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A STUDY ON THE ROLE OF LEAN ACCOUNTING TO REDUCING THE COSTS: AT ADANI POWER COMPANY

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ABSTRACT

The developments accelerated in technology and rapid changes in the environment and increase numbers industrial countries and different desires and requirements of customers, lead to be produced in large quantities is not feasible due to changes listed above as well as the need to product variety and change in tastes and desires of consumers, all above led not to enable companies to discharge their products in the case of mass production and created the need to devise ways and new methods fit with the current situation, and accounting point no longer the traditional accounting systems able to meet the requirements needed by the companies to make decisions and know where waste and loss of resources resulting to invent new style away from the conventional methods currently used is accounting graceful style (Lean Accounting) to keep a place mentioned with modern developments. On this basis, centered research problem about the role of lean accounting on reducing of costs of the company.

The objectives of this study are To clarify nature of the relationship and impact between lean accounting and reduce costs (operating costs, financial costs, capacity costs) in construction, and Determine of steps of application of lean accounting to reduce costs. The study found a set of conclusions and recommendations as following:

There is a impact with any significant positive relationship between two variables: lean accounting and costs (operating costs, financial costs, capacity costs). The recommendations are: To establish the culture of role-based management, it is recommended that managers work on value-groups to homogenize the organization. Lean environments with production cells that require people to be multi-skilled require only a few, broadly defined pay grades.

KEYWORDS: Lean Accounting, Operating Costs, Financial Costs, Capacity Costs.

INTRODUCTION

Under the recent developments of the current century, and with the diversity of customer demand, globalization and the intensity of the competition among the companies to find competitive advantage. The traditional methods of setting goals has became not sufficient to address the requirements of the current situation of each of the fact that deals with an aspect of the administration of the cost and then lack of suitability of current developments, especially when using methods of lean Industry, causing the need for the emergence of new practices and tools which are called lean accounting. To support these developments in the industry and particularly in the lean manufacturing. Many companies have found that traditional accounting systems do not meet their demands because they can be expensive and take long time consuming to get the desired results, or they do not take into account the costs of waiting time, conversion of production and cost of

under process inventory. The tools of lean accounting deals with reduction of wastes of inflow time of production processes and resources, and which could not addressed by traditional accounting.

Therefore, the aim of the lean accounting is to eliminate the waste in production process and **operating**, reduce the flow of production processes, provide accurate information, faster and improve product quality and greater flexibility and speed to meet the requirements of customers and the market, soon with the aim of reducing costs through using of Principles, goals and tools of lean accounting.

STUDY METHODOLOGY

Problem of the Study

In the last two decades of the last century multi traditional Appeared methods in cost management addresses aspect of each of cost. However each of them is unsuitable for application in achieving the goals of the company in under the current developments of production, particularly with lean production processes and as a result of weaknesses in the directing resources efficiently and effectively and eliminate the loss of resources and time and then reduce the overall costs (operational, financial, capacity). From of above that the main problem of the study is :

What is the role of lean accounting on reducing of costs of the company?

From the main problem can be formulation some sub-problems as following:

What is the lean accounting? What are the its applications and its tools?

How is the lean accounting to benefits in directing the company 's projects?

towards the optimal use of resources and reduce the losses in time and processes and reduce costs

What is the role of lean accounting on reducing of operational costs?

What is the role of lean accounting on reducing of financial costs?

What is the role of lean accounting on reducing of capacity costs?

Objectives of the Study

- Identify the lean accounting of as the concept and the principles and objectives and requirements.
- Presentation and discussion of knowledge and theoretical contributions in the field of lean accounting and costs.
- Determine of steps of application of lean accounting to reduce costs.
- Identify practical procedures for the application of lean accounting in
- To clarify nature of the relationship and impact between lean accounting and reduce costs (operating costs, financial costs, capacity costs) in construction projects.

Hypotheses of the Study

The Main hypothesis of the study:

There is no a impact with any significant positive relationship between two variables: lean accounting and costs (operating costs, financial costs, capacity costs).

The Main hypothesis of the study can be subdivided into:

- There is no a impact with any significant positive relationship between lean accounting & operating costs.
- There is no a impact with any significant positive relationship between lean accounting and financial costs.
- There is no a impact with any significant positive relationship between lean accounting and capacity costs.

Need and Importance of the Study

The importance of study is concentrated in the shift from traditional methods to reduce the costs that have been applied in the twentieth century to the new style is a method of lean accounting Use a number of its tools that assist in directing the resources available to the company in an effective and efficient And the elimination of losses in time and the performance of processes and products While maintaining the Control processes to provide accurate and timely information for all levels of management in the company. It is scientifically fall importance of study in their applicability to all company activities Reduction not only on productive activities, but expanded to include resource management activities and inventory and create quality and achieve customer satisfaction and staff requirements**.**

STUDY BACKGROUND

THE CONCEPT OF LEAN ACCOUNTING

The term lean from an accounting point can be defined as a set of tools that can help to determine waste and eliminate it, as it does not add value to the work and improve the quality while the lean accounting works to reduce production cost and time. The results of the implementation lean is to get things straight and in the right place at the right time and the right quantity to achieve perfection while minimizing the waste with the flexibility and ability to change. The philosophy of lean It allows the organization to become strong through stable operations to enable them to assess what the customer needs accurately and quickly and efficiently with minimal costs.

Either with regard lean accounting, it means control, measurement and management techniques that reflect the reality of lean thinking and lean practices. The lean accounting makes the best decisions by its understandable tools, activation costs and accurate information.

Accountings use of cells, cost or profit centers or departments normally based on smaller, functional groupings of work activity (Spithoven, A.H.G.M. 2001:34). The core idea behind lean is minimizing waste, therefore creating more value for customers with fewer resources. In order to obtain the expected results, the companies which have adopted the Lean Manufacturing system should apply the Lean Thinking model at all company's levels including the accounting activity (Burton, T. T. & S. M. Boeder, 2003:230). Accountants need to locate the sources of resistance to cultural change, especially if the source is within their own hearts and minds (Haskin, D.,2010:230). Discovering this root cause is the first step toward overcoming it and removing the barrier to the lean accounting transformation (Ayoogh, A, 2006:145).

REQUIREMENTS OF IMPLEMENTATION OF LEAN ACCOUNTING

- The approval of top management and discuss their vision of lean accounting.
- Brainstorming to identify the leader of the project and determine the goals.
- Set a plan of Communication and vision of the workforce.

- Assign Volunteers for teamwork.
- Assign members of the teamwork.
- Training of the executive team of various of lean accounting.
- Act of Implementation.
- Evaluate the results and feedback.

LEAN ACCOUNTING PRINCIPLES, PRACTICES, AND TOOLS

The practices and tools of lean accounting are summarized into five principles shown below

Table 1: Principles, Practices & Tools of Lean Accounting

PRINCIPLES	PRACTICES	TOOLS OF LEAN ACCOUNTING
(A) Simple business accounting	Continuous waste elimination (transactions processes and reports)	(a) Value stream mapping, current & future state (b) Kaizen continuous improvement (c) PDCA problem solving
(B) lean Accounting for change	Management control & continuous improvement	(a) Performance measurement chart linking metrics to process, value streams, plant reporting business strategy, target costs, and lean improvement (b) Value stream performance boards containing break-through and continuous improvement projects (c) Box scores showing value stream performance
	Cost management	(a) Value stream costing (b) Value stream income statements
	Customer & supplier value and cost mgt	(a) Target costing
(C) Clear & timely Information provision	Financial reporting	(a) Plain English" financial statements (b) Simple, largely cash-based accounting
	Visual reporting of financial & non-financial performance measurements Decision making	(a) Primary reporting using visual performance boards; divisions, plant, value stream, cell/process in production, product design, sales/marketing, administration, etc. (a) Incremental cost & profitability analysis using value stream costing and box scores
(D) Planning from a lean perspective	Planning & budgeting	(a) Hoshin policy deployment (b) Sales, operations, & financial planning (SOFP)
	Impact of lean improvement	(a) Value stream cost and capacity analysis (b) Current state & future state value stream maps (c) Box scores showing operational, financial, and capacity changes from lean improvement. Plan for financial benefit from the lean changes
	Capital planning	(a) Incremental impact of capital expenditure on value stream box-score. Often used with 3P approaches
	Invest in people	(a) Performance measurements tracking continuous improvement participation, employee satisfaction, & cross-training (b) Profit sharing
(E) Strengthen Internal accounting control	Internal control system based on lean operational controls	(a) Transaction elimination matrix (b) Process maps showing controls and SOX risks
	Inventory valuation	(a) Simple methods of inventory valuation without the requirement for perpetual inventory records and product costs

Sources: AME, 2005

TOOLS OF LEAN ACCOUNTING

Value Stream Costing

Cost and profitability reporting is done using value stream costing, a simple summary direct costing of the value streams. The value stream costs are typically collected weekly and there is little or no allocation of "overheads." This provides financial information that can be clearly understood by everybody in the value stream which in turn leads to good decisions, motivation to lean improvement across the entire value stream, and clear accountability for cost and profitability. Weekly reporting also provides excellent control and management of costs because they can be reviewed by the value stream manager while the information is still current (Kroll, Karen M.,2004:102).

Visual Management

Visual management is a cornerstone of lean management. Lean accounting requires visual presentation of both

financial and non-financial measurements. The "Box Score" format commonly used in lean accounting provides a one-sheet summary for a value stream showing the operational performance, the financial performance, and how well the capacity is being used.

Target Costing

Target Costing is the tool for understanding how the company creates value for the customer and what must be done to create more value. Target Costing is used when new products are being designed and/or when the value stream team needs to understand the changes required to increase value for the customers. The outcome of this highly cross-functional and cooperative process is a series of initiatives to create more value for the customer and to bring the product costs into line with the company's need for short-term and long-term financial stability. These improvement initiatives encompass sales and marketing, product design, operations, logistics, and administrative processes within the company (Mekong Capital, 2004:122).

Decision-Making and Box Scores

Routine decision-making — including quotes, profitability, make/buy, sourcing, product rationalization, and so forth — is achieved using simple yet powerful information that is readily available from the box score. There is no need to use a standard cost again for these important decisions (Tavakoli, A.,2003: 234).

Planning and Budgeting from a Lean Perspective

Lean planning starts with hoshin policy deployment and runs through to the monthly Sales, Operations, and Financial Planning (SOFP) process leading to an integrated game plan for the organization. These plans are all made at a value stream level and use lean accounting information.

Clear and Timely Communication of Information

Lean accounting provides financial reports that are readily understandable to anyone in the company. The income statements are in "plain English" and the information is presented in a way that is no more complicated than a household budget. Plain English income statements are easy to use because they do not include misleading and confusing data relating to standard costs together with hosts of incomprehensible variance figures. When used in meetings, plain English financial statements change Soroush, E., 2007:156)**.**

HOW THE LEAN ACCOUNTING TOOLS REDUCING COSTS

Quality Measures to Reduce Costs

The life cycle of a product from design to implementation, use and recycling, industrial companies must be responsible to correct, mitigate or eliminate the losses caused. Other ways in which quality-related costs can be reduced: using calculations at the preliminary studies or by a decision taken by the leaders of the industrial company.

The Lean Six Sigma Systems

Lean Six Sigma is: improving quality and efficiency of processes based on a strong project and quantitative approach with clear target setting. For long-term success and sustainability of excellence in operations, techniques must be supported by an organizational philosophy that complete context of transactions.

Lean Process Principles

Lean production is a production philosophy that reduces the time between customer order and manufacturing, delivering the required product by eliminating waste. Lean production uses less of everything compared with mass production or mass, half the manufacturing space, half the investment of equipment, design half hours a new product (Tavakoli, A., 2003:187).

Just In Time Method (Jit)

(Brosnahan, J. P.,2008:321)Just in Time (JIT) is based on the idea that production activity must be calculated and designed with great precision so that inventories are minimized.

Total Quality Management –Tqm

(Foster, G. and C. T. Horngren., 1987:226) TQM - is a complex process that causes a continuous quality improvement of product/services to meet customer requirements in the context of increasing labor productivity and profit industrial organization.

DATA INTERPRETATION &ANALYSIS

Table 2: Revenue

Particulars	FY 14-15	FY 13-14	Change	%Change
Revenue from power Supply	19,517.38	15,754.07	3,763.31	23.89%
Sale of Fly Ash	27.56	14.01	13.55	96.72%
Total	19,544.94	15,768.08	3,776.86	23.95%

From above Table the Revenue during FY 2014-15 increased mainly account of higher sales of 50.7 Billion units sold during the current as compared to the previous year sale of 40.1 Billion units. Also, the Effective capacity has enhanced to 8891 MW from 7182MW in the previous year**.**

Fuel Cost

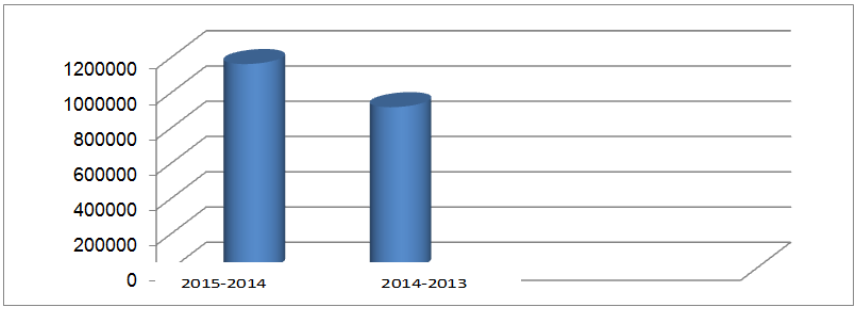

Figure 1: Fuel Cost

Due to higher sales volumes by 26% as compared to the previous year, the Fuel consumption is higher resulting into increase in fuel cost.

Finance Cost

Table 3: Finance Cost

Particulars	FY 14-15	FY 13-14	Change	%Change
Interest Expenses	4,688.71	3,435.99	1,252.72	36.45%
Other Borrowing Costs	680.45	925.96	(245.51)	(26.51)%
Total	5,369.16	4,361.95	1,007.21	23.09%

Finance costs are higher mainly on account of cessation of capitalization of interest cost on commissioned plants and also due to conversion of Letter of Credit facilities into rupee term loan.

Performance Reporting

Table 4: Performance Reporting

		6/2	6/9	6/16	6/23	6/30	7/7	7/14	7/21	7/28	8/4	8/11	8/18	8/25	Goal
OPERATIONAL	Units per Person	15.10	15.63	14.7	15.91	15.90	16.32								20.7
	On-Time-Shipment	100%	100%	100%	100%	100%	100%								100%
	Dock-to-Dock Days	6.00	6.00	6.00	6.00	6.00	5.5								5.5
	First Time Through	80%	80%	81%	85%	85%	87%								92%
	Average Cost	343	337	362	338	337	325								262
CAPACITY	Productive	29%	29%	29%	28%	28%	28%								40%
	Non-Productive	54%	54%	54%	52%	52%	52%								33%
	Available	17%	17%	17%	20%	20%	20%								27%
FINANCIAL	Revenue	471	485	456	490	488	526								576
	Material Cost	123	125	129	132	135	137								139
	Other Variable Costs	49	50	51	54	76	87								51
	Fixed Costs	120	120	118	116	116	116								108
	Profit	179	190	158	188	161	186								278
	Return on Sales	38%	39%	35%	38%	33%	35%								48%

From above table the lean accenting tools have reducing of operating costs(units per person, dock to dock days, first time through and average cost), conservation the capacity (productive, non-productive and available) and rationalization of financial costs (revenue, material cost, other variable costs, fixed costs, profit and return on sales) that led to achieving company's goals and objectives**.**

THE ASSESSMENT OF FINANCIAL BENEFIT FROM LEAN ACCOUNTING

Table 5: The Assessment of Financial Benefit from Lean Accounting

		Current State Before Lean Dec '02	Future State Lean Step Two Dec 2003	Future State Longer Term including New Products
OPERATIONAL	Sales per Person	224,833.00	224,833.00	277,031.00
	Inventory Turns	6.5	15	20
	Average Cost per Unit	31.32	29.88	24.25
	First Pass Yield	81%	95%	95%
	Leadtime in Days	25	5	2.5
CAPACITY	Productive	55%	52%	79%
	Non-Productive	42%	12%	12%
	Available	3%	36%	9%
FINANCIAL	Revenue	4,062,000	4,062,000	5,686,000
	Material Costs	1,164,184	1,109,327	1,552,839
	Conversion Costs	1,483,416	1,483,416	1,657,500
	Value Stream Profit	1,414,400	1,469,257	2,475,661
	Value Stream Return on Sales	35%	36%	44%
	Hurdle Rate Variance (40%)	-5%	-4%	4%

As the company moves from the current state to the future state the operational measurements improved, but there was little financial improvement. Tangible financial benefit comes when the company introduces new products that use that newly -freed up capacity.

TEST OF HYPOTHESES OF STUDY

To find a certified indicators that support the objectives of the study, and through test hypotheses and build their own model, the researcher has used many statistical tests through the use of (SPSS) program. The aim of the data that has been collected through a questionnaire study analysis.

Have been used the following decision Base to test hypotheses of the study are:

Be accepted hypothesis if the calculated value is less than the tabular value and moral value is greater than (0.05) and reject the hypothesis if the calculated value is greater than the tabular value and moral value is less than(0.05).

The Main Study Hypothesis

There is no a impact with any significant positive relationship between two variables: lean accounting and costs (operating costs, financial costs, capacity costs).

Table 6: The Main Hypothesis Test Results

F Calculated	F Tabulated	(Sig-F)	Correlation Coefficient R	Coefficient of Determination R2	Result H
3.6	**111.957**	**0.88**	**0.721**	**0.576**	**Reject**

Have been used of test multiple regression to test the previous hypothesis, Noting (F) Calculated value is less than of its Tabulated value When the confidence level is (%95), It also (Sig-F) is more than The level of significance (0.05), And depending on the decision rule we reject this hypothesis. Relationship strength has reached (**0.721**), Coefficient of determination is (**0.576**), Reflecting the rising strength of this relationship and the degree of interpretation of variables of lean accounting and costs (operating costs, financial costs, capacity costs).

CONCLUSIONS

- While Lean Accounting is still a working- process, there is now an agreed body of knowledge that is becoming the standard approach to accounting, control, and measurement. These principles, practices, and tools of Lean Accounting have been implemented in a wide range of companies at various stages on the journey to lean transformation.
- The company using Lean Accounting have better information for decision-making, have simple and timely reports that are clearly understood by everyone in the company, they understand the true financial around the value created for the customers, and Lean Accounting actively drives the lean transformation.
- The using of lean accounting tools that company can to reduce costs and achieve financial savings for the company, speed respond to the customer needs and wants, flexibility, quality, and reduce inventory costs for the full production and production under process and reduce the waiting time and reduce the loss and choose the best suppliers.
- There is a impact with any significant positive relationship between two variables: lean accounting and costs

(operating costs, financial costs, capacity costs).

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