator of how well earnings support the dividend payment.

Dividend Payout Ratio = [Dividends per Common Share Ö Earnings per Share]

f) Price / Cash Flow Ratio: The price to cash flow ratio is often considered a better indication of a company's value than the price to earnings ratio. It is a really useful ratio for a company to know, particularly if the company is publicly traded. It compares the company's share price to the cash flow the company generates on a per share basis.

Price/cash flow ratio = Share price/Operating cash flow per share

18.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

Appendix 18A

Classification of Cash Flows and Presentation for External Reporting

Cash flows should be classified in three main categories:

- Cash Flow from operating activities
- Cash Flow from investing activities
- Cash Flow from financing activities

a) Cash flow from operating activities

Inflow of cash from operating activities represents the level of sufficient cash generation necessary to maintain operating capability without recourse to external resource of financing. In other words, operating activities mean principal revenue-generating activities of a firm. It represents those transactions that determine the profit or loss of a firm. Some examples of cash Flows from operating activities are given below:

- Cash sale (goods or services)
- Cash receipts from commission, fees and royalties income etc.
- Cash payments to workers or employees in form of salary or wages.
- Cash payments to supplier of goods or services.
- Cash receipt on account of insurance premium by insurance companies.
- Cash payments in form of claims, annuity and other benefits.
- Cash payments or refund of income tax in case not included in investing or financing activities.
- Cash payments on account of current and future contracts.

Note: Cash receipt on sale of plant and machinery comes under category of investing activities.

b) Cash flow from investing activities

Assets and long-term investments that do not come under cash equivalents are known as investing activities. Investing activity represents how much investment in long-term assets has been made to earn profit in future. Some examples of Cash Flows from investing activities are given below:

- Cash payments to acquire tangibles and intangibles assets including construction of assets and capitalization of research and development cost.
- Cash receipts from sale of investments and disposal of fixed assets.
- Cash payment for investments in shares, warrants and debentures of other companies etc. excluding those which are covered under cash equivalents or purchased for trading purpose. If so, those come under operating activities.
- Cash received from disposal of or sale of shares, warrants or redemption of funds other than those which are kept for trading purpose.
- Advances or loan made to third party other than by financing companies.
- Cash payment for future contracts other than trading purpose.
- Cash received from future contracts other than trading purpose.

c) Cash flow from financing activities

The activities which may result in change in size and composition of owner's capital including preference shares are called financing activities. Separate disclosure is important for financing activities. Examples of Cash flows from financing activities include cash received on issue of shares, debentures, loans, bonds and other short or long term borrowings, cash payments on redemption of debentures bonds, preference shares etc.

Treatment of Some Typical Items: The treatment of some typical cash flow items is discussed below:

Extraordinary Items

Inflow or outflow of cash is classified according to the nature of activities that may be operating, investing, or financing activities. Cash flow due to extraordinary items should be shown separately in the cash flow statement to enable users to understand its nature and effect on the cash flow statement.

Interest and Dividends

If cash flow arises due to interest paid or interest and dividend received, then that should be classified as operating activities in case of "financial enterprises". In case of "other than financial organizations", the interest paid should be classified as financing activity and the interest and dividends received should be classified as investing activity. Dividend paid should be classified as financing activity in both the cases.

Taxes on Income

Taxes on income should be separately disclosed and should be classified under operating activities in most of the cases except where we can easily identify the taxes according to the nature of income but if total amount of tax is given, then it should be classified as operating activities. However, dividend distribution tax will be classified as financing activities.

Cash flows from acquisition and disposal of subsidiaries and other business units

Cash flow arises due to acquisition or disposal of subsidiary should be shown separately and classified as investing activities. This transaction should be easily identifiable in cash flow statement to enable users to understand the effect of it. The case flow of disposal is not deducted from cash flow of acquisition.

Foreign Currency

Items appearing in a cash flow statement should be shown in local currency value, applying actual foreign currency rate of the particular day on which cash flow statement is going to be prepared. Effect on value of cash and cash equivalents as reflected in the cash flow statement due to change in rate of foreign currency should be shown separately as a reconciliation of changes. Due to change in foreign currency rate, unrealized gains and losses are not cash flows. However, effect on cash and cash equivalents held or due in foreign currency are reported in cash flow statement in order to reconcile the cash and cash equivalents at the beginning and at the end of the period.

Non-Cash Transactions

Some investing and financing activities do not have any direct impact on cash flows. For example, conversion of debt to equity, acquisition of an enterprise by means of issuance of share, etc. Those transactions should be excluded from cash flow statements, in which there are no uses of cash or cash equivalents. There are other financial statements in which those investing and financing activities appear separately.

Specimen Format: Direct and Indirect Method

XYZ LIMITED Cash flow Statement for the year ended YYYY	
Particulars	**Amount**
Cash Flows from Operating Activities (Schedule- 1A for Direct, 1B for Indirect)	XX
Cash Flows from Investing Activities (Schedule- 2)	XX
Cash Flows from Financing Activities (Schedule-3)	XX
Extraordinary Items	XX
Net Increase or Decrease in cash or cash Equivalents before Tax →	XX
Income Tax Paid →	XX
Net Increase or Decrease in cash or cash Equivalents →	XX
Add: Cash & Cash Equivalents at the beginning of the period →	XX
Cash and Cash Equivalents at the end of the period →	XXX

Schedule 1A: Cash Flow from Operating Activities (Under Direct Method)

Particulars	**Amount**	**Amount**
Cash received from customers		XXX
Cash paid for:		
a) Suppliers for Purchases	XX	
b) Wages & Salary	XX	
c) Operating and General administrative expenses	XX	XXX
Net Profit before Taxes →		XX
Income Tax Paid →		XX
Cash flow from Operating Activities →		XXX

Schedule 1B: Cash Flow from Operating Activities (Under Indirect Method)

Particulars	**Amount**
Changes in Profit & Loss account	XX
Changes in Reserve (Any)	XX
(+) Interim Dividend	XX
Net Profit →	XXX
Non Cash Items:	
(+) Depreciation	XX
(+) Loss on Sale of Fixed Assets	XX
(+) Goodwill Amortization	XX
(+) Preliminary Expenses written off	XX
Non Cash Incomes:	
(-) Gain on Sale of Fixed Assets	XX
Operating Profit before working Capital changes →	XXX
± Changes in Current Assets & Current liabilities	XX
Cash operating Expenses before Tax	XXX
Tax Paid	X
Cash Flow from Operating Activities →	XXX

Schedule 2: Cash Flow from Investing Activities

Particulars	Amount	Amount
Cash received for:		
a) Sale of Fixed Assets	XX	
b) Sale of Investment	XX	
c) Interest received	XX	
d) Dividend received	XX	XXX
Cash paid for:		
a) Purchase of Fixed Assets	XX	
b) Purchase of Investments	XX	
Net Cash Flow from Investing Activities →		XXX

Schedule 3: Cash Flow from Financing Activity

Particulars	Amount	Amount
Cash received for:		
a) Issue of Equity Shares	XX	
b) Issue of Preference Share	XX	
c) Long-term borrowings	XX	XXX
Cash paid for:		
a) Interest paid	XX	
b) Redemption of Preference shares	XX	
c) Repayment of Loans	XX	
d) Dividend paid	XX	
e) Purchase of Investments	XX	XXX
Net Cash Flow from Financing Activities →		XXX

Appendix 18B

The Financial Statement Approach vs. Traditional Approach

Financial Statement Approach

The financial statement approach uses financial statement information to develop two broad definitions of cash flow: cash flow to equity holders and free cash flow. Table below illustrates the calculation of cash flow to equity holders.

	Sales
+	Non-Operating Income
-	Cost of Goods Sold
-	Selling, General, and Administrative Expenses
-	Research and Development Expenses
-	Depreciation
=	Net Income Before Interest and Taxes
-	Interest
=	Net Income Before Taxes
-	Taxes
=	Net Income After Interest and Taxes
+	Non-Cash Expenditures
-	Change in Working Capital
-	Preferred Dividends
=	Cash flow to Equity Holders

The second common definition of cash flow is free cash flow. Table below illustrates the calculation of free cash flow.

	Sales
+	Non-Operating Income
-	Cost of Goods Sold
-	Selling, General, and Administrative Expenses
-	Research and Development Expenses
-	Depreciation
=	Net Income Before Interest and Taxes
-	Taxes
+	Non-Cash Expenditures
=	Operating Cash Flows
-	Change in Working Capital
-	Capital Expenditures
-	Changes in Other Assets
=	Free Cash Flow of Assets

Note that both of these approaches add back the non-cash expenditures to compute cash flows. This eliminates some, but not all, of the manipulations to GAAP income that result from using different, but acceptable, GAAP.

Traditional Cash Flow Statement

There are two approaches used to prepare the statement of cash flows. The direct method begins by using cash inflows and outflows to compute the net cash flow from operations. Then cash inflows and outflows from investing activities are identified to compute the net cash flow from investing activities. Finally the cash inflows and outflows from financing activities are used to compute the net cash flow from financing activities. Table below illustrates the format of the direct method.

Cash Flows from Operating Activities	
Collected from Customers	xxx
Dividends and Interest on Investments	xxx
Payments for Goods	(xxx)
Salaries and Wages	(xxx)
Income Taxes	(xxx)
Interest on Liabilities	(xxx)
Net Cash Flow from Operating Activities	xxx
Cash Flows from Investing Activities	
Sale or Disposal of Property, Plant, or Equipment	xxx
Sale of Investments	xxx
Purchase of Property, Plant, or Equipment	(xxx)
Purchase of Investments in Securities	(xxx)
Net Cash Flow from Investment Activities	xxx
Cash Flows from Financing Activities	
Borrowing from Creditors	xxx
Issuing Equity	xxx
Repayment of Debt	(xxx)
Dividends Paid	(xxx)
Net Cash Flow from Financing Activities	xxx

The indirect method of preparing the cash flow statement begins with net income and finds net cash flow from operating activities by eliminating noncash items included in net income. The

indirect method computes net cash flows from investing and financing activities using the same approach as the direct method.

Table below illustrates the indirect method of computing net cash flow from operating activities.

Cash Flows from Operating Activities	
Net Income	xxx
Adjustments for Non Cash Items in Income	
Depreciation	xxx
Gain on Sale of Equipment	(xxx)
Changes in Current Accounts	
Increase in Accounts Receivable	(xxx)
Increase in Accounts Payable	xxx
Net Cash Flow from Operating Activities	xxx

Appendix 18C

Strategic Four Factor (SORS) Model

In general, this requires the application of what, in strategic company management, has come to be known as the strategic four-factor model called "SORS". The letters that make up SORS stand for:

- ✓ Strategic planning (S)
- ✓ Organizational planning (O)
- ✓ Resource requirements (R)
- ✓ Strategic control (S).

The following figure summarizes the simplified matrix of interacting factors and component parts that make up 'SORS'. In general terms, SORS is influenced or determined by four major factors: the external environment, the internal environment, organizational culture and resource (especially funds) availability. These four factors interact to create four inter-related components which normally determine the success or failure of any given company. These are:

- a) competitive environment
- b) strategic thrust
- c) product/market dynamics
- d) competitive cost position and restructuring

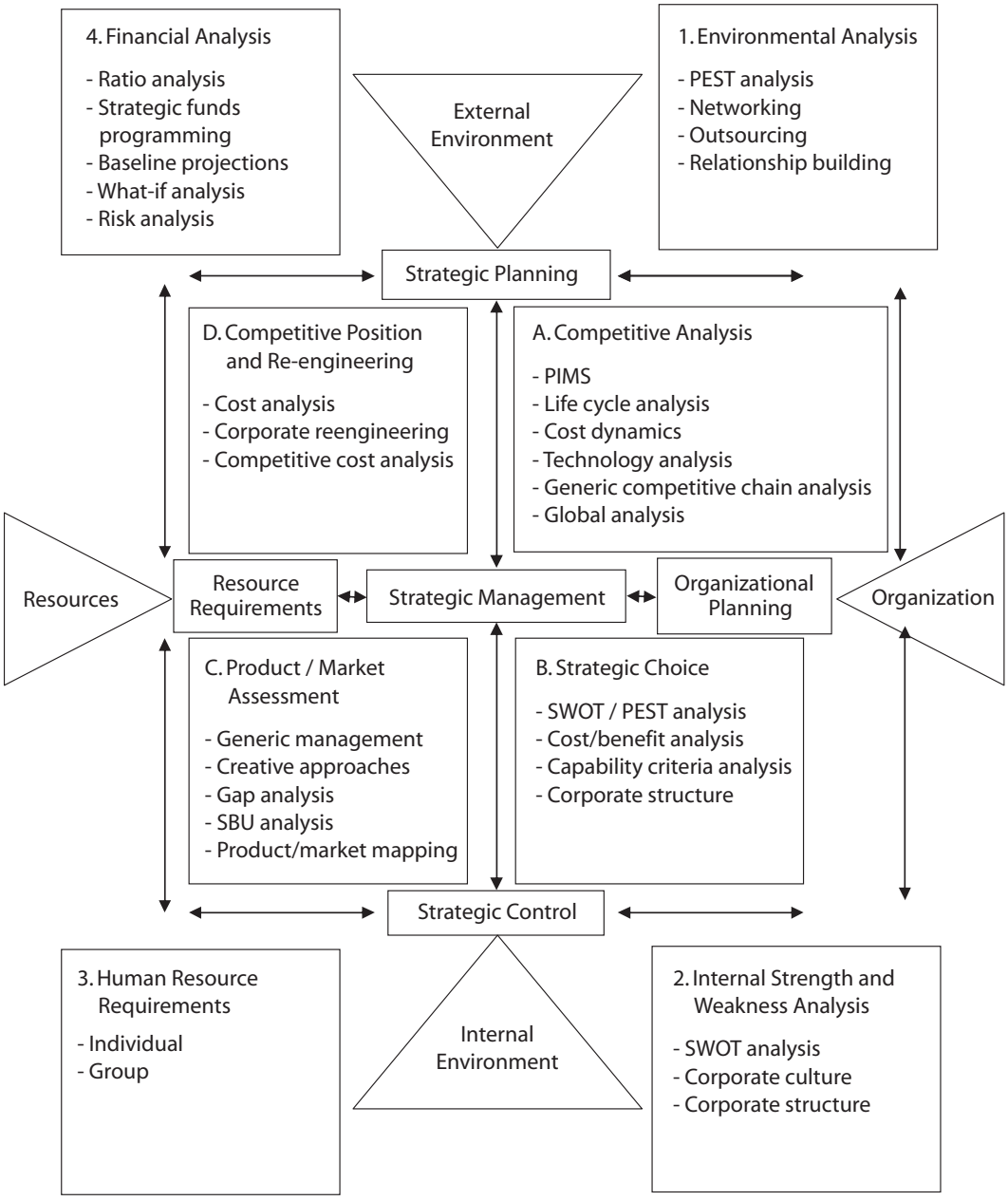
A proper and pragmatic manipulation of these four component parts requires:

- ✓ assessing the external environment
- ✓ understanding the internal environment
- ✓ adopting a leadership strategy
- ✓ strategically planning the finances of the company

The purpose of this standard is not to cover all the components, rather concentrating on proper understanding of financial analysis for strategic planning. This requires a sound financial analysis backed by strategic funds programming, baseline projections (or budgeting), what-if (decision tree) analysis, and risk analysis.

Almost everyone is familiar with the substantial capital demand in all forms of business. Obviously, this does not all have to be owned capital. Evaluation of successful businesses has found that many of them operate with 50 percent or more rented or borrowed capital. The pressure on businesses to grow is likely to continue, and these businesses are likely to grow

faster than will be permitted by each reinvesting its own annual savings from net income alone. Thus, because demand for credit will continue to expand, careful credit planning and credit use decisions are of paramount importance to marketing companies in any country.



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BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 19

Budget and Pro Forma Financial Statements

BCAS 19: Budget and Pro Forma Financial Statements

19.1 Introduction

Budget is a very important management accounting tool used in organizations to plan and control future courses of action. It should be wisely drawn so that it can ensure more discipline in spending and collection of resources leading towards the achievement of corporate ultimate goal. Organizations may have its own philosophy and pattern of formulating and implementing budget. This standard presents budget mechanism covering every aspect of budget process which can be a broad guideline for any company irrespective of its typical structure. The standard also covers the end result of budget in the form of pro forma financial statements.

19.2 Objectives

Budgets are used primarily for two purposes. First, planners use budgets to project or estimate the financial consequences of alternative strategic plans in the process of choosing among those plans. Second, budgets are used to project operating and cash flow results in order to anticipate capacity, resource, or financing requirements. Keeping these in mind, the purpose of this standard is twofold:

- a. It considers the nature and scope of budgeting and
- b. It prescribes the format of pro forma financial statements along with its relationship with budget.

19.3 Scope

19.3.1 This standard shall be applied in planning, formulating, and implementing budget in an organizational setup.

19.3.2 More specifically, the standard shall be applied in cost and management accounting practices relating -

- a) To select budget philosophy;
- b) To formulate different budget estimates;
- c) To implement budget;
- d) To follow up budget; and
- e) To prepare and use pro forma financial statements.

19.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

19.4 Key Features

The key features of this standard are pointed below -

- a) Presenting the budget implementation process;
- b) Identifying critical factors in successful implementation of budget;
- c) Administering administrative issues in budgeting process;
- d) Showing the relationships in master budget system; and
- e) Exploring the importance of pro forma financial statements.

19.5 Definitions:

The following terms are used in the standard with the meanings specified:

19.5.1 **Budget:** A budget is a quantitative expression of a plan for a defined period of time which includes among other things planned sales volumes and revenues, resource quantities, costs and expenses, assets, liabilities and cash flows expressing strategic plans of business units, organizations, activities or events in measurable terms.

19.5.2 **Budget Period:** The budget period is the specific future period of time with reference to which budget is prepared which is usually one year.

19.5.3 **Budget Committee:** Budget Committee consists of a group of people usually from top management who creates and maintains fiscal responsibility for an entity or organization and typically reviews and approves departmental budgets that are submitted by the various department heads.

19.5.4 **Pro forma Financial Statements:** Pro forma financial statements are the complete set of financial reports issued by an entity incorporating assumptions or hypothetical conditions about events that may have occurred in the past or which may occur in the future which is usually used to present a view of corporate results to insiders to run the operation smoothly as per plan and to outsiders as part of an investment or lending proposal.

19.5.5 **Zero Based Budgeting:** Zero-based budgeting (ZBB) is a method of budgeting in which all expenses must be justified for each new period having a "zero base" and every function within an organization is analyzed for its needs and costs. Budgets are then built around what is needed for the upcoming period, regardless of whether the budget is higher or lower than the previous one.

19.5.6 **Budgetary Control:** Budgetary Control is the process of establishment of budgets relating to various activities and comparing the budgeted figures with the actual performance for arriving at deviations, if any. It is a system which uses budgets as a means of planning and controlling.

19.5.7 **Participative Budgeting:** Participative budgeting is a bottom-up approach in budgeting process under which those people impacted by a budget are actively involved in the budget creation process.

19.5.8 **Autocratic Budgeting:** Autocratic budgeting follows a top-down approach where some targets in the form of budget is forced on subordinate managers from the top.

19.5.9 **Budget Manual:** It provides a set of guidelines as to who is involved with the budgetary planning and control process and how the process is to be conducted.

19.6 Standards

19.6.1 **Budget may be prepared in either autocratic or participative way considering the policy of the respective budget setting unit. Each of these philosophies has its own merits and demerits. This standard doesn't provide any choice rather it is left at the discretion of the management.**

19.6.2 Informal observation of practice and systematic research unequivocally suggest that, when budgets are used for planning and control purposes, participative budgets are more effective in securing target results than autocratic budgets.

19.6.3 **Budget should be prepared with reference to a budget period which should not be more than one year. However, it may be prepared for any smaller periods (i.e., weekly, monthly, quarterly, semi-annually) depending on the requirements of management.**

19.6.4 **Budget committee should be wisely formed consisting people from different skill groups including who are financially literate. Budget committee will enjoy the highest authority for planning, formulating, and implementing budget.**

19.6.5 The major role of budgeting is to predict the most likely financial consequences of a given operating plan, which is outlined in an operating budget. These financial consequences are usually reflected in three pro forma financial statements: cash flow, statement of profit or loss and other comprehensive income and statement of financial position, which are called financial budgets.

19.6.6 Budgets serve five critical roles in the planning and control processes that are not fulfilled by any other management tool. For this reason, budgeting, when properly executed, remains an important management tool. The five critical roles are:

a) by projecting the most likely financial consequences of the current plan, budgets allow decision-makers to evaluate whether the current plans are acceptable;

b) by comparing the resource requirements of the current plan with the resources that are available, or will be made available, budgets help decision-makers identify resource bottlenecks in the current plan. More generally, budgeting forces managers to think ahead to anticipate opportunities and problems rather than reacting to them as they occur;

c) because budgets include profitability and resource use information, they provide a means of allocating constrained organization resources to the most profitable uses;

d) because budgets provide a means of internally communicating the organization's financial and operating objectives, they provide a basis for coordinating activities in the organization; and

e) when developed appropriately, such as under conditions of participative budgeting or using benchmarks from practice, budgets provide a standard against which realized operations can be compared. This facilitates the process of identifying possible inefficiencies in operations.

19.6.7 Budget can be of various types depending on underlying assumptions on which budget is prepared. A detail of classification is attached in Appendix 19A.

19.6.8 The budget should be designed in such a way that the decision-maker can easily evaluate the effect of key decisions or key parameter estimates on key results.

19.6.9 Once prepared, individual budgets and the master budget package should be validated and verified. That is, the following tests should be undertaken:

a) Each budget should be checked to ensure that it is, from the decision-makers perspective, complete with respect to what is modeled or included in the budget.

b) Users should evaluate each of the budgets to ensure that they reflect the issues implied by the organization's objectives and strategy and that they provide information that summarizes performance relevant to the organization's objectives.

c) The projections developed by the budgets should be checked against managerial intuition and experience as a broad test of their internal consistency.

d) The equations programmed into the budget software should be verified to ensure that the calculations actually undertaken are those that are expected.

19.6.10 The data assumptions underlying each budget should be challenged and evaluated. These data include estimates of sales, prices, costs, resource use, and resource availability.

19.6.11 **Budget bases should be updated at regular intervals by designated officials as approved by the budget committee.**

19.6.12 Moreover, research suggests, almost unequivocally, that stretch targets, which are targets that organization members perceive as difficult but achievable, provide the greatest motivation for individual and group performance.

19.6.13 Organizations can prepare and use a budget manual which provides a set of guidelines as to who is involved with the budgetary planning and control process, and how the process is to be conducted.

19.6.14 **Zero-based budgeting is desired, however, the standard doesn't restrict the use of traditional budgeting system.**

19.6.15 Budget should be prepared based on some budget formula which needs to be regularly updated to confirm the budget figure worthy.

19.6.16 The master budget process is an exercise in financial modeling. Therefore, the discussion and the standards discussed in this standard relating to financial models apply to budgets created in the master budget process. In particular, budgets created in the master budget process should be subject to the validity standards developed in this standard:

a) Individually, and as a group, the budgets should be complete. That is, they should capture all the relevant aspects of the planning process.

b) The scope and focus of the budgets should reflect the organization's objectives and how the decision-makers that use those budgets think about the problem being studied.

c) The internal calculations within each budget should be verified to ensure that they have been accurately programmed or entered into the software underlying the budget.

d) The data underlying the budget should be checked for accuracy and reasonableness. These data include price, sales, cost, resource use estimates, and resource availability estimates.

19.6.17 There are two broad tests that relate to validating a financial model. The first test is for completeness. This means that the master budget should include all the elements of the planning and control process. The test for completeness involves asking decision makers whether there are any elements of either the master budget or an individual budget that are not included in the model. The second test is for representational faithfulness. This involves ensuring that the master budget and the individual budgets reflect the way that decision makers think about the budget problem. Also, designers must verify whether the budgets focus on variables that are critical to the organization's success as defined by the organization's objectives and chosen strategy. The best test of representational faithfulness is to put the budgets in the hands of the users and to identify whether the models meet their requirements.

19.6.18 Each budget should be tested for accuracy, which refers to the integrity of the formulas entered into the budget software that make the calculations. The preferred test for accuracy is a consistency check of individual parts of the budget by comparing known results against the budget's computed results. A secondary test for accuracy is to

subject the model's results to tests of reasonableness that reflect prior experience and intuition. This is a weaker test than the consistency check because experience and intuition may not be applied systematically and because, under new conditions, experience and intuition may be misleading.

19.6.19 Another required test is to identify the reasonableness of the parameter estimates including those of prices, sales, costs, supplier lead times, times to put new capacity (people or equipment) in place, resource use rates, and resource availability. Reasonableness tests are undertaken by evaluating the estimates themselves and the results that they generate. The estimates are evaluated by comparing them against historical, industry-wide, or benchmark standards. The results are evaluated by comparing them to those of comparable organizations or by extrapolating historical results after adjustments for changed circumstances.

19.6.20 **Flexible budget is desirable; however, the standard doesn't prohibit the use of fixed or static budget.**

19.6.21 Budget preparation mechanism should allow the simulation process with reference to some bases (e.g., sales volume) so that it can be exercised when needed.

19.6.22 **Budget process should encourage post budget evaluation with the actual result through a process like audit trial and there should be a formal appraisal process.**

19.6.23 The comparison between actual and planned results also provides a systematic basis for evaluating and revising beliefs, thereby laying the ground for improved forecasts in the future.

19.6.24 Budget package should include pro forma financial statements along with different standalone budget. Illustrative templates of pro forma financial statements are provided in Appendix 19B.

19.6.25 The forecast amounts included in pro forma financial statements can be determined using several different methods. Management may specify a target goal. Past trends may be extrapolated to the future. Past trends may be adjusted for anticipated changes in economic conditions, technology, industry demand and supply, etc. Amounts may be taken from cash or capital budgets or other relevant budgets operating budget of master budget. Finally, some amounts may merely be "plugs," as is the case when the amount of debt or equity financing is determined by the amount required to bring the statement of financial position into balance.

19.6.26 Preparing pro forma financial statements is a complicated iterative process, particularly when it comes to projecting amounts for capital expenditures, debt and equity financing, and the associated amortization and interest expenses. As well, it is often necessary to recast the statements when profitability projections prove to be below desirable goals or when expansion options are too optimistic given available financing.

19.6.27 Preparation of pro forma financial statements begins with preparation of a pro forma statement of profit or loss and other comprehensive income. Once the statement of profit or loss and other comprehensive income projections are complete, a pro forma statement of financial position may be prepared, in which case the statement of cash flows becomes a by-product of the statement of profit or loss and other comprehensive income and statement of financial position. Alternatively, preparation of the statement of profit or loss and other comprehensive income may be followed by development of a

statement of cash flows, and the statement of financial position may be prepared last. A hybrid approach may also be used where some statement of financial position and statement of cash flows items are developed simultaneously.

19.7 Recording and Reporting

19.7.1 Organization should have a well designed budget manual explaining every detail with budget preparation, implementation, evaluation, and appraisal system to be complied with.

19.7.2 Regarding budget process, the following administrative details are required to reduce any confliction:

- a) Members of budget committee and their relationship;
- b) Target setting process for preparation of budget;
- c) Validation process of budget figures;
- d) Details on budget period, budget unit, policy for pro forma presentations etc; and
- e) Budget review and appraisal process along with audit trial to evaluate the reasonableness and accuracy of the budget.

19.7.3 Regarding budgets, following records are highly desired for reporting internally as per requirement:

- a) Financial formula or models based on which budget is prepared;
- b) Non-repetitive information other that from financial modeling required for budgeting and preparing pro forma financial statements, e.g., capital expenditure, issuance or debt or equity etc.;
- c) Pro forma financial statements in line with the templates provided in appendix;
- d) Analysis of variances and corrective actions taken;
- e) Post-evaluation report; and
- f) Any other reports as required by management in this regard.

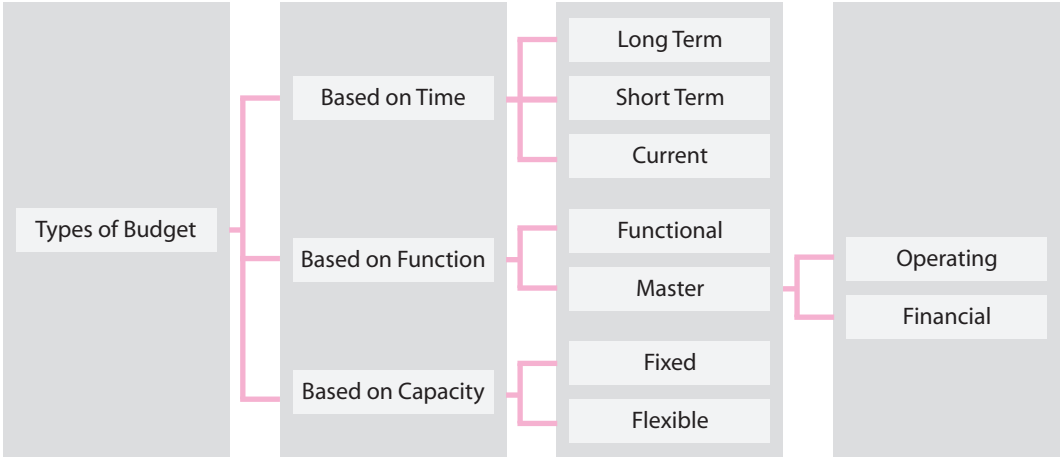
19.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

Appendix 19A

Classification of Budgets

Budgets can be classed from various perspectives as outline in the figure below followed by a brief explanation.



Based on Time

a) Long-Term Budgets: Long-term budgets are prepared for a longer period varies between five to ten years. It is usually developed by the top level management. These budgets summarize the general plan of operations and its expected consequences. Long-Term Budgets are prepared for important activities like composition of its capital expenditure, new product development and research, long-term finance etc.

b) Short-Term Budgets: These budgets are usually prepared for a period of one year. Sometimes they may be prepared for shorter period as for quarterly or half yearly. The scope of budgeting activity may vary considerably among different organization.

c) Current Budgets: Current budgets are prepared for the current operations of the business. The planning period of a budget is generally set in months or weeks. As per ICMA London, "Current budget is a budget which is established for use over a short period of time and related to current conditions."

Based on Function

a) Functional Budget: The functional budget is one which relates to any of the functions of an organization. The number of functional budgets depends upon the size and nature of business. The following are the commonly used functional classification for budget purpose:

- i) Sales Budget
- ii) Purchase Budget
- iii) Production Budget
- iv) Selling and Distribution Cost Budget
- v) Labor Cost Budget
- vi) Cash Budget
- vii) Capital Expenditure Budget

b) Master Budget: The Master Budget is a summary budget. This budget encompasses all the functional activities into one harmonious unit. The ICMA England defines a Master Budget as the summary budget incorporating its functional budgets, which is finally approved, adopted and employed. The following figure presents the Master Budget with interrelationship among the functional activities:

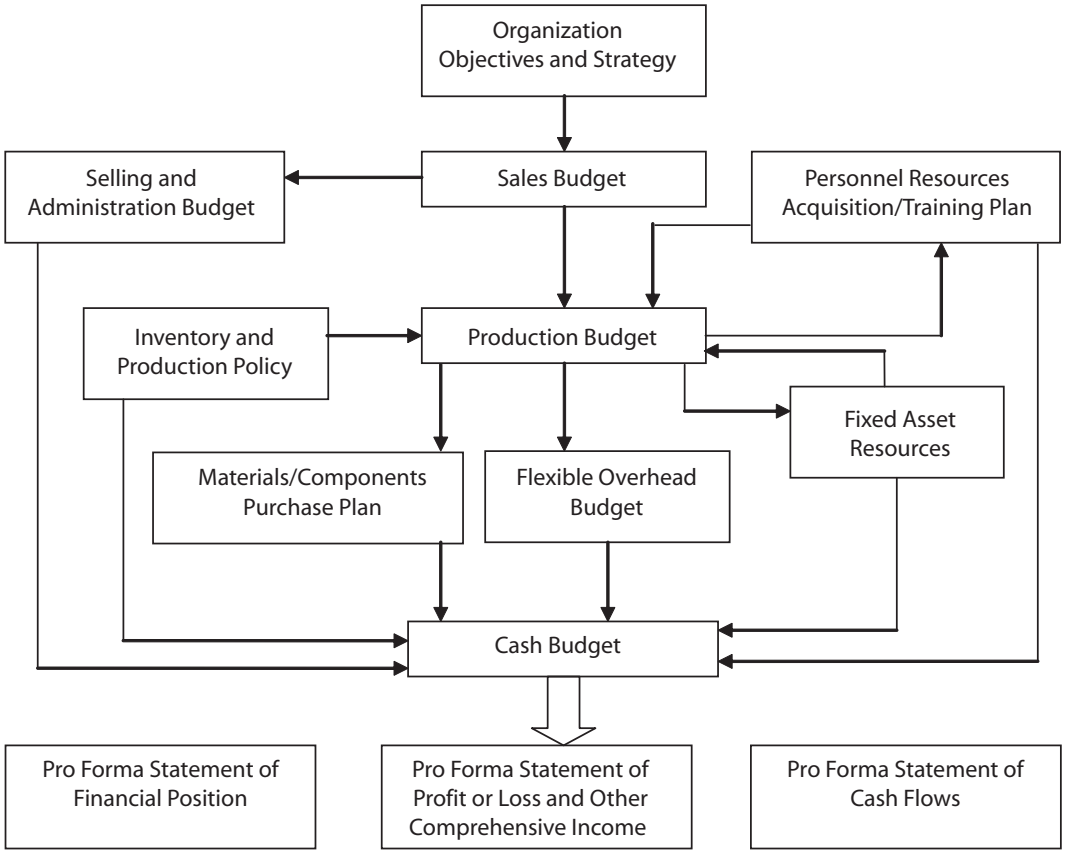


Figure: Major Components of Master Budget

There are two broad types of budgets within the master budget:

1. **Operating budgets** project and summarize the details of operations. Included in this group are all the elements above the dotted line; and
2. **Financial budgets** summarize the financial consequences of the operating budgets. These budgets include the pro forma statement of financial position, Statement of profit or loss and other comprehensive income, and statement of cash flows.

A critical design issue for the master budget is that it must reflect the organization's goals and strategies. That is, the master budget should clearly show how well the proposed operating plan achieves the organization's stated objectives.

Based on Capacity

a) **Static Budget:** A static budget is designed to remain unchanged irrespective of the level of activity actually attained.

b) Flexible Budget: A flexible budget is a dynamic budget which is designed to change in accordance with the various level of activity actually attained. The flexible budget also called as Variable Budget or Sliding Scale Budget, takes both fixed, variable and semi fixed manufacturing costs into account.

Appendix 19B

Illustrative templates for Pro Forma Financial Statements

This appendix presents some templates that may be customized and used for presenting pro forma financial statements (e.g., pro forma statement of financial position, pro forma statement of profit or loss and other comprehensive income, and pro forma statement of cash flow) along with supporting notes to be used by the preparers. Provisions have been made to present the statements in a comparative manner where current year's facts and figures (actual) can be presented along with the budgeted facts and figures for the budget period (next year). Even the pro forma statements can be extended further for one or two more years if the organizations like to forecast the courses of actions for a period covering more year(s). Even these expanded forms can be used as a tool for simulation showing the results by changing the bases in different economic scenarios (optimistic, most likely and pessimistic).

Statement of Profit or Loss and Other Comprehensive Income

Particulars	Notes	Actual 20X0	Pro Forma		
			20X1	20X2	20X3
Revenue Less: Cost of Goods Sold					
Gross Profit					
Operating Expenses: Marketing Research and Development General and Administrative Interest Amortization Total Operating Expenses					
Other Income (Expense)					
Non-continuing Items					
Income before Income Taxes					
Provision for Income taxes					
Income before accounting change					
Cumulative effect of accounting change					
Net Income					
Preferred stock dividends					
Net income available for common shareholders					
Basic earnings per share before accounting change					
Diluted earnings per share before accounting change					
Basic earnings per share					
Diluted earnings per share					

Prepared by: .....

Date: ..... Executive Director: .....

Statement of Financial Position

Assets	Notes	Actual 20X0	Pro Forma		
			20X1	20X2	20X3
Current Assets					
Cash and cash equivalents					
Accounts receivable					
Short term investments					
Inventories					
Prepaid expenses					
Total current assets					
Property, Plant and Equipment, net					
Equity and other investments					
Goodwill					
Intangible assets, net					
Other long-term assets					
Total Assets					
Liabilities & Shareholders' Equity					
Current Liabilities					
Operating loan					
Accounts payable					
Accrued liabilities					
Taxes payable					
Current portion of long-term loan					
Others					
Total current liabilities					
Long Term Loan					
Other long term liabilities					
Total Liabilities					
Shareholders' Equity					
Common shares					
Retained earnings					
Total Liabilities & Shareholders' Equity					

Prepared by: .....

Date: ..... Executive Director: .....

Statement of Cash Flows

Particulars	Notes	Actual 20X0	Pro Forma		
			20X1	20X2	20X3
Cash provided/used by Operating Activities					
Net income					
Adjustments to reconcile net income to net cash from operations:					
Depreciation, amortization, and other					
Stock-based compensation expense					
Net recognized gains on investments and derivatives					
Excess tax benefits from stock-based compensation					
Deferred income taxes					
Deferral of unearned revenue					
Recognition of unearned revenue					
Changes in operating assets and liabilities:					
Accounts receivable					
Inventories					
Other current assets					
Other long-term assets					
Accounts payable					
Other current liabilities					
Other long-term liabilities					
Net cash from operations					
Cash provided/used by Investing Activities					
Additions to property and equipment					
Acquisition of companies, net of cash acquired, and purchases of intangible and other assets					
Purchases of investments					
Maturities of investments					
Sales of investments					
Securities lending payable					
Net cash used in investing					
Cash provided/used by Financing Activities					
Short-term debt repayments					
Proceeds from issuance of debt					
Repayments of debt					
Common stock issued					
Common stock repurchased					
Common stock cash dividends paid					
Excess tax benefits from stock-based compensation					
Other					
Net cash used in financing					
Effect of exchange rates on cash and cash equivalents					
Net change in cash and cash equivalents					
Cash and cash equivalents, beginning of period					
Cash and cash equivalents, end of period					

Prepared by: .....

Date: ..... Executive Director: .....



BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 20

Activity Based Management

BACS 20: Activity Based Management

20.1 Introduction

Activity Based Management (ABM) deals with the procedures or phases of implementing ABM system in organization. Each organization requires information to make decisions, set priorities, allocate resources and monitor the actions taken. Activity Based Costing (ABC) covers the accounting perspective to provide the accurate cost information and ABM undertakes a managerial perspective focusing on using information generated by ABC to manage activities and improve the business. The analysis done in ABC provides both financial and non-financial information which is the basis for ABM. It makes the cost and operational information (activity information) useful by providing a value analysis, cost and activity driver analysis, and performance measures to initiate and support various improvement efforts with an ultimate goal of improving the quality of decision.

20.2 Objectives

The standard focuses on the procedures of implementing Activity Based Management in organizations for operational growth as well as improved decision making. More specifically, it tries to propose standardized procedures of implementing the ABM for the management accountants and others who want to implement ABM system in their respective organizations.

20.3 Scope

20.3.1 The standard provides general guidelines for implementing ABM system in manufacturing as well as service organizations for improvement of operations and better decision making.

20.3.2 More particularly, the standard may be applied by the management accountants, as well as others who want to implement ABM in their organizations, among others, for the following purposes:

a) **Attribute analysis:** Under attribute analysis costs and performance data are classified and combined into manageable and controllable clusters. ABM system can use different attributes or data tags for a specific cost. These data attributes help management of the companies to perform different dimensions of management problem using the same basic warehouse/ storage of data. Some common forms of attribute analysis are value analysis, time variability analysis, cost of quality analysis etc.

b) **Strategic analysis:** ABM system supports strategic analysis by providing both strategic and operational information. Strategic analysis, using ABM, may include: strategic planning/budgeting, consolidation of operations analysis, acquisition analysis, and analysis of revenue and growth potential.

c) **Benchmarking:** ABM supports different type of benchmarking e.g. internal benchmarking, industry/ competitive benchmarking, best-in-class benchmarking etc.

d) **Operational analysis:** ABM may be used to perform operational analysis, including "what-if" analysis, project management, creation and use of activity based performance measures, capacity management, constraints analysis, process based costing etc.

e) **Profitability/ pricing analysis:** Organizations may use ABM in analyzing costs and benefits of products/ services and processes both in the present scenario and post-improvement scenario. ABM can also be used in pre-launch analysis and improvident of product/ service profitability. ABM facilitates other analysis including product/ service profitability analysis, distribution channel profitability analysis, market segment profitability analysis, target and life-cycle costing etc.

f) **Improvement of operating process:** ABM may be used for improvement of operating process identifying causes of variation, waste, inefficiency and then taking incremental or quantum change efforts to increase the value per resources consumed by an organization. Process improvement may include business process modeling, business process reengineering, total quality initiatives, analysis of outsourcing, shared services opportunities etc.

g) **Product mix:** ABM may help to take decision regarding the product mix- which products to produce/ sale and at what proportion.

20.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

20.4 Key Features

The key features of this standard are pointed below -

a) Presenting activity based management system;

b) Identifying different steps in implementing ABM system;

c) Analyzing both value added and non-value added activities for improving performance;

d) Applying benchmarking technique to ensure continuous improvement; and

e) Listing some ratios, values and measures to trace the improvements caused by ABM.

20.5 Definitions

The following terms are used in this standard with the meanings specified -

20.5.1 Activity Based Costing: As defined in BCAS 14.5.1.

20.5.2 Cost driver or activity driver: As defined in BCAS 3.5.6.

20.5.3 Value added activities: An activity of the process for which the perceived value to the customers will be reduced if it is eliminated.

20.5.4 Non-value added activities: An activity which has the potential to be eliminated without impairing or reducing the perceived value to the customers.

20.5.5 Value added time: The time required to complete all the value-added activities of the process.

20.5.6 Total cycle time: Total time required for all the activities of the process (i.e. total time required to complete a particular process).

20.5.7 Value added cost: Total costs added by all the value added activities of a process.

20.5.8 Value analysis: The process of utilizing information collected about business process and examining various attributes of the process (e.g. diversity, complexity, capacity etc.) to identity candidates for improvement efforts.

20.5.9 Time variability analysis: Analysis of the variances in the time needed to complete an activity or provide a service with standard time allowed for the same and to develop ways to reduce these variances.

20.5.10 Cost of quality: A management reporting technique where quality costs within an organization are identified and measured using four basic categories- prevention, detection, internal failure, and external failure.

20.5.11 Benchmarking: A methodology, where an activity is identified as standard, or a benchmark, by which a similar activity will be judged.

20.5.12 Operational analysis: An analysis which seeks to identify, measure, and improve current performance of key processes or operations within an organization or firm.

20.6 Standard

20.6.1 An overall assessment of key business processes and activities should be conducted in a way that all activities in that processes are identified. Each activity should be quantified to reflect its contribution to the achievement of process objectives, where the process objectives will reflect customers' requirements in terms of costs, quality and service and achievement of overall strategic objectives of the organization. Activity Based Management should be considered as a tool to continuously increasing the value addition to customers and improve the overall strategic performance of the organization.

20.6.2 The below mentioned stages may be followed in implementing the ABM in an organization to manage and improve activities:

a) Identification of process objectives

b) Mapping the process

c) Quantification of the activities in the process

d) Identification of value-added and non-value-added activities

e) Analysis of critical activities

f) Benchmarking the activities

g) Continuous improvement of the activities

20.6.3 The starting point of the activity management should be with specifying the process objectives due to the fact that individual activities to be performed under a process will be evaluated considering the process objectives.

20.6.4 The process objectives, in turn, would reflect the requirements of target customers for the product produced or service rendered. Process objectives, therefore, would reflect the results of strategic planning chosen to meet the customers' requirements, to increase the value addition to customers and generally include cost, quality and service considerations.

20.6.5 Process mapping includes sequentially identifying each of the activities in a process i.e.

visually representing each of the steps of a process. Process map will provide a common understanding of the entire process and what specific roles played in and contributions made to the achievement of process objective by process participants (process activities).

20.6.6 Operating personnel having the experience of managing and running the processes directly need to be involved in process mapping job to ensure that all the process activities are included.

20.6.7 Each of the activities under a process will be assigned measures for particular process objective and these measures will involve quantifying not only the costs but also the time and quality associated with a process activity. It involves finding what cost and/or time is required per unit of cost driver of that particular activity. The techniques of Activity Based Costing (ABC) will be used for the purpose.

20.6.8 It will not be appropriate to confine process measurements to cost only. The failure to consider strategic variables other than costs will limit the ability of the activity-based management to identify the improvements on strategic management process other than cost, and hence the objective of the activity-based management will not be achieved.

20.6.9 Quantifying each activity of the process will provide information about how each activity contributes to the organization's overall performance on its key strategic variables and also the process improvement efforts can be prioritized.

20.6.10 A thorough analysis of each of the process activities will have to be conducted to classify it as value added or non-value added. If it is found that the activity can be eliminated with no deterioration of the product attributes- performance, functionality, quality, perceived value - it will be classified as non-value added activities. If not, the activity should be classified as value added activities.

20.6.11 Necessary care should be taken to classify value-added and non-value-added activities because reporting an activity as non-value-added can become a sensitive issue having human factor on it. Nobody wants to be labeled as performing non-value-added activities. Focus should be given on activities, not on the people who perform the activities.

20.6.12 Practically it may not be possible to analyze all of the activities at once because time and resources are limited. Therefore, it is required to focus on the most critical activities which all add value to customers or help the business to operate effectively and efficiently.

20.6.13 To identify critical activities, major activities of the process may be listed with the time and cost associated against each of the activities. The activities consuming maximum time may be termed as the time-critical and with the maximum costs may be considered as cost-critical. For this purpose time weight and cost weight of each of the activities may be determined as follows:

Time weight of the activity A (W_{tA})=T_A Ö T_{Total}, where T_A is the time required by activity A and T_{Total} is the total time of the process

Cost weight of the activity A (W_{cA})=C_A ÖC_{Total}, where C_A is the cost of activity A and C_{Total} is the total cost of the process.

Total weight, then, may be calculated by summing up time-weight and cost-weight of each of the activities under the process.

20.6.14 The activities may be ranked considering the time weight or cost weight or total weight as per requirement. If the objective is to reduce cost, rank may be done based on cost weight and so on. The activities may be ranked in descending order with the highest time weight/ cost weight/ total weight comes first. The activity with the highest cost/ time/ total weight will be considered as the most critical activity and may be chosen for improvement first. Depending on the time and resources availability other critical activities may be identified accordingly considering the weight of that particular activity.

20.6.15 Activities under the process should be benchmarked to determine the standards for performance. Benchmarking can be done within the organization (comparing with the similar activities of other departments/ units), within the industry (comparing with best practice in the industry for performing the similar activities), with the competitors (comparing with how the competitors do in the performance of similar activities).Benchmarking can focus on the ideal way to design a particular activity under a process or an entire process. It is suggested that the benchmarking should focus on the critical activities as identified in the previous step, which can be expanded gradually.

20.6.16 In the benchmarking process the activities may be measured based on factors like quality, lead-time, flexibility, cost, customer satisfaction or other factors which the organization may choose to improve. After the activities are measured those can be rated against an identified best practice and can find the areas where there is scope for improvement.

20.6.17 **Although the objective of the ABM is to eliminate the non-value activities, in the case they are not practically possible to be eliminated in the short run the non-value-added activities can be a target for continuous improvement.**

20.6.18 **Continuous efforts should be there to continuously improve the performance of value-added activities or critical activities. Continuous efforts include documenting, understanding and improving the existing activities so that their performance meets the process objective.**

20.6.19 Some of the strategies or methods to improve the performance of the activities may include, among others, the following:

a) Reduction in the time or effort required to perform an activity under the process - This reduction may be made through process or product improvement.

b) Elimination of unnecessary activities - If an activity is not valued by customer or not essential for running the organization can be subjected for elimination.

c) Selection of low-cost activities - Designers of products and processes may have the choices among competing activities. This offers a means for reduction of cost by picking the lowest cost activity.

d) Sharing of activities - In the case customer has common needs it is wasteful not to serve those needs with the same activities. Product designers can use common parts- one which is used in several products to perform the same function- in new product designs. The activities associated with the common part- part number maintenance, scheduling, vendor relations etc. can be shared by all products that use them.

20.7 Recording and Reporting

20.7.1 Documentation is an important part of ABM system. The ABM documentation may include the following:

a) Business process relationship map;

b) List of key and significant activities including possible performance measures and cost drivers for each of key and significant activities;

c) The information about benchmarking of processes/ activities;

d) Requirements of ABM implementation and available resources; and

e) The activities taken, results, conclusions and recommendations for future in a documented forms.

20.7.2 There should be a continuous system for reporting the performance measurements. The performance measurements may be linked with the objective/ target for improvement. The performance measures may include the following:

$$\text{Manufacturing cycle efficiency} = \frac{\text{Value added time}}{\text{Total cycle time of process}}$$

$$\text{Manufacturing cycle efficiency} = \frac{\text{Value added costs}}{\text{Total process costs}}$$

20.7.3 Performance measurement can be done for each of the key/ significant activity of the process. For example, the time and/or cost required to complete the activity earlier may be compared to that is required after taking the necessary efforts for reducing the same.

20.7.4 Performance measurement may also be qualitative ones.

20.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

Appendix 20A

Steps in Activity Based Management

It is very important to follow discipline while applying ABM to get maximum benefit out of the implementation of ABM. The ABM implementation team must work on it before starting any such activities. Following steps are provided to guide the team for smooth implementation of ABM which is a part of this standard.



Appendix 20B

Example on application of Activity Based Management in a small company

ABC Limited ("The Company") is a small company, operates in the picture framing industry. It produces four types of machines (viz. sander, splitter, shaper and foiler) for the purpose of picture framing. Machines are produced in standard specifications and as per customers' requirements. The parts/ materials required to manufacture those machines are purchased from sub-contractors and suppliers. The assembly of all of these parts is the main activity of the company. The company works in a traditional way and does not employ Activity Based Management (ABM) practice presently.

In the following sections it is shown how ABM can be implemented in the ABC Limited.

Step 1: Identification of process objectives

Let us identify the process objective be providing more value to customers by giving products with reduced cost

Step 2: Mapping the process

Using ABC technique it is found the following are the major activities done regarding four-head foiler production before the point of marketing and distribution:

a) Purchasing
b) Assembling
c) Inventorying
d) Inspection
e) Engineering support
f) Personnel support
g) Material handling (movements among the processes)
h) Miscellaneous activities

Step 3: Quantification of the activities in the process

ABC also provides the following information regarding the quantification of the above activities for a month:

Name of activity	Cost of the activity (Taka)	Cost driver	Volume of cost driver	Cost driver rate (Taka)
Purchasing	39,648.0	No. of orders	16	2,478.0
Assembling	106,370.4	Labor hours	82	1,297.2
Inventorying	58,944.0	Stock value	192,000	0.3
Inspection	22,140.0	No. of inspection	450	49.2
Engineering support	177,600.0	Staff hours	80	2,220.0
Personnel support	36,096.0	Labor hours	470	76.8
Material handling	24,480.0	No. of movements	1020	24.0
Miscellaneous activities	99,840.0	Labor hours	520	192.0
Total manufacturing overhead	565,118.4			

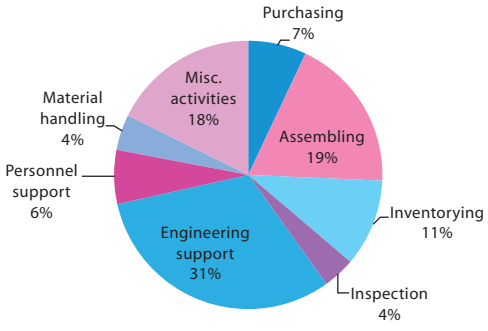
Step 4: Identification of value-added and non-value-added activities

The above mentioned activities can be grouped into value-added and non-value-added activities as follows:

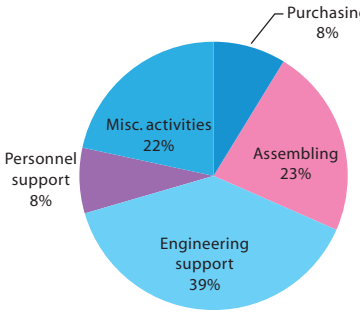
Valued added activities	Non-value-added activities
Purchasing	Inventorying
Assembling	Inspection
Engineering support	Material handling
Personnel support	
Misc. activities	

Step 5: Analysis of critical activities

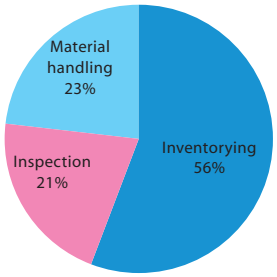
To understand the critical activities we have to know the cost weight of the activities at first, because the objective is to reduce the cost. The cost weight of each the activities among all activities, cost weight of each of the value-added activities among value-added activities only and cost weight of each of the activities among non-value-added activities only are shown in various charts as follows:



Percentage of total cost of activities



Percentage cost of value-added-activities



Percentage cost of non-value-added-activities

To find out the critical activities the activities may be ranked taking first the activities, which have got the highest percentage of cost weight. Top ranked activities will be called the most critical activities and so on. Based on the cost weight the ranking is shown below:

Ranking among all activities		Ranking among value-added activities		Ranking among non-value added activities	
Activities	Ranking	Activities	Ranking	Activities	Ranking
Engineering support	1	Engineering support	1	Inventorying	1
Assembling	2	Assembling	2	Material handling	2
Misc. activities	3	Misc. activities	3	Inspection	3
Inventorying	4	Purchasing	4		
Purchasing	5	Personnel support	5		
Personnel support	6				
Material handling	7				
Inspection	8				

It is found here in the above table engineering support is the no. 1 ranked activities among all the activities, including both value-added and non-value-added activities. Therefore, it is the most critical among all activities followed by assembling. Within the value-added activities the scenario is same. Within the non-value-added activities inventorying is the most critical, followed by material handling and inspection.

Although it is ideal to eliminate all the non-value-added activities, it may not be practically possible to do so. Similarly it may not be practically possible to focus on all the value-added activities for improvement. In this case only top two critical non-value-added activities and top two critical value added activities have been focused for elimination or improvement as the case may be.

Step 6: Benchmarking the activities

Benchmarking includes comparing the activities of the company with the best practices followed by other companies in the industry/ competitors/ within the organization to perform the similar activities. In this case we are comparing four activities as selected in the previous step with one of the competitors ("The Competitor"), which is assumed to follow best practices in the industry. The comparisons are mentioned below:

Top two critical non-value-added activities

i. Inventorying:

Analyzing the inventory level and inventory related activities it is observed that presently the company is maintaining stock at a high level and there is no specifically assigned person for monitoring the stock related activities resulting in huge amount of inventory and inventory carrying cost.

The Competitor is following Just-In-Time (JIT) principle for inventory purchasing using EDI (Electronic Data Interchange) system for giving purchase order and for other related communications with the vendor so that it can get the desired inventory at the desired time. They have selected vendors with proven quality. They have also specifically designed staff for properly monitoring the inventory related activities.

ii. Material handling:

As per present practice of the company, material is moved from warehouse to various processing stations e.g. from warehouse to drilling station, drilling station to milling station, milling station to turning station. And the material is moved manually by laborer. It is also observed the layout of the processing stations is distant from one to another and in a straight line shape; therefore, materials need to be moved over much longer routes within the factory premises.

The competitor is using multi-purpose robotic machines for carrying the materials from one processing stations to the next. Also the layout of the processing stations has been designed in a round shape, so that robotic machines can carry the material quickly moving around small distance.

Top two critical value-added activities

i. Engineering support:

The machines used by ABC for drilling, milling, turning etc. are very old, which are labor intensive. To perform activities using these machines require huge amount of staff hours.

The competitor is using the latest model of the machines, operations of which require 1/4th of the staff hours consumed by the model presently used by ABC.

ii. Assembling:

Presently the assembly activity, the main function of ABC, is done totally by manually.

For assembling purpose the competitor is using semi-automatic procedures, which can increase the capacity many times and also require very minimum quantity of labor hours.

Step 7: Continuous improvement of the activities

For non-value-added activities the aim is to eliminate totally. However, it may not be practically possible to eliminate totally. In that case the target is to continuously improve the same. For value added activities the target is continuously improve the performance.

Inventorying:

ABC can eliminate maintaining any inventory by implanting JIT system. But to implement a perfect JIT system they need to establish a quick system of ordering and other communication like EDI system. They need to develop a vendors' base that have got the ability to supply required quantity, with required quality, immediately after providing the order. All these has got time and cost involvement. Therefore, ABC can plan to implement the same gradually and reduce the inventory related cost gradually on a continuous basis.

Alternatively, if ABC does not have sufficient resources and capacity, at this moment, to implement a perfect JIT system, it can assign the responsibility of monitoring the inventory related activities to one (or more) staff, so that inventory level can be maintained at minimum level whilst the chance of stock out is kept at an acceptable level.

Material handling:

Material handling can't be eliminated totally. So the target is to continuously improve the performance. ABC can purchase a robotic machine, instead of human being, for carrying the materials from one processing station to the next. At the same time the layout of processing stations may be changed in a way so that one robotic machine can move all the materials from one station/ operation to the next just moving around there. The cost of the robotic machine should be justified i.e. cost of robot should be less than cost of the labor hours saved.

Engineering support:

ABC can use upgraded version of machines for its drilling, milling and turning operations instead of old aged versions. However, it needs to check whether the benefits received from upgraded

versions of machines in terms of reduced staff hours and reduced cost exceed the cost of installing new-upgraded version of machines.

Assembling:

For assembling functions also ABC Ltd. can go for automation/ semi-automation instead of present manual system. In this case also cost-benefit analysis should be made to ensure that benefit is more than cost.

Reporting

For reporting purpose we can calculate the progress of the ABM implementation. Let us calculate the performance measurements, in terms of cost, before and after taking the initiatives for continuous improvement under ABM. For the purpose of reporting the progress on implementation status of ABM let us assume that at the date of reporting initiatives for elimination/ continuous improvement on two most critical non-value-added activities have been taken. The initiatives on the value-added activities are yet to be taken.

Before the report is made let us also assume the following:

ABC has implemented near-to-perfect JIT inventory system and the level of average inventory has been reduced to Tk. 10,000 from Tk. 192,000. Therefore, the carrying cost will be reduced to Tk. 3,000 (Tk. 10,000 X 0.3 per month) per month from Tk. 58,944.0 per month. However, to implement the JIT system ABC had to invest Tk. 180,000 for electronics equipment (for EDI), which is to be depreciated in five years and Tk. 24,000 per year (i.e. Tk. 2,000 per month) other fixed expenses. Therefore, the net inventorying cost after implementing JIT is as follows:

Carrying cost	Tk. 3,000
Other fixed incremental cost per month (3,000+2,000)	5,000
Total	Tk. 8,000

For material handling ABC procured a multi-purpose robot with Tk. 108,000, which reduced the number of material movements to 1/4th (i.e. from 1020 to 255 movements). The net cost of material handling after the robot is used as follows:

Material handing (Tk. 255 X 24)	Tk. 6,120
Depreciation of the robot per month	1,800
Total	Tk. 7,920

The report on the progress on implementation of ABC may be prepared as follows:

Particulars	Previous measurement	Present measurement	Remarks
Inventorying cost (Taka/ month)	58,944	8,000	Cost reduced by 86%
Material handling cost (Taka/ month)	24,480	7,920	Cost reduced by 68%
Manufacturing cycle efficiency (MCE)*	81.3%	92.3%	MCE improved

*Calculation of MCE:

a) Before implementation of ABM:

- = Cost of value-added activities/ Total cost
- = (39,648.0+106,340.4+177,600+36,096.0+99,840.0)/ 565,118.4
- = 81.3%

b) After implementation of ABM:

- = Cost of value-added activities/ Total cost
- = (39,648.0+106,340.4+177,600+36,096.0+99,840.0)/ 497,614.4
- = 92.3%

The same report may be generated after taking more initiatives on the same activities or taking other initiatives on other critical activities and progress may be assessed on the benefits received from implementation of ABM gradually.



BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 21

Capital Budgeting

BCAS 21: Capital Budgeting

21.1 Introduction

Investments in long-term assets are usually large and last for extended periods of time. Moreover, these investments are usually prohibitively costly to adjust in terms of scale and scope. For this reason, investments in long-term assets are called committed costs. These committed costs may impose more financial risk (the risk of financial failure) and technological risk (the risk of being burdened with outdated assets) on the organization because of their size and duration if they are not wisely planned. These risks have led to the evolution of capital budgeting, which is a systematic approach to evaluating the investment in long-term assets. Some examples of capital expenditure may be the cost of mechanization, balancing, automation and replacement; the Cost of acquisition of fixed assets; significant investment in research and development; the cost of development and expansion of existing and new projects etc. As the firm grows, it needs to address more areas of long term investments to keep pace with the market forces. It requires huge amount of investments and thus management needs to make a careful balancing among different sources of funds. Due to these reasons together, the capital budgeting is considered as a very important traditional domain of decision making. This standard will guide the decision makers to take a holistic approach considering both risk and return parameters that may be generated due to investment in long term assets.

21.2 Objectives

The objective of this standard is to provide guidance on Capital Investment decision. To accomplish that this standard establishes principles and requirements -

a) To ensure the selection of the possible profitable capital projects;
b) To ensure the effective control of capital expenditure by forecasting the long-term financial requirements;
c) To make estimation of capital expenditure during the budget period and to see that the benefits and costs may be measured in terms of cash flow;
d) To determine the required quantum takes place as per authorization and sanctions;
e) To facilitate co-ordination of inter-departmental project funds among the competing capital projects; and
f) To ensure maximization of profit by allocating the available investible funds.

21.3 Scope

21.3.1 This standard is applicable to all capital expenditures decisions undertaken by companies.

21.3.2 More specifically, this standard targets to provide guidance on capital expenditure decisions related to -

a) Acquisition of long term assets;
b) Identifying the mostly profitable investment from some alternatives;
c) Presenting different techniques of capital budgeting;
d) Using cash flow information in decision making; and
e) Bringing some other issues used in long term investments like risk, cost of capital, financing etc.

21.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

21.4 Key Features

The key features of this standard are pointed below -

- a) Presenting different techniques of capital budgeting
- b) Identifying relevant data for capital budgeting decisions
- c) Appraising the methods in a given situation
- d) Guiding decision makers with the particular information required for such decisions

21.5 Definitions

The following terms are used in this standard with the meanings specified -

21.5.1 **Capital budgeting:** Capital budgeting, or investment appraisal, is the planning process used to determine whether an organization's long term investments such as investment in new machinery, replacement of existing machinery, installing new plants, launching new products, and research development projects are worthy for funding of cash through the firm's capitalization structure (debt, equity or retained earnings). It is the process of allocating resources for major capital, or investment, expenditures.

21.5.2 **Cost of capital:** Cost of capital refers to the opportunity cost of making a specific investment. It is the rate of return that could have been earned by putting the same money into a different investment with equal risk. Thus, the cost of capital is the rate of return required to persuade the investors to make a given investment.

21.5.3 **Weighted average cost of capital:** The weighted average cost of capital (WACC) is the rate that a company is expected to pay on average to all its security holders to finance its assets.

21.5.4 **Nominal required rate:** It is the interest rate on an investment or loan without adjusting for inflation. The nominal interest rate is simply the interest rate stated on the loan or investment agreement. If one makes a loan at a high nominal interest rate, this does not guarantee a real profit. For example, if the nominal interest rate on a loan is 7% and the inflation rate is 4%, the real interest rate is only 3%.

21.5.5 **Real required rate:** It is the minimum acceptable rate of return on an investment proposal that is comparable with the rate of return obtainable effortlessly and at a low level of risk in the financial markets (such as on a time deposit in a bank).

21.5.6 **Inflation rate:** The rate at which the general level of prices for goods and services is rising, and, subsequently, purchasing power is falling.

21.5.7 **Risk free interest rate:** Risk-free interest rate is the theoretical rate of return of an investment with no risk of financial loss. One interpretation is that the risk-free rate represents the interest that an investor would expect from an absolutely risk-free investment over a given period of time.

21.5.8 **Free Cash Flow:** A measure of financial performance calculated as operating cash flow minus capital expenditures. Free cash flow (FCF) represents the cash that a company is

able to generate after laying out the money required to maintain or expand its asset base.

21.5.9 **Financial risk:** Financial risk is an umbrella term for multiple types of risk associated with financing, including financial transactions that include company loans in risk of default. Risk is a term often used to imply downside risk, meaning the uncertainty of a return and the potential for financial loss.

21.5.10 **Technological risk:** Such risk is the exposure to loss arising from activities such as design and engineering, manufacturing, technological processes and test procedures.

21.5.11 **Time value of money (TVM):** Price put on the time an investor or lender has to wait until the investment or loan is fully recouped. TVM is based on the concept that money received earlier is worth more than the same amount of money received later, because it can be 'employed' to earn interest over time.

21.5.12 **Payback period:** Payback period in capital budgeting refers to the period of time required to recoup the funds expended in an investment, or to reach the break-even point.

21.5.13 **Discounted payback period:** Discounted payback period is a variation of payback period which accounts for time value of money by discounting the cash inflows from a project.

21.5.14 **Internal Rate of Return (IRR):** The discount rate that makes the net present value of all cash flows from a particular project equal to zero.

21.5.15 **Accounting Rate of Return (ARR):** It is also known as the average rate of return. The ratio does not take into account the concept of time value of money. ARR calculates the return generated from net income of the proposed capital investment.

21.5.16 **Profitability Index:** Profitability index is the ratio of payoff to investment of a proposed project.

21.6 Standards

21.6.1 **Capital budgeting analysis requires a systematic appraisal of long-term investments in the form of estimated cash flows, rates of return, risk profile and sources of financing.**

21.6.2 A common error made in capital budgeting is to assume that the cash flows associated with the status quo investment will remain constant throughout the period of comparison with an alternative project. For example, an organization contemplating an investment in new machinery that promises quality benefits would compare the cash flows expected from the new machinery with those expected if the existing machinery is kept. What is often done is to assume that the cash flows associated with the existing machinery will be the existing cash flows projected into the future. This assumption is frequently invalid since it assumes that no competitor will acquire the technology promised by the proposed new machinery. Projecting cash flows associated with existing machinery into the future in the presence of new technology tends to overestimate the cash flows associated with the existing machinery and to provide a bias against the new acquisition.

21.6.3 **The appropriate rate to use in discounting the project's estimated cash flows is the organization's nominal weighted average cost of capital provided that the risk profile of the project under consideration is equivalent to the risk profile of the firm.**

21.6.4 Borrowing from financial economics, some analysts use a discount rate that reflects the project's systematic risk. This approach is not appropriate in every instance since it fails to reflect the financial leverage provided by long-term debt in the organization's capital structure.

21.6.5 Some analysts use the organization's average return on investment as the discount rate to compute the project's net present value. The integrity and economic interpretation of the net present value method require that the rate used to discount project cash flows should be the nominal weighted average cost of capital. Using the organization's average return on invested capital does not provide any appropriate economic insights, since it does not compare the project's cash flows to the baseline criterion that reflects the organization's cost of capital.

21.6.6 Different approaches to capital budgeting can be usefully divided into two broad groups:

- Those that consider the time value of money systematically; and
- Those that do not consider the time value of money systematically.

21.6.7 Most widely used technique that does not consider time value of money is payback period. The Payback Criterion computes the amount of time taken to recover the initial investment.

21.6.8 There are two problems with the payback criterion. First, it ignores the time value of money. This raises the possibility that a project could have an acceptable payback but a negative net present value. Second, the payback criterion ignores any cash flows that occur beyond the payback period. A project with higher initial cash flows, and hence a faster payback period would be preferred to an alternative project with lower initial cash flows but a much higher net present value.

21.6.9 Handling projects that have significant cash outflows later in the project life, such as significant project shutdown costs, is problematic. One alternative is to include all cash outflows, whenever they occur as the amount to be recovered. However, this further exacerbates the problem created by ignoring the time value of money. Therefore, and despite its popularity and widespread use, the payback method is not recognized as a systematic or supportable approach to capital budgeting and its use is not recommended.

21.6.10 Like the payback criterion, the Accounting Rate of Return criterion ignores the time value of money. However, unlike the payback criterion, the accounting rate of return criterion does make some attempt to consider the cash flows over the entire project life. The accounting rate of return is computed by dividing the average incremental income by the average investment level. Because the accounting rate of return criterion does not systematically consider the timing of cash flows over the project's life, it is not recognized as a systematic or supportable approach to capital budgeting and its use is not recommended.

21.6.11 Approaches that consider the time value of money are distinguished by their use of discounting to express cash flows in current period. There are two common approaches that consider the time value of money: the net present value method and internal rate of return method.

21.6.12 In the Net Present Value Method all cash flows are discounted at the nominal required return on investment, which equals the nominal weighted average cost of capital. Since the return to all providers of capital except the owners is fixed, this net present value is the value added to shareowners by this project. Therefore, the net present value criterion is to accept the project if its net present value is positive, since the positive amount reflects the increment to owner wealth provided by the project.

21.6.13 **The estimated cash flows used in the net present value method should be the best guess of all the estimated incremental after-tax cash flows resulting from the investment. The increment is the amount in excess of the estimated after-tax cash flows if the status quo investment is maintained.**

21.6.14 It is imperative when replacement decisions are being made that the analyst provides a careful and reasoned basis for projecting the cash flows if the existing machinery or process is maintained. Simply extrapolating existing cash flows into the future without consideration of the actions of competitors who might acquire the new technology is inappropriate.

21.6.15 The Internal Rate of Return criterion computes the return on investment provided by the project. If the return on investment exceeds the nominal required return on investment, the project is accepted. The internal rate of return or the project's expected return on investment can be found in three ways:

- a) By direct solution of a set of equations that describe the present value of the project's incremental cash flows
- b) By trial and error using a spread sheet
- c) By using spread sheet tools designed to accomplish this task

21.6.16 The trial and error approach is the most practical one once the investment project has been set up on a spread sheet. The approach is simply to set up the spread sheet to compute the project's net present value and then to vary the discount rate for project cash flows until the net present value results zero. The discount rate that makes net present value zero is the internal rate of return.

21.6.17 Although both the net present value method and internal rate of return method provide a systematic and complete consideration of entire cash flows, this standard recommends the use of net present value method. It provides a direct calculation of the increment to owner's wealth provided by the project and articulates well with standard economic reasoning relating to profitability.

21.6.18 **It is important to address the respective exposures towards risk while evaluating competing projects with varying degree of risk profile. A systematic evaluation of risk on projected outcomes should be carried out to bring them in a comparable position with such other projects without risk exposure or less risk exposure. Otherwise, there is a chance of choosing more risky projects at the cost of less risky projects on the excuse of more profitability which is not risk adjusted profit.**

21.6.19 Some analysts deal with risk or uncertainty in cash flows by adjusting the project's estimated cash flows. There are two common approaches:

- a) Show the most pessimistic cash flow in each period; and
- b) Arbitrarily determine a cut-off date and ignore cash flows beyond that period as being too far in the future to estimate reliably.

However, both of these approaches are ad hoc and have no logical support. Neither of these approaches to dealing with risk is deemed to be acceptable.

21.6.20 **The preferred approach to dealing with risk, and the one recommended in this standard, is to use the estimate of the most likely cash flow in each period and to use an appropriate weighted average cost of capital to reflect project risk. The weighted average will weigh the capital used in the project proportionally to the organization's capital structure.**

21.6.21 For example, if an organization's average after tax cost of debt is 5%, the estimated required risk adjusted return on capital for a project is 15%, and if debt comprises 30% of the capital structure, then the weighted average cost of capital used as the discount rate in the net present value method would be 12% (30% x 5% + 70% x 15%).

21.6.22 An acceptable approach to quantify the effect of financial risk is to use sensitivity analysis. The most systematic approach to sensitivity analysis is to determine the cash flow, called the minimum acceptable cash flow that causes the project's net present value to be zero. The minimum acceptable cash flow is then compared to the most likely cash flow and the difference is used as a gauge of how sensitive the project's investment decision is to the estimate.

21.6.23 The comparison of the estimated cash flow and the minimum acceptable cash flow can also be undertaken by assessing a probability that the cash flow will fall below the minimum acceptable cash flow.

21.6.24 **It is important when evaluating a new investment to consider all its costs and benefits.**

21.6.25 Frequently, significant costs relating to training and implementation are ignored in considering new capital projects. Any analysis should consider these costs, particularly where the proposed investment will require the implementation of a new technology. Some organizations have followed the practice of either discounting heavily or ignoring entirely what are called "intangible benefits" resulting from a new investment. These intangible benefits include items such as the potential for improved product quality or the potential for increased customer service.

21.6.26 In replacement decisions, for example, analysis has traditionally focused only on the cost savings expected from implementing a new process. It is inappropriate to ignore expected benefits because they are thought to be intangible or difficult to estimate. Some estimates, nevertheless, should be developed for these benefits.

21.6.27 One approach that has been used is to rank the expected benefits for a new project from most tangible to least tangible. Then the estimated project benefits are entered sequentially into the analysis beginning with the most tangible. The process continues until all the expected benefits have been considered. Then a table is prepared summarizing the cumulative net present value of the project as each benefit is considered.

Item	Present Value (BDT '000)	Cumulative Present Value (BDT '000)
Initial investment and subsequent maintenance items net of tax shield effects	20,000	20,000
Operating cost savings	14,000	-6,000
Increased revenues through improved service and quality	3,000	-3,000
Decreased working capital requirements	1,000	-2,000
Decreased organizational costs	4,000	2,000
Image benefits	7,000	9,000

21.6.28 For example, suppose that a company is considering new production machinery that promises operating cost savings, increased revenues through improved customer service and quality, decreased costs because of reduced working capital requirements, decreased organizational costs because of improved production flows, and benefits relating to the organization's strategic image.

21.6.29 This approach provides management with some indication of what benefits must be realized for the project to be acceptable and to what degree the so-called intangible benefits must be realized for the project to be acceptable.

21.6.30 **An issue arises in considering how to rank competing mutually exclusive projects. The criterion to use is to evaluate which project provides the greatest increment to owner wealth.**

21.6.31 This is by no means an insignificant criterion to use in practice because it implies that the analyst must consider the alternative uses of funds.

21.6.32 **In a capital rationing environment, the issue would involve choosing the portfolio of investment projects that maximizes the estimated total net present value.**

21.6.33 **In other environments, some analysts have proposed computing a profitability index for a project by dividing the present value of its cash inflows by the present value of its cash outflows. The higher the profitability index the more attractive the project.**

21.6.34 A practical issue often arises about what to do when comparing two alternative projects with unequal lives. This issue is resolved by choosing a terminal date, called the planning horizon, at which time it is assumed that whatever project is chosen will be abandoned. The alternative projects are then evaluated relative to that planning horizon, using like for like replacement for each project if the planning horizon is longer than an alternative's estimated life. A common approach is to set the planning horizon equal to the life of the shortest-lived alternative and identify salvage values for the alternatives that extend beyond that date.

21.6.35 **A post-implementation audit should be conducted for all implemented capital projects. The audit should compare all estimated project outflows and inflows with their actual realizations. The timing of the audit should allow a reasonable opportunity to identify the early pattern of benefits but should not postpone the evaluation unreasonably.**

21.6.36 Post-implementation audits, which compare realized outcomes with outcomes estimated during the capital budgeting process, serve two purposes:

- they provide an incentive for managers proposing capital investment projects to provide reasonable and accurate estimates; and
- they offer the opportunity to uncover and correct errors that might have been made during the process of developing the capital budgeting proposal

21.6.37 **This standard recommends that every capital project should be followed by a post-implementation audit approximately 2 years after the project has been implemented. This should provide enough time to determine whether estimates are reasonable, yet not allow the passage of too much time so that the details of the project have been forgotten. The post-implementation audit should undertake a detailed comparison between the actual costs and realized benefits of the project.**

21.6.38 This standard has focused exclusively on financial issues in capital budgeting. One must bear in mind that the purpose of the net present value method is to provide relevant advice to a decision-maker in the context of evaluating an investment opportunity.

21.6.39 This standard focuses on the accounting issues in capital budgeting and has not considered issues that cannot be expressed in financial terms. For example, there may be strategic or organizational issues that cannot be quantified and that a decision maker believes should weigh heavily in the decision.

21.6.40 Therefore, it is important to recognize that while this standard focuses on financial issues in the capital budgeting process, it recognizes that there may be other issues that are deemed relevant in the decision-making process that are important in making a final determination.

21.7 Recording and Reporting

21.7.1 Companies should have a guideline for selecting the projects where capital budgeting techniques will be applicable.

21.7.2 Company should have established procedure for computing cost of capital, weighted average cost of capital, nominal required rate, real required rate, inflation rate, risk free interest rate etc.

21.7.3 For every decisions classified as capital expenditure, a detail analysis of both cash inflows and outflows should be recorded for the entire life of all the competing projects.

21.7.4 A report should be made with reference to risk, its exposure and techniques of accommodating risk in capital investment decisions etc.

21.7.5 Every capital investment decisions should be backed by a selected technique with a detail analysis and it should be documented so that such technique could be produced any time if required.

21.7.6 The choice of capital expenditure decisions should be complete in every respect so far as practicable in terms of life, cost, and benefits, other financial and non-financial issues so that no question arises at a later point regarding the prudence of such decisions. All these calculations should be recorded for reporting at a later point of time if required.

21.7.7 A post-implementation audit report should be generated and analyzed after conducting such audit to bring any merit to the decision already taken, if possible.

21.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

Appendix 21A

Illustrative Computation and Presentation

ABC Products Limited supplies specialized heat treated bolts and fasteners to the automobile industry. Current sales in the major product line amount to BDT 25,000,000 per year. The flexible costs of these sales; including manufacturing, selling, and delivering; amount to BDT 17,000,000 per year. The working capital needed to support the existing system amounts to BDT 6,000,000 and the factory floor space dedicated to making this product line and to its support activities amounts to 2,000 square metres. The estimated salvage value of the existing machinery is BDT 100,000 in 10 years, which is the useful life of the project.

A proposal has been received to replace the existing manufacturing process with a new one organized on a cellular basis. The new machinery would cost BDT 10,000,000 net of the salvage value of the old machinery. The new machinery promises cost, quality, and cycle time improvements. Because of the quality and service time improvements promised by the new machinery, sales are expected to increase to BDT 30,000,000 per year. The flexible costs of these sales would be BDT 20,000,000 per year. The working capital required to support the new process would be BDT 4,000,000 and the factory floor space dedicated to making the product and its ancillary activities would be 1,200 square metres. The new machinery would have a useful life of 10 years and an estimated salvage value of BDT 300,000 at the end of its useful life.

The company faces a marginal tax rate of 40% and the investment in machinery would be treated as machinery and plant with a prescribed fiscal depreciation allowance rate of 20%.

An external financial advisor has estimated the company's after-tax weighted average cost of capital to be 11%.The estimated cash flows associated with this project are considered to be slightly more risky than those associated with the company's other projects. For this reason the inflation adjusted cost of capital used to evaluate this project will be 12%.

Analysts who developed the sales and cost estimates advise that these estimates reflect an underlying inflation factor of about 2% per year. Therefore, all future cash flows must be discounted at the rate of 2% to express all future Taka values in terms of current Taka values.

Cost accounting data suggest that the full cost of supporting a square metre of factory floor space amounts to BDT 500 per year.

Table 1 summarizes these facts and computes the incremental cash flows that would result if the existing process were replaced with the proposed process.

Table 1 also highlights the incremental effects of the new project. An initial net investment of BDT 10,000,000 for the new process is partially offset by the release of working capital, making the required net investment in the new process BDT 8,000,000. This initial investment creates a 10 year annuity of BDT 2.4 million. At the end of 10 years the incremental effect of the new process is to increase the estimated salvage value by BDT 200,000 and reduce the working capital needed by BDT 2,000,000.The working capital effect could be compared to the company receiving an interest free loan for the 10 year project life by investing in the new process.

Table 1

ABC Products Limited

	Project (Figures are in BDT '000)		
	Current	Proposed	Incremental
Operating Cash Flows			
Sales	25,000	30,000	5,000
Flexible Costs	17,000	20,000	3,000
Floor Space Support Cost	1,000	600	-400
Margin	7,000	9,400	2,400
Other Cash Flows			
Net Current Investment		-10,000	-10,000
Working Capital Needed	-6,000	- 4,000	2,000
Salvage Value	100	300	200
Working Capital Released	6,000	4,000	-2,000

The Payback Criterion

Table 2 provides the information needed to compute the payback period in this example. The initial investment is recovered during year 5. Interpolation computes the payback period as 5.56 years.

Table 2

ABC Products Limited
Payback Criterion (Figures are in BDT '000)

	Year	After-Tax Cash Flow	Cumulative Cash Flow
Investment in New Process	0	-10,000	-10,000
Working Capital Released	0	2,000	-8,000
Operating Cash Flow	1	1,440	-6,560
Operating Cash Flow	2	1,440	-5,120
Operating Cash Flow	3	1,440	-3,680
Operating Cash Flow	4	1,440	-2,240
Operating Cash Flow	5	1,440	-800
Operating Cash Flow	6	1,440	640
Operating Cash Flow	7	1,440	
Operating Cash Flow	8	1,440	
Operating Cash Flow	9	1,440	
Operating Cash Flow	10	1,440	
Working Capital Released	10	-2,000	
Salvage Value	10	200	

Table 3 summarizes the information to derive the present value of the project.
Table 3

ABC Products Limited
Present Value of Incremental Cash Flows Adjusted for Inflation and the Time Value of Money

	12%		Tax Rate	40%	Inflation Rate	2%	Fiscal Dep	20%
	Year	Incremental Cash Flow (BDT 000)	Fiscal Depreciation (BDT 000)	Taxes @40%	After-Tax Cash Flow (BDT 000)	Inflation Adjustment	Time Value Adjustment	Present Value (BDT 000)
Operations								
Investment in New Process	0	-10,000		-	-10,000	1.0000	1.0000	-10,000
Working Capital Released	0	2,000		-	2,000	1.0000	1.0000	2,000
Operating Cash Flow	1	2,400	2,000	160	2,240	0.9804	0.8929	1,961
Operating Cash Flow	2	2,400	1,600	320	2,080	0.9612	0.7972	1,594
Operating Cash Flow	3	2,400	1,280	448	1,952	0.9423	0.7118	1,309
Operating Cash Flow	4	2,400	1,024	550	1,850	0.9239	0.6355	1,086
Operating Cash Flow	5	2,400	819	632	1,768	0.9057	0.5674	908
Operating Cash Flow	6	2,400	655	698	1,702	0.8880	0.5066	766
Operating Cash Flow	7	2,400	524	750	1,650	0.8706	0.4524	650
Operating Cash Flow	8	2,400	419	792	1,608	0.8535	0.4039	554
Operating Cash Flow	9	2,400	336	826	1,574	0.8368	0.3606	475
Operating Cash Flow	10	2,400	1,042	543	1,857	0.8204	0.3220	490
Working Capital Released	10	-2,000			-2,000	0.8204	0.3220	-528
Salvage Value	10	200			200	0.8204	0.3220	53
Project Net Present Value								1,318

Net Present Value Method

In the Net Present Value Method all cash flows are discounted at the nominal required return on investment, which equals the nominal, weighted average cost of capital. In this example, this discount rate is 14.24% as shown in the following equations:

(1 + nominal required return) = (1 + real required return) x (1 + expected inflation rate)
□ □ = (1 + 0.12) x (1 + +.02)
□ □ = 1.1424

Nominal required return = 14.24%

Table 3 computes the net present value of all incremental after-tax cash flows associated with this project. The computed net present value of this project is BDT 1,318,000, which means that this project provides a return of BDT 1,318,000 in excess of what is required by the organization's providers of capital.

The Internal Rate of Return Method

The Internal Rate of Return criterion computes the return on investment provided by the project. If the return on investment exceeds the nominal required return, in this case 14.24%, the project is accepted.

Table 4 demonstrates that a real return of 15.93%, combined with an expected inflation rate of 2%, which results in a nominal internal rate of return of 18.25% (1 - (1.1593 x 1.02)), causes the net present value of the after-tax incremental cash flows associated with this project to be zero.

Table 4

ABC Products Limited

Present Value of Incremental Cash Flows Adjusted for Inflation and the Time Value of Money

Internal Rate of Return	15.93%		Tax Rate	40%	Inflation Rate	2%	Fiscal Dep	20%
	Year	Incremental Cash Flow (BDT 000)	Fiscal Depreciation (BDT 000)	Taxes @40%	After-Tax Cash Flow (BDT 000)	Inflation Adjustment	Time Value Adjustment	Present Value (BDT 000)
Operations								
Investment in New Process	0	-10,000		-	-10,000	1.0000	1.0000	-10,000
Working Capital Released	0	2,000		-	2,000	1.0000	1.0000	2,000
Operating Cash Flow	1	2,400	2,000	160	2,240	0.9804	0.8626	1,894
Operating Cash Flow	2	2,400	1,600	320	2,080	0.9612	0.7441	1,488
Operating Cash Flow	3	2,400	1,280	448	1,952	0.9423	0.6418	1,181
Operating Cash Flow	4	2,400	1,024	550	1,850	0.9239	0.5536	946
Operating Cash Flow	5	2,400	819	632	1,768	0.9057	0.4776	765
Operating Cash Flow	6	2,400	655	698	1,702	0.8880	0.4119	623
Operating Cash Flow	7	2,400	524	750	1,650	0.8706	0.3553	510
Operating Cash Flow	8	2,400	419	792	1,608	0.8535	0.3065	421
Operating Cash Flow	9	2,400	336	826	1,574	0.8368	0.2644	348
Operating Cash Flow	10	2,400	1,042	543	1,857	0.8204	0.2281	347
Working Capital Released	10	-2,000			-2,000	0.8204	0.2281	-374
Salvage Value	10	200			200	0.8204	0.2281	37
Project Net Present Value								185



BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 22

Enterprise Resource Planning

BACS 22: Enterprise Resource Planning

22.1 Introduction

An Enterprise Resource Planning (ERP) is a complex set of computer applications designed to integrate the processes and functions within the same company. This system is able to present a holistic vision of the company's business by sharing a common and integrated database. With the advent of information technology and its business application, the pattern of business decision making has been changed significantly. Many companies greatly rely on computers and software to provide accurate information to effectively manage their business. It is becoming increasingly necessary for all businesses to incorporate information technology solutions to operate successfully. One way that many corporations have adopted information technology on a large scale is by installing ERP systems to accomplish their business transaction and data processing needs. Making accurate decision as fast as possible becomes the cheat code of success for today's business. Tougher competition in the marketplace is generating the need to better optimize resources, improve profitability and keep customers satisfied. Due to these reasons, companies are increasingly implementing ERP software solutions to improve operations and provide faster customer response. ERP systems arrived on the accounting scene with much fanfare in 1990s. These systems, which are essentially vendor defined enterprise wide accounting systems, promised fully integrated applications built upon common, centrally defined databases. This standard presents important issues relating to ERP systems for companies who are planning to implement such system.

22.2 Objectives

The standard provides a basic guideline for implementing ERP system in an organization with a view to increasing fast and accurate decision making capability to remain competitive in an information era. More specifically, the standard explicitly addresses -

- a) The usefulness of ERP system;
- b) The reasons for failure of ERP system;
- c) The step by step process of implementing ERP system; and
- d) The cost, maintenance, methods and team responsible for ERP system.

22.3 Scope

22.3.1 This standard provides guidelines for implementing ERP system in organizations.

22.3.2 This standard is applicable to measure, evaluate, follow up and control the ERP system implemented by organizations.

22.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

22.4 Key Features

The key features of this standard are pointed below -

- a) Presenting the process of implementing ERP system;
- b) Identifying the potential risks of ERP system;
- c) Listing the functions supported by ERP package; and
- d) Briefing the taxonomy of critical factors of ERP system.

22.5 Definitions

The following terms are used in this standard with the meanings specified -

22.5.1 Business intelligence: Business intelligence is a computer-based technique to help with decision making by analyzing data.

22.5.2 Business process: Business process is a logically related activity or group of activities that takes input, processes it to increase value, and provides output.

22.5.3 Business process integration: Business process integration is the assimilation of business processes together in a central system.

22.5.4 Cloud computing: Cloud computing is having a third party host the software and systems a business needs as a service through the use of the Internet.

22.5.5 Disaster Recovery: When the same data is stored in multiple separate locations, disaster recovery plan helps to recover in case of failure.

22.5.6 Data repository: Data repository is a location to store data.

22.5.7 Information system: Information system refers to interaction between information technology, business processes, and data for decision making.

22.5.8 Information technology: Information technology in the broadest sense refers to both the hardware and software used to store, retrieve, and manipulate information using computer systems and applications.

22.5.9 Key performance indicators: Key performance indicators, known as KPI, provide baseline metrics that companies use to measure how well the system and processes are performing.

22.5.10 Legacy system: Legacy system is when a new system is identified for replacement; the older system is referred to as the legacy.

22.5.11 Life cycle: Lifecycle refers to the structure from which software applications such as ERP evolves and is integrated within business processes.

22.6 Standards

22.6.1 Enterprise Resource Planning (ERP) systems are software packages that use relational database technology to integrate various units of an organization's information system. It ensures business process integration.

22.6.2 ERP systems provide several separate, but integrated modules, which can be installed as a package for any organization. Many large corporations use several different and separate information systems, often because they have merged with and/or acquired other companies with varied systems. In most of the cases, it supports business intelligence.

22.6.3 Choosing an ERP solution that meets specific business requirements will enable one to have a smoother implementation. It should be aligned with particular business processes.

22.6.4 ERP systems bring multiple benefits to implementing organization. Some of such benefits could be listed as below:

- a) Improved security and availability
- b) Increase in organizational flexibility
- c) Cost reduction
- d) Fast amortization of investment
- e) More efficient business processes
- f) Higher quality of business processes
- g) Improved integrability
- h) Reduced complexity and better harmonization of IT infrastructure
- i) Better information transparency and quality
- j) Better and faster compliance with legal requirements and Frameworks

22.6.5 One of the top reasons why ERP implementations fail is because the software doesn't meet basic industry specific business requirements. However, purchasing an ERP application is only half the battle. A well designed implementation plan is the key to success. Continuous monitoring of key performance indications is important to appraise the relevance of the system. In addition, poor or non-existent analysis prior to quoting, insufficient or poor training , lack of industry specific knowledge, incoming data inaccuracy (Garbage In Garbage Out) & taking too big a bite all at once may cause failure.

22.6.6 The excellent ability of ERP systems to simplify business transaction processing, eliminate work that adds little or no value, and simultaneously improve customer service are the main reasons for the outstanding success and popularity of these systems. It eliminates data redundancy.

22.6.7 ERP systems have made legacy systems outdated and obsolete for many companies. For example, by implementing an ERP system, Owens Corning went from having over 200 legacy systems to fewer than ten.

22.6.8 The main obstacle to installing an ERP system is the cost. However, an ERP system can provide significant benefits by improving information processing quality and thus management decisions related to business operations.

22.6.9 The significant costs of acquiring and successfully implementing an ERP system indicate that it should be considered as a long-term investment, with careful planning to obtain all the available benefits of improved data processing.

22.6.10 The mistake many companies make when initially trying to estimate the cost of an ERP project is only paying attention to the actual software license costs. In reality, there are four elements to consider in budget.

- a) Software License Fees
- b) Maintenance Fees
- c) Hardware
- d) Implementation Services
- e) Integration Cost
- f) Compliance and validation cost

22.6.11 The five key items to consider when selecting an ERP system are functionality, price, hardware platforms, the RDBMS (relational data base management system), and the installed base.

22.6.12 Functionality deals with the availability and ease of installation of new modules and updated applications. As discussed previously, the costs to initially purchase and install an ERP system are substantial. Different ERP system prescribes hardware for running the system smoothly. The RDBMS of the ERP system primarily deals with the programming language upon which the system operates. Installed base is an important factor in selecting an ERP system because the system must be efficiently implemented and the significant costs of the system must be recovered through improved and more efficient operations.

22.6.13 Large-scale, complicated ERP systems can often take twelve to eighteen months to be installed and operating. Any needed costs for consultants to modify or customize the system are extremely high. Installation takes between 1 and 3 years (21 months on average), with benefits starting to accrue in an average of 31 months.

22.6.14 After the system is installed, upgrades will be necessary within a few years in order to maintain current information technology capabilities. However, very frequent upgrades to the ERP system can be as expensive as the original implementation.

22.6.15 Accountants and company management need to be aware of the risks involved with an ERP system. A very common problem encountered during implementation of the ERP system is eliminating traditional controls without replacing them with new effective control measures.

22.6.16 The ERP implementation creates cross-module integration, data standardization, and industry best practices, which are all combined into a timeline involving a large number of resources. The business process "as-is" state and information flows between various business operations are examined for scope of the implementation. The "as-is" process model is developed by examining the layers of the "as-is" process, and focuses on the most important or major areas of concern.

22.6.17 An example of an "as-is" process would be how to pay a vendor invoice. A company typically issues a purchase order for goods or services to a vendor. A copy of the purchase order is sent to the accounts payable department and the vendor. Once the items or services are completed, the vendor submits an invoice electronically (email or EDI), or possibly by postal mail, to the company for payment. The accounts payable department matches the purchase order against the invoice, the receiving document (if items received), and the invoice. If they match, the accounts payable department issues payment.

22.6.18 The "to-be" design and mapping of legacy business processes are developed according to the company's business model. The "to-be" design will generally include company operating business rules, data conversion, reporting, and organizational hierarchy requirements.

22.6.19 Generally, the process examines the "to-be" model as the ideal workflow without constraint, along with considerations for future growth and IT investments. The vendor payment "to-be" process, for example. The purchase order is entered into the ERP system common database. A copy of the purchase order is electronically sent to both the vendor and the company accounts payable department. When goods are received or services are performed, a confirmation transaction takes place to alert of completion. Matching is done and a check is prepared and automatically sent to the vendor in the ERP system. The automated process enables accuracy of information, and eliminates redundancy of data and potential delay of payment.

22.6.20 For successful implementation of ERP system, it is important to proceed with the following five steps one after another.

- a) Strategic planning
- b) Procedure review
- c) Data collection and clean-up
- d) Training and testing
- e) Go live and evaluation

22.6.21 **Strategic planning stage deals with activities like assignment of a project team, examining current business processes and information flow, setting objectives, and finally developing a project plan.**

22.6.22 Assign a project team with employees from sales, customer service, accounting, purchasing, operations and senior management. Each team member should be committed to the success of the project and accountable for specific tasks, i.e. developing a timeline, finalizing objectives, formulating a training plan. Base the selection on the knowledge of the team not status of the employee.

22.6.23 Have the team perform an analysis on which business processes should be improved. Gather copies of key documents such as invoices, batch tickets and bill of lading for the analysis. The team members should also conduct interviews with key personnel to uncover additional areas of improvement needed.

22.6.24 22.6.24 The objectives should be clearly defined prior to implementing the ERP solution. ERP systems are massive and it is not possible to implement every function. The team needs to define the scope of implementation.

22.6.25 The team should develop a project plan which includes previously defined goals and objectives, timelines, training procedures, as well as individual team responsibilities. The end result of the project plan should be a "to do" list for each project team member.

22.6.26 **Procedure review stage is very important where software capabilities are reviewed, manual processes are identified and standard operating procedures (SOP) are developed.**

22.6.27 Dedicate 3-5 days of intensive review of the software capabilities for the project team. Train on every aspect of the ERP software to fully educate the team on capabilities and identify gaps. Determine whether modifications are needed prior to employee training.

22.6.28 Evaluate which processes that are manual and should be automated with the ERP system.

22.6.29 Develop standard operating procedures (SOPs) for every aspect of business. These procedures should be documented. Make sure that to modify the document as SOPs change.

22.6.30 **Data collection and clean up stage deals with conversion of data, collection of new data, reviewing all data input and cleaning data.**

22.6.31 Determine which information should be converted through an analysis of current data. One can't assume 100% of the data can be converted as there may be outdated information in the system.

22.6.32 Define the new data that needs to be collected. Identify the source documents of the data. Create spreadsheets to collect and segment the data into logical tables.

22.6.33 After the converted and manually collected data is entered into the ERP database, then it must be reviewed for accuracy and completeness. Data drives the business, so it is very important that the data is accurate.

22.6.34 Review and weed out unneeded information such as customers who haven't purchased in a while or are no longer in business. Now is the time for improving data accuracy and re-establishing contact with inactive customers.

22.6.35 **Training and testing stage covers pre-testing of database, verify testing, training the trainer and performing final testing.**

22.6.36 The project team should practice in the test database to confirm that all information is accurate and working correctly. Use a full week of real transaction data to push through the system to validate output. Run real life scenarios to test for data accuracy.

22.6.37 Make sure the actual test mirrors the Standard Operating Procedures outlined in step 2, and determine whether modifications need to make.

22.6.38 It is less costly and very effective if one train the trainer. Assign project team members to run the in-house training. Set up user workstations for at least 2 days of training by functional area. Provide additional tools, such as cheat sheets and training documentation. Refresher training should also be provided as needed on an ongoing basis.

22.6.39 The project team needs to perform a final test on the data and processes once training is complete and make any needed adjustments. It is not required to run parallel systems, if a thorough testing has been completed.

22.6.40 **In final stage, ERP goes live which requires a final checklist and end up with evaluation of the solution.**

22.6.41 Final Go Live Countdown Checklist includes the following point along with some others based on the typical nature of ERP:

- a) Physical inventory process is complete.
- b) Beginning balance entry procedures are developed for all modules.
- c) Any transition issues are addressed.
- d) Documents & modifications are tested thoroughly.
- e) Executives and departments heads are fully trained.
- f) Vendor is available for go-live day.
- g) Users will have assistance during their first live transactions.

22.6.42 Develop a structured evaluation plan which ties back to the goals and objectives that were set in the planning stage.

22.6.43 **In addition, a post-implementation audit should be performed after the system has been up and running for the first week for reconciliation purposes and three to six months following to test whether or not the anticipated return on investment (ROI) and business benefits are being realized. Comparing actual numbers with previously established benchmarks will reveal if the software tool does what it is intended to do - add value to the business. It is important to periodically review the system's performance to maximize ROI.**

22.7 Recording and Reporting

22.7.1 Decision of implementation of ERP is a top management exercise which is very important and thus requires a proper authorization process.

22.7.2 Cost profile of ERP should be in a form that can be properly accounted for by the respective departments. It should indicate onetime costs, repetitive costs, cost for review and update etc.

22.7.3 Life cycle of implemented ERP should be done with the identification of risk profile at every stage so that it can be properly managed.

22.7.4 ERP team should work based on a wisely designed terms of reference (ToR) to reduce any potential conflicts in future and also to implement the ERP smoothly.

22.7.5 Post-implementation audit should come up with the potential area for improvements, if any, and there should be a mechanism of communication of the same within the organization.

22.7.6 Organization should have the following written guidelines to resolve any potential confliction in advance and to encourage smooth transition to new system from legacy system:

- a) ERP team members with their key roles, authorities and responsibilities;
- b) Cost, time and other resource requirements;
- c) Training policy to handle change management crisis;
- d) ERP implementation steps and checklist for final implementation;
- e) Standard operating procedures;
- f) Conflict resolution guidelines;
- g) Performance evaluation measures, e.g., key performance indicators; and
- h) Any other guidelines if required in certain circumstances.

22.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

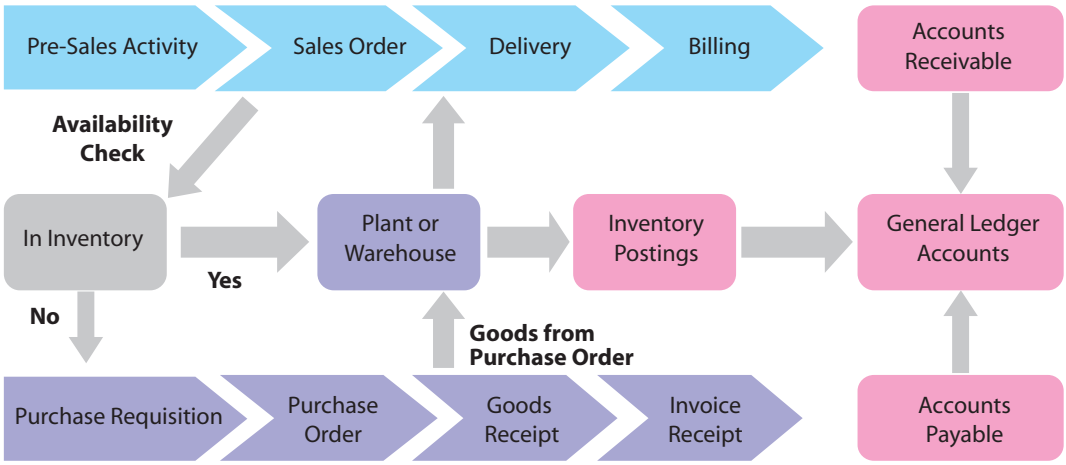
Appendix 22A

Risk from ERP System

Operation Risks	Financial Risks	Technological Risks	Miscellaneous Risks
a. Product Risk (competition and change in consumer preferences	a. Price (interest rate, currency, stock price, commodity, etc.)	a. Security (physical and logical)	a. Political
b. Customer Relationship (order taking, order fulfillment, satisfaction)	b. Liquidity	b. Integrity of data and programs	b. Legal
c. Production (interruption, cycle time, health and safety)	c. Credit	c. Network and hardware availability (system failure, backup, capacity and salability, access, etc.)	c. International
d. Procurement and Sourcing		d. System Support	d. Environmental
e. Human Resources (e.g., personnel, payroll, benefits)		e. Personnel issues (turnover, expertise, training, outsourcing support)	e. Regulatory other than environmental
f. User Training		f. System interface with other systems	f. Fraud
g. Quality Assurance		g. Maintenance (Modification, upgrade, and migration) of systems	g. Financial reporting errors or disclosures
			h. Privacy violation (employee, customer, or supplier)

Appendix 22B

Example of Integrated Decision Making in ERP



Appendix 22C

List of Functions Supported by an ERP Package

Financials	Human resources	Operations and Logistics	Sales and Marketing
Accounts Receivable and Payable	Human-resource time accounting	Inventory management	Order management
Asset Accounting	Payroll	Materials management	Pricing
Cash management and forecasting	Personnel planning	Plant maintenance	Sales management
Cost-element and cost-center accounting	Travel expenses	Production planning	Sales planning
Executive information system		Project management	
Financial consolidation		Purchasing	
General ledger		Quality management	
Product-cost accounting		Routing management	
Profitability analysis		Shipping	
Profit-center accounting		Vendor evaluation	
Standard and period related costing			

Appendix 22D

Critical Success Factors of ERP System

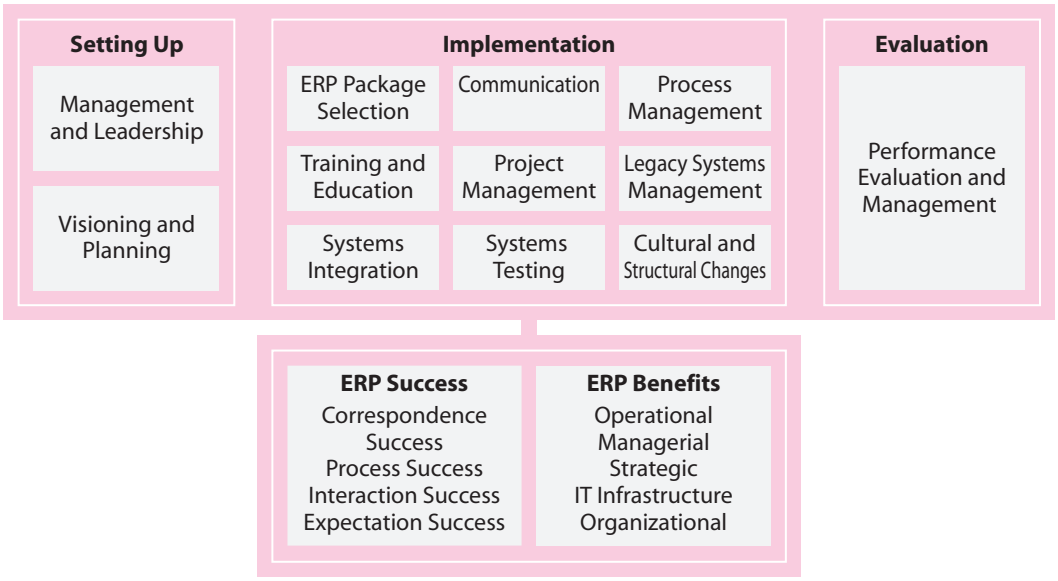


Figure: Taxonomy for ERP critical success factors



BANGLADESH COST ACCOUNTING STANDARDS

BCAS - 23

Strategic Cost Management

BACS 23: Strategic Cost Management

23.1 Introduction

Strategic cost management (SCM) deals with measuring and managing costs and aligning them to the business strategy. The cost and management accounting information thus developed would help managers to understand and implement the strategy, diagnosis the performance and influence behavior and decisions. It is the analysis of cost in a broader context, where the strategic elements become more conscious, explicit, and formal. Cost data is used to develop superior strategies in route to gaining sustainable competitive advantage. SCM gives a clear understanding of the firm's cost structure in search for sustainable competitive advantage through cost reduction. It is the managerial use of cost information explicitly directed at one or more of the four stages (strategy formulation, communicating the strategy, implementing and controlling) of strategic management. Overall recognition of the cost relationships among the activities in the value chain, and the process of managing those cost relationships to the attainment of firm's strategic objectives are the main focal point of SCM. This standard provides a basic guideline of SCM which is not an exclusive one and it should be read in conjunction with other relevant standards.

23.2 Objectives

The main objective of this standard is to provide a basic guideline to those companies who plan to undergo cost analysis as a part of strategic analysis. It tries to facilitate the practitioners to apply SCM as a driver to ensure sustainable competitive advantage. The standard presents relevant analysis covering three core components of SCM which are,

- a) Strategic positioning;
- b) Cost driver analysis; and
- c) Value chain analysis.

23.3 Scope

23.3.1 This standard will work as a guideline to those companies who have decided to apply cost management as a part of their strategy.

23.3.2 It extends discussion to cover three important components of SCM which are strategic positioning, cost driver and value chain analysis.

23.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

23.4 Key Features

The key features of this standard are pointed below -

- a) Presenting basic idea of strategic cost management;
- b) Providing a brief outline of strategic positioning, cost driver and value chain analysis;
- c) Discussing on the SCM framework;
- d) Aligning different types of cost with strategy; and
- e) Listing tools for value chain analysis as an important component of SCM.

23.5 Definitions

The following terms are used in this standard with the meanings specified -

23.5.1 Strategic Cost Management: SCM is the process of identifying, accumulating, measuring, analyzing, interpreting, and reporting cost information useful to both internal and external groups concerned with the way in which an organization uses its resources to meet its objectives.

23.5.2 Value Chain Analysis: Value chain analysis relies on the basic economic principle of advantage - companies are best served by operating in sectors where they have a relative productive advantage compared to their competitors. Simultaneously, companies should ask themselves where they can deliver the best value to their customers.

23.5.3 Strategic Positioning: A company's relative position within its industry matters for performance. Strategic positioning reflects choices a company makes about the kind of value it will create and how that value will be created differently than rivals.

23.5.4 Differentiation: Driving up prices is one way to increase profitability. To command a premium price, a company must deliver distinctive value to customers. This is differentiation.

23.5.5 Cost Leadership: Driving down costs is another way to increase profitability. To compete on cost, companies must balance price with acceptable quality. This is cost leadership.

23.5.6 Cost Driver Analysis: Examination, quantification, and explanation of the monetary effects of cost drivers associated with an activity.

23.5.7 Executional Cost Drivers: Executional cost drivers are factors that a firm can manage in short-term as a part of operational decision making to reduce costs. They are derived from the execution of the business activities such as capacity utilization, plant layout, work-force involvement, design of the production process, and supplier relationships.

23.5.8 Structural Cost Drivers: Structural cost drivers are strategic in nature because they involve decisions that have long-term effects on the firm's total costs. They are derived from the business strategic choices about its underlying economic structure such as scale and scope of operations, complexity of products, use of technology, and complexity.

23.5.9 Value: Value is referred to as the price that the customer is willing to pay for a certain offering.

23.6 Standards

23.6.1 **Strategic cost management is the application of cost management techniques so that they simultaneously improve the strategic position of a firm and reduce costs.**

23.6.2 **Strategic cost management can be applied in service and manufacturing settings and in not-for-profit environments.**

23.6.3 Strategic cost management has three important pillars, viz., strategic positioning, cost driver analysis and value chain analysis.

23.6.4 **There are three types of cost management initiatives: those that strengthen the firm's competitive position, those that have no impact on the firm's position, and those that weaken it.**

23.6.5 The first class of initiative can be illustrated by a hospital that redesigns its admissions process for patients so that it becomes simpler, faster, and less stressful on the patients to be admitted. If patients have a choice of hospital they will enter, the new process will make the hospital more attractive to them. Hence, the strategic position of the firm has been strengthened.

23.6.6 The second class of initiative can be illustrated by an insurance company that redesigns its accounts payable system to make it more efficient. This project has no strategic significance other than to make the firm more profitable. Unless the additional profitability is significant, the project will have no strategic implications. The strategic position of the firm remains essentially unchanged.

23.6.7 The third class of initiatives can be illustrated by an airline's decision to reduce headcount by no longer having "floaters" ask passengers why they are queuing up to get their tickets. This question is important because at this airline's hub there are two types of ticket desks and hence two sets of queues. One type of desk deals with normal conditions, and the other desk deals with special conditions. The average passenger does not know which the appropriate queue is because there is no easy way to delineate between the two. When queues are long, being in the wrong one is very upsetting, especially if a passenger has waited over an hour in one queue and then is told, "You are in the wrong queue. Start again over there." This cost-reduction initiative leads to extreme customer dissatisfaction and thus weakens the airline's strategic position, which is based on high levels of customer service.

23.6.8 The ways the three initiatives are different often are not as great as might first appear. To convert the third example from a negative to a positive simply requires a change in orientation. The correct starting point is not to remove the floaters but to ask why they are needed in the first place-that is, to undertake a root cause analysis. There are two answers to the floater question: first, because there are two types of desk, and, second, because demand exceeds processing time-hence the queues. The most effective cost management initiative would be to reduce processing times so that the queues go away, then collapse the two types of desks together. This procedure removes both sources of passenger dissatisfaction and, if successful, reduces costs. The initiative now illustrates strategic cost management in action.

23.6.9 **As a rule of thumb, initiatives that lead to a weakening of strategic position should never be undertaken. They should be viewed not as cost reduction programs but as revenue reduction programs.**

23.6.10 For example, passengers will begin to avoid the hub that has excessive queues and high queuing errors during bad weather and fly direct or to another hub, both instances frequently requiring a switch to another airline. In most cases, the resulting revenue reduction will exceed the cost savings many times over.

23.6.11 Firms can benefit by undertaking a quick audit of every cost management initiative they have planned or are currently undertaking and see how many actually strengthen their strategic position. If the answer is very few, then it is time to refocus the firm's cost management program. For example, cost reduction programs that "reduce costs 10%

across the board" are at best strategically neutral and typically weaken the firm's strategic position. For this reason, among others, the cost "savings" frequently disappear once the crisis is over.

23.6.12 Occasionally, managers argue that the savings will be so great that weakening the firm's strategic position will be offset by the increased profitability. We are almost never persuaded by this argument. We believe that there always are solutions that will enable the costs to be reduced and the firm's strategic position to be strengthened, not weakened. Once a firm grasps the concept of strategic cost management, finding ways to achieve both objectives (simultaneously reduce costs and strengthen strategic position) is easier than it first appears.

23.6.13 The design of cost management systems changes dramatically depend on the basic strategic positioning of the firm between cost leadership and product differentiation.

23.6.14 **The choice between cost leadership and product differentiation is very typical to the strategic goal of firms which is set at the discretion of management and the standard doesn't favor one over another.**

23.6.15 Cost leadership is an appropriate choice in commodity business where market is matured and a cost is usually targeted. On the other hand, product differentiation is more market driven and mostly chosen in fast changing rapidly growing market.

23.6.16 Once chosen, management's action should be very much particular aligning it with the chosen strategy.

23.6.17 Cost is a function of strategic choice about the structure of how to compete and managerial skill in executing the strategic choices between structural cost drivers and executional cost drivers.

23.6.18 Structural cost drives the product cost of the organization across -

- a) Scale: how big an investment to make in manufacturing, R&D, and in marketing
  resources?
- b) Scope: Degree if vertical integration
- c) Experience: how many times in the past the firm has already done what it is doing again?
- d) Technology: what process technologies are used at each step of the firm's value chain?
- e) Complexity: how wise a line or products of services to offer to customers? (usage of ABC)

23.6.19 Executional cost determines the firm's cost position to execute the strategy successfully. These cost drivers are scaled with the performance.

23.6.20 For strategic analysis, volume is usually not the most useful way to explain cost behavior. In a strategic sense, it is more useful to explain cost position in terms of the structural choices about executional skills that shape the firm's competitive position.

23.6.21 Not all the strategic drivers are equally important all the time, but some of them are very important in every case. For each driver there is a particular cost analysis frame work that is critical to understanding the positioning of a firm.

23.6.22 Value chain analysis is a systematic approach to examining the development of competitive advantage. The chain consists of a series of activities that create and build value. They culminate in the total value delivered by an organization.

23.6.23 Value chain analysis helps to determine which type of competitive advantage to pursue, and how to pursue it.

23.6.24 Value chain analysis considers external focus perspective, linked with activities from raw material suppliers to ultimate end user.

23.6.25 Cost containment is a function of the cost drivers regulating each value activity exploiting linkages with suppliers, customers and process within the firm.

23.6.26 Insights for strategic decision by identifying the cost drivers at the individual activity level and develop drivers by controlling those drivers better than competitors or by reconfiguration of value chain.

23.6.27 A company needs to know its position in the industrial chain to get strategic insights. Knowing the supplier power and buyer power can have a significant effect on how external linkages are exploited.

23.6.28 For example, an ice cream producer makes BDT 0.15 profits from every pound of ice cream sold. The retailer makes a BDT 0.05 profits for every pound he sells. It means that the producer enjoys 75% of the profits giving the producer higher power than the retailer. Focus of external value chain is to select a particular market to sell the product initially. Then, it is easy to develop the value around that market. It is well established that all the segments are not the same.

23.6.29 Making a strong alignment among strategic positioning, cost driver and value chain analysis is important to achieve cost management targets as spelled out at strategy. Strategic cost management framework as given in the appendix shows the relationship.

23.6.30 Attacking particular value chain, reducing the cost of that value chain, reconfiguring the value chain and aligning it with the strategic goal is the main motto of strategic cost management. Strategic cost management is a philosophy that needs to be believed and practiced.

23.7 Recording and Reporting

23.7.1 Strategic cost management initiative is taken at the top and a dedicated team should be involved in the whole process of formulation, implementation and monitoring process.

23.7.2 Organization should have its own policy regarding recording and reporting of following information:

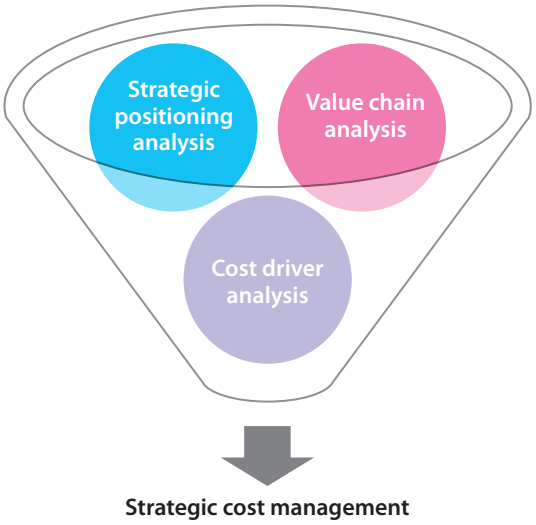
- a) Choice of strategic positioning, cost leadership or product differentiation;
- b) Choice of cost drivers, structural or executional;
- c) Cost reduction strategies with reference to value analysis;
- d) Value chain related activities;
- e) Periodic evaluation report;
- f) Strategic cost management framework for the firm (one is given in appendix);
- g) List of tools applied by the firm as a part of strategic cost management (one is given in appendix); and
- h) Any other types of reporting as required.

23.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

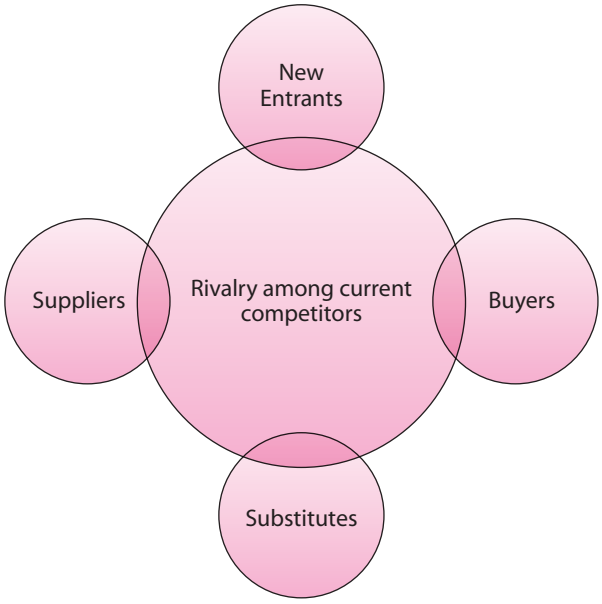
Appendix 23A

Composition of Strategic Cost Management



Appendix 23B

Competitive Forces Model



Source: Adopted from Porter's 5 force model.

Appendix 23C

Different cost and different strategy

	Primary Strategic Emphasis	
	Product Differentiation	**Cost Leadership**
Role of product cost in assessing performance	Not very important	Very important
Importance of flexible budgeting for cost control	Moderate to Low	High to very high
Perceived importance of meeting budgets	Moderate to Low	High to very high
Importance of marketing cost analysis	Critical to success	Not done on formal basis
Importance of product cost as an input to pricing decision	Low	High
Importance of competitor cost analysis	Low	High

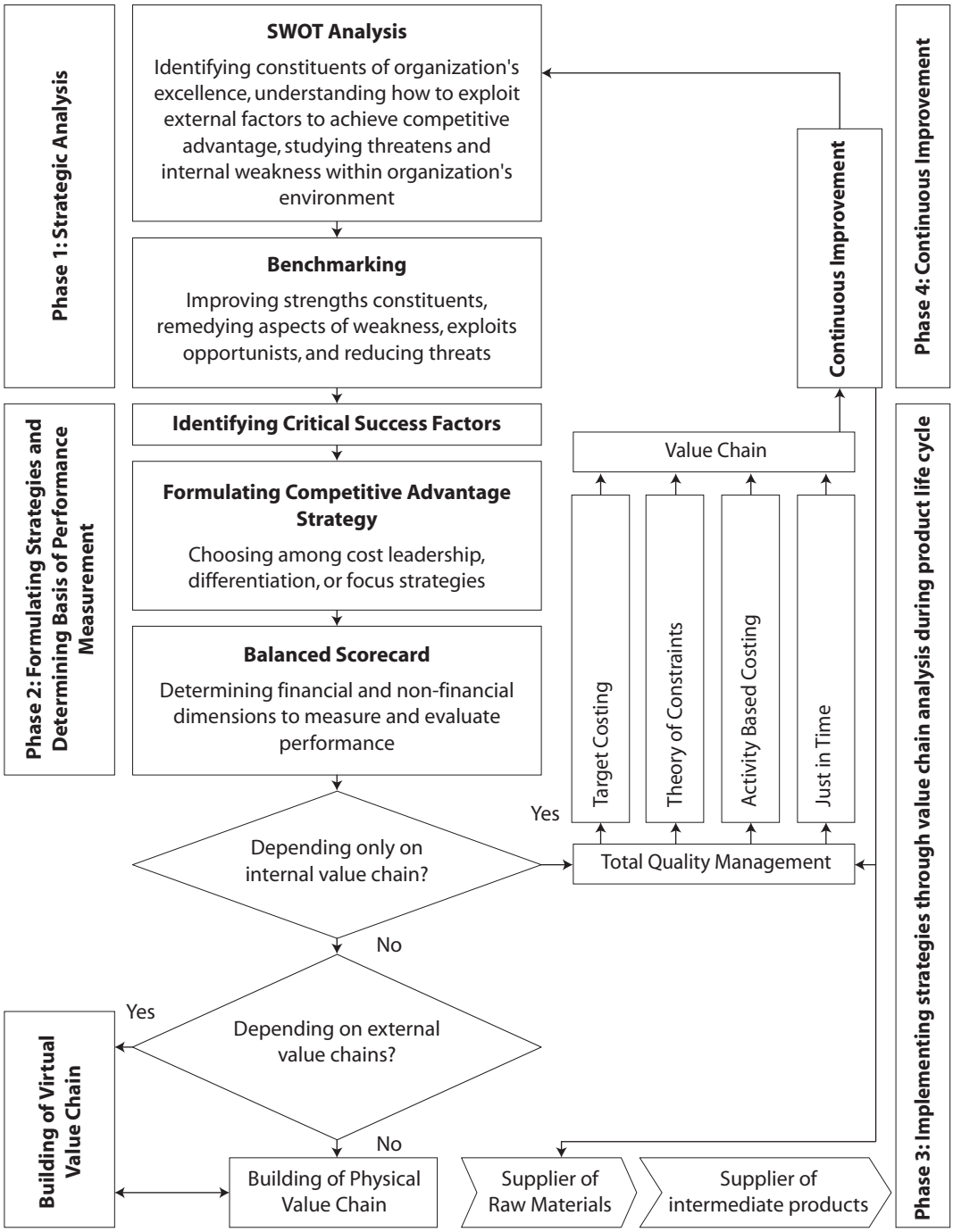
Appendix 23D

Tools in SCM

Tools	**Nature**
Value chain analysis	Add value to customers reducing costs, and understanding relation between business organization and booth customers.
Activity based Costing (ABC)	To provide accuracy in allocating indirect costs.
Competitive Advantage Analysis	Defining strategy that an organization could adopt to excel over rivals.
Target costing	Cost that an organization is willing to incur according to competitive price that could be used to achieve desired profit.
Total quality management (TQM)	Adopt necessary policies and procedures to met customers expectations.
Just-in-time (JIT)	A comprehensive system to buy materials or produce commodities when needed in appropriate time.
SWOT analysis	Systematic procedure to identify critical success factors of an organization.
Benchmarking	Process performed to determine critical success factor and study ideal procedures of other organization in order to improve operations and dominate market.
Balanced scorecard	Accounting report of critical success factors about the organization. It is divided into four major dimensions: financial performance, customers' satisfaction, internal operation, and innovation and Growth.
Theory of Constraints	A tool to improve rate of transferring material into finished goods.
Continuous improvement (Kaizen)	Conducting continuous improvements in quality and other critical success factors.

Appendix 23E

Strategic Cost Management Framework



Appendix 23F

Tools used for Value chain analysis

A firm can create a cost advantage by two different ways, by reducing the cost of individual value chain activities and reconfiguring the value chain as shown in the following figure:



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