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### Strategic Aspects of Cost Management

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**Abstract.** This report is a summary of a research done on the area of Strategic Cost Management (SCM). This report includes a detailed discussion and application of Life Cycle Costing (LCC) which a company can use to achieve its strategic objects in today's dynamic business environment. Hence, the main focus of this report is on LCC as mentioned.

**Keywords:** Strategic Cost Management (SCM); Life Cycle Costing (LCC); agreed definition; "cradle-to-grave costing"; competitive advantage; three dimensional way; internal and external linkage; rapid changes; introduction to growth, maturity, and decline.

**Introduction.** Strategic Cost Management (SCM) is understood in different ways in literature as a matter of fact that there is no universally agreed definition. In fact, different costs are for different purposes. However, SCM can be defined as the use of cost information to do the following: help formulate and communicate strategies, carry out tactics that implement those strategies objectives [Govindarajan and Shank]. In other words this means that SCM is not only cost management but also a tool use to increase revenues, improve productivity and customer satisfaction, and at the same time improve the strategic position of the company. The key is that costs must be viewed by looking simultaneously at the value they provide to achieve company's strategic/long-term objectives.

**Materials and Methods.** The main sources for this article are economic journals and books based on the basic principles of construction cost management strategy. Source information, concerning these events, was collected on open source resources, namely on economic websites, and journal publications. Methods. Cost Management – is a dynamic process that involves management actions forward and reverse links, which aim to achieve a high economic results of the company.

The basic principles of cost management in the enterprise are:

- Methodological unity at different levels of cost management;
- Cost management at all stages of the product life cycle – from creation to disposal;
- Organic combination of lower costs with high quality of products (works, services);
- Focus on avoiding excessive costs;
- Interchangeability of resources;
- Widespread adoption of effective ways to reduce costs;
- Improving the information security of the magnitude of costs;
- Increasing the interest of industrial business units to reduce costs.

Compliance with all principles of cost management system forms the basis for economic competitiveness of enterprises in the market economy.

**Discussion. Life Cycle Costing – As a SCM Tool.** The LCC concept was developed by United States (US) Department of Defense in the early 1960s to increase the effectiveness of government procurement (Shields and Young 1991). After that, the concept came into the business, and is used there in product development studies and project evaluation. Then the concept was taken by the management accounting. However, the application of LCC is limited until 1980s when there were criticisms of the traditional management accounting practices, which is focused primarily on the manufacturing stage of a Product's Life Cycle (PLC).

PLC progresses through a sequence of stages from introduction to growth, maturity, and decline. Thus, accountants might not be able to analyze cost behaviour and computation of all associated costs would be challenging. The planning and design stage incur the most cost so cost management has to be done in this stage.

LCC refer to the process of estimating and accumulating the total costs that the producer or manufacturer will incur over the product's entire life; from the beginning to diminish the particular product. In other words, "cradle-to-grave costing". The main focus of LCC is not only to reduce the costs that the producer will incur over the PLC including design, manufacturing, marketing, logistics, and service, but also the costs that customer will incur such as the costs of acquisition, operation, maintenance, shutdowns, and disposal. This means that, LCC explicitly takes the longitudinal cost structure of the product's quality and time-related features into the account in two different angles. Therefore, a LCC perspective is useful not only when costs are considered from the customer's view but also considering the producer's view throughout PLC (Artto 1994). Hence, user of the product plays a major role as the cost driver in LCC.

Although, the traditional cost management approach primary focus on the manufacturing stage of the product the PLC costs do not end when the product has been manufactured. As many authors commonly cited, 80-90 percentage of the costs are committed or locked-in by the decisions made in the early stage of PLC. As mentioned, cost management should be done at this stage. Thus, the key to managing or reducing cost is to focus attention and effort on those decisions (Shields and Young 1991). But it is important to note that there are some arguments against committed or locked-in costs. For example, in there study, Cooper and Slagmulder (2004) "...our research suggest otherwise. Specifically we found that Olympus Optical (product they studied) is able to manage costs throughout its life..."

In the management accounting perspective, the main purpose of LCC is to adopt a SCM technique which will maximize the return over the cost objects total life by focusing on the operational and terminal cash flows. LCC builds a conceptual framework that facilitates management's ability to exploit internal and external linkages of the product. Thus, it helps the management accountants to understand the cost consequences of developing and making a product and to identify areas in which cost reduction efforts are likely to be most effective in a way that promotes the strategic competitive advantage of the company.

Nevertheless, many authors argued that there are four broad purposes for LCC in SCM context. Below mentioned are:

1. to assess whether the operating profits earned during the manufacturing, phase will cover the costs incurred in the planning and decline phases;
2. to identify associated costs during the planning period with a given product design and to take necessary actions;
3. to support cost comparisons among different product designs to make more informed decisions among alternatives; and
4. to identify the nature and timing of costs to plan and manage effectively.

**LCC-The Perspectives. Producer's Perspective.** This perspective of LCC is based on the identifying, analyzing, and managing of each individual product's costs throughout its life cycle to take competitive advantage. According to Artto (1994) this refers to the costs that are included in product conception, design, product and process development, production, logistics, marketing, services and guarantees. Perhaps, this suggests that most of the costs are committed or incurred in the earlier stage especially in planning and designing stage of the product or service in the producer's perspective. Therefore, producers are able to analyze and manage costs before any final manufacturing and investment decisions are made.

**Customer's Perspective.** From the customer's perspective the focus is on costs incurred through purchase, operation, maintenance, support and disposal of product. Artto (1994) argued that a company's long-term success with customers requires products to have a lower expected associated costs when compare with substitute products.

Also, Artto (1994) mentioned that organizations must do analysis to learn the market and customers on a three dimensional way; product quality, time-related factors and purchase price. In fact, to be competitive in the market, these factors are vital. So, product design and development criteria should derive from the customer's product selection criteria. This analysis should be done based on market and customers in the initial stage of product design and

planning. Thus, with help of LCC analysis, management is able to make strategic cost decisions based on the mentioned two perspectives.

**Success – LCC in Action.** LCC is particularly important in environments in which there is large planning and development cost for example, the NASA's Advanced Air Transportation Technology (AATT) project have achieved there strategic goals and have been able to manage there cost through LCC on NASA's Decisions Support Tools (DST) (Wang and Datta).

Integrated Business Machines (IBM) applies LCC and estimates and accumulates costs against profit over a PLC to determine profits which could generate. Plus, world's leading electronic and electric giants such as Sony (Japan) and Philips (Holland) have proven successful by applying the concepts of LCC.

Also, many of the US construction firms have adopted LCC in order to reduce costs as projects that undergo; LCC analysis gives the total cost of the Net Present Value (NPV), therefore alternatives could be considered.

BMW has proven so successful in using LCC analysis that helps the management for comparing costs of different designs in order to make decisions on most appropriate product mix (recyclable plastic parts). Also the Japan's car manufacturing giant Toyota uses LCC to make decisions on its Packing Design decisions in sales units. These, cases clearly show that LCC is a reasonably widespread SCM technique use globally.

**Advantages.** As mentioned earlier, LCC is a SCM tool that manages costs form "cradle-to-grave", therefore with LCC, management is able to analyze the behaviour of all costs including indirect cost to estimates and monitor during PLC, perhaps starting from the initial stage. LCC reporting involves tracing costs and revenues on a product by product basis (all possible data) throughout their entire life. Hence, a company can take actions that lower costs in the subsequent stages of the PLC as well as lower consumer's costs such as operating and maintenance costs. LCC integrates all viewpoints (the customer and producer) and thus it leads to avoid partial optimization of the PLC costs and exploits both internal and external linkage (Lindholm and Suomala 2005a). Moreover, a successful implementation of LCC provides competitive advantage for the company (shields and Young 1991)

**Limitations.** LCC estimates too early in the life of a project when the degree of accuracy is questionable and assuming that the alternative has a finite life cycle. The cost of performing a LCC analysis may not be appropriate for all projects and a high sensitivity to changing the requirements. The LLC is influenced by many factors of which some simply cannot control as they arise without warning. Like the entry of new competitor. Besides, the managers and employees might find LCC as a not sound SCM technique and it is difficult to compute costs in the customer's perspective. Also, the disputes in evaluating future cost and dealing with uncertainties regarding factors affecting LCC may have restricted its use (Lindholm and Suomala 2005a). The application of LCC relies on the availability of cost information, thus the normal product costing practices affect companies' abilities to utilize the approach. If company fails to sufficiently track product costs, it is unlikely that the true total cost of the product can be measured consistently and accurately. Also the long PLC could make LCC difficult. Moreover, there is evidence from practice that the failure to recognize the uneven cash flows during the product life cycle can motivate undesired and inappropriate decision making (Lindholm and Suomala 2005a)

**Criticism.** Some authors criticize LCC as it only is applicable for the product which has a certain life period (e.g not products with short life). However, Cooper and Slagmulder (2004) argued that companies can achieve significant savings during product life cycle even in an environment of products with short life cycles and aggressive cost management focused on product design.

According to Takala and Carlsson (2001), the most respected criticism of the PLC, was made by Dhalla & Yuspeh (1976) that is "clearly, the PLC is a dependent variable which is determined by market actions; it is not an independent variable to which companies should adapt their marketing programs" and "Forget the product life cycle!" Perhaps, this was more related to the LCC use in marketing.

In their study Lindholm and (Suomala 2005a) argued that the adoption of LCC depends on the organisational functions rather than different sectors, as there are some belief that LCC is only applicable for industries like military and construction sector. Perhaps, this is not the case as discussed earlier (see Success – LCC in action).

**Conclusion.** SCM is important to organizations because it is more than focusing on costs but also value and revenue in both internal and external angles, which is considered as a critical factor for the success of the companies in the 21st century's competitive business environment. Many studies (Shields and Young 1991, Arrto 1994 and Lindholm and Suomala 2005a) increasingly stress that rapid changes in the business environment especially technological changes and shortened life cycles have made LCC critical to organizations. LCC differs from other costing methods because it generally includes revenues as well as costs of the PLC (Arrto 1994).

Since, LCC is to support during the product planning stage and the analysis of the cost behaviour of a particular product helps managers and accountants to manage costs more effectively and minimize wrong decision-making as it focuses cost behavior of each unique phase of the PLC. Because different types of costs tend to predominate in different phases of the life cycle, by identifying the timing and nature of significant costs in advance, organizations can develop more effective means of budgeting and managing these costs. Besides, it is also very useful when making decisions regarding operation and maintenance (such as warranty) costs incurred during the life of the product. But the key issue is how far beyond the stage where action is taken should a company look for positive impacts reduce costs.

Detailed analysis of LCC makes manufactures to arrive at make-or-buy decisions to be more complete or re-gain its competitiveness in the industry. Because LCC draws general conclusions in all relevant costs which the producers has to incur in making a product or service before the productions doesn't take place.

Likewise, by applying LCC as a SCM technique, managements are able to apply many other techniques in to make economic decision viable such as cost-benefit analysis, discounted cash flow, sensitivity analysis and NPV analysis. Thus this would give an edge over competitors who do not use LCC as a SCM tool

Nonetheless, in practice LCC is often represent long-term costing, but the calculations do not cover the entire life cycle costs in many cases (Lindholm and Suomala 2005a). The reason for this is that historically collected data (in early stages) might no longer applicable as some conditions change. Thus, appropriate use of historically collected data and dealing with the future uncertainties which affect the effectiveness of life cycle costs (in both perspectives), must be in the top priority of any organization to be competitive in the market and to achieve its strategic advantage by implementing LCC as a SCM tool.

In **conclusion**, life cycle cost management and the use of value engineering in life cycle cost management is a useful technical to help the manager in decision making in finance in a long term business.

#### **References:**

1. A Guide to the Project Management Body of Knowledge // PMBOK Guide. 2011. № 3.
2. Baldwin, James, S. Management Decision-Making: Risk Reduction Through Simulation / S. James, Baldwin // Fortune. 2006. P. 38-45.
3. Kerzner, Harold. Project management: A Systems approach to planning, scheduling, and controlling. 9th edition. New York: John Wiley & Sons. 2006. P. 78-91.
4. Project Time Management: <http://www.anticlue.net/archives/000763.htm>, viewed on April 20th, 2012.
5. Project Integration Management: <http://mithuns.wordpress.com/2008/06/11/project-integration-management/>, viewed on April 18th, 2012.
6. Ireland V. and Finegan A., Applied Project Management course material / V. Ireland and A. Finegan A // The University Adelaide, Adelaide. 2010. P. 18-25.
7. Fombrun C. and Devanna, M.A. Strategic Human Resource Management / C. Fombrun and M.A. Devanna // New York Press. 2004. P. 37-39.
8. Beaker B., Huselid M. and Ulrich. The HR: Linking people, strategy and performance / B. Beaker, M. Huselid and Ulrich // Boston, Harvard Business School Press. 2001. P. 41-43.
9. Brown, I.R. Pricing and profit management / I. R. Brown // Journal of Business and Industrial Marketing. 2003. P. 1-3.
10. Lere, J.C. Activity-based costing: a powerful tool for pricing. / J.C. Lere // Journal of Business & Industrial Marketing, Vol.15, P. 23-33. 2008.

11. Burch, J. Cost and management accounting. Modern approach / J. Burch // West Publishing Company, ST Pual, MN. 2010. P. 38-42.

12. Akyol, D.E., Tuncel, G., & Bayhan, G.M. A comparative analysis of activity-based costing and traditional costing / D. E. Akyol, G. Tuncel // Review of Business. P. 44-45. 2010.

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### Стратегические аспекты управления затратами

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**Аннотация.** Данный доклад представляет собой резюме исследования, проведенное в сфере стратегического управления затратами (SCM). Данный отчет включает в себя подробное обсуждение и применение круга жизни цены (LCC), который компания может использовать для достижения своих стратегических целей в динамичной среде современного бизнеса. Таким образом, основное внимание в докладе уделяется LCC.

**Ключевые слова:** Стратегическое управление затратами (SCM); Круг жизни цены (LCC); согласованное определение; «стоимость от колыбели до могилы»; конкурентное преимущество; трехмерный путь; внутренние и внешние связи; быстрые изменения; введение в рост, зрелость и упадок.