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## Lean Accounting System: Importance and Successful Implementation

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**Abstract:** A lean accounting system is a complex phenomenon the success of which can depend on several factors. Efforts to implement and/or maintain a successful lean accounting system have failed many times, however, only a few studies have addressed this predicament of the implementers. The objective of this study is to find out the importance of lean accounting system, and the reasons behind its successful implementation. A thorough literature review was performed to meet the research questions. It was found that a successful lean accounting system requires continual strong commitment from top management, introduction of congruent accounting methods, existence of a lean manufacturing/operational system, and effective collaboration with value-stream teams. This study has contributed to extant research by unearthing the interrelationship among the variables such as manufacturing system, traditional accounting system, lean accounting system, role of top management, and others to find out the ingredients of a successful lean accounting implementation.

**Keywords:** Lean Accounting, Systematic Literature Review, Qualitative Approach

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### INTRODUCTION

The study focuses on the review of extant literature on the topic of “Lean Accounting”. The review has been conducted in relation to these selected themes: (1) Requisite adjustments in the accounting system and implementation of lean accounting (2) Role of top management in the successful implementation of lean Accounting (3) Best lean accounting techniques for lean manufacturing systems (4) Factors required for effective lean accounting implementation (5) Value- Streams-Teams’ expectations about lean accounting. The entire study is divided into three chapters: Introduction, literature review and conclusion.

The first chapter, introduction, contains background, objectives, research themes and scope defined for the study. The second chapter, literature review, as discussed above contains critical review specific to the above-mentioned themes. The last chapter, conclusion, contains a synthesis of the essential arguments presented by the researchers specific to the selected themes on the topic of lean accounting.

#### 1.1 Background

This section of the introduction deals with the description and importance of lean accounting in relation to the objectives of this research. The content emphasizes how lean accounting is different –in terms of various dimensions - from a traditional management accounting environment. The background presents an overall broad overview of the literature that is available on lean accounting and various implications and issues highlighted by the researchers. This study deals with a selected themes derived from the literature focusing a multitude of other themes.

##### 1.1.1 Lean Management

Many successful businesses in the world have recognized the importance of lean management and therefore they seek to implement innovative lean strategies to achieve increasing level of economies, and improved levels of revenues (Kapanowski, 2017). Lean is a philosophy which focuses on customer value derived by constantly redesigning the business operations in order to eliminate wastage from the entire set of business activities (Womack & Jones, 2010). Lean, appropriately characterized as a philosophy, is an ongoing phenomenon, and therefore produces results on long-term basis. The ultimate outcome of a holistic lean system, other than apparent reduction of wastage of manufacturing resources, is less lead time, quality improvement,

effective management information system, reduction in prices and capacity enhancement (Debusk & Debusk, 2014).

### **1.1.2 A Holistic Strategy**

Many popular tools are available for firms to implement lean. Among them, the most important are: 5S, total productive maintenance, kaizens, cellular manufacturing, visual management, poka-yokes, standardized work, and kanban. But a lean practice, that is oftentimes sidelined and misconceived by firms, is a collaborative lean accounting system (Maskell, Baggaley, & Grasso, 2012). Indeed, all of these aforesaid lean approaches have their justification and role within a lean system. Unfortunately, firms, many times, view lean as an assortment of tools. Therefore, rather than treating lean as a holistic business strategy, most firms select the tools which are most conveniently deployed or may tend to bring the largest impact to their accounting profits. But they end up disappointed with the results, because in isolation the tools are not as potent as they could be in combination (McVay, Kennedy, & Fullerton, 2013).

### **1.1.3 A Pull Strategy**

Essentially the operational activities are pulled by the customers hence requiring no inventory buildups. The approach is quite different from the traditional model where the focus is on merely reducing costs, increasing earnings and thereby enhancing shareholders' wealth (Wilson, 2010). Lean businesses employ the technique of value streams management where similar products flow through a single value stream (Kapanowski, 2017). In a conventional system, on the contrary, each product has its own unique path. A value stream includes entire set of activities a business need to perform to engineer, procure, manufacture, and ship to the customers its products. Innovation is the name of the game in a lean setting. The value stream teams are always thinking of redesigning the operational environment to create more value to the customers and/or new eliminate wastage from the system (Van Assen, 2018). Lean requires commitment from the top management from investment to training to tolerating initial losses (Kaynak, 2003). A lean system does not always become beneficial only because it eliminates wastages, it is actually the excess capacity it creates that makes it desirable most times than none. Therefore, the businesses need to have a strong growth strategy to complement a lean system by utilizing the capacity created by it (Maskell & Kennedy, 2007).

### **1.1.4 Lean Accounting**

The literature refers to accounting practices as transactional processing systems, including systems such as cash system, purchasing system, sales system, inventory system, and product costing system. As in the words of (Kennedy & Widener, 2008), using these processes, data is gathered and aggregated in a systematic manner to produce information for the preparation of reports to be sent to the concerned employees and managers for their desired feedback.

As the focus of the lean philosophy is on eliminating all of the wastages from cradle to grave and to create more customer value, the role of an accounting department can't be overemphasized. As in the words of (Maskell, Baggaley, & Grasso, 2012), the accountant is expected to provide instant and meaningful feedback, use less complicated procedures and employ measures that emphasize customer value and elimination of wastages. The financial reports prepared under a lean accounting system are simple and understandable conveying the essence of the principle of continuous improvement and waste reduction as incorporated in lean philosophy – becoming a strategically congruent activity (Fullerton, Kennedy, & Widener, 2014). The role of management accountant is to facilitate and report rather than become a means of bogging the system down. On the same lines, (Kennedy & Widener, 2008) reports that accounting stance towards lean advocates that firms combine strategies fashioned to eliminate waste in manufacturing activities and to support decision-making framework and control activities within a typical lean manufacturing system.

### **1.1.5 Traditional Management Accounting**

The above discussion describes the lean philosophy and pinpoints the role of the accounting department in lean management initiatives. The traditional form of accounting, with emphasis on precisely calculating the cost of the product and profitability, do not agree well with lean philosophies (Fullerton, Kennedy, & Widener, 2013). The approach is to identify all of the costs with the relevant products. This is a result of a number of layers of direct and indirect costs. The costs are later allocated either as individual costs or are allocated as pool of costs being already traced to a department, cost center or a cost pool (McVay, Kennedy, & Fullerton, 2013). The idea of seeking such a precise mechanism is to allocate all relevant costs to a product so that they could be priced accurately and the firm's financial performance be assessed precisely. The result could be creation of complex and difficult to understand financial reports.

The field of accounting has grown over a period of time and one of the branch that has emerged, as a result of the exclusive demand of management, is managerial accounting. Although, the field of management accounting has served management well and brought within itself several new techniques such as Activity Based Costing

(ABC) system, balance-scorecard, relevant costing, Total Quality Management (TQM) and many others. According to (Stenzel, 2007)with the advent of lean management- which requires emphasis on agile and thin operations- the managerial accountants are now expected to acquire congruent set of skills sets and contribute to the effective implementation of lean strategies.

### **1.1.6 Lean Management and Lean Accounting**

As a lean system works on a pull philosophy therefore inventory buildup is regarded as one of the wasteful activity. Hence, the need to track inventory is minimal and accountant is expected to go beyond merely inventory tracking (Wilson, 2010). As mentioned above he should not make the accounting reports complex by seeking to allocate cost precisely and by using such intricate performance measures as variance analysis. The accountant, in conformity with the value stream philosophy, should think in terms of creation of customer value and support the value stream managers accordingly (Maskell & Kennedy, 2007).Otherwise, their inclination towards traditional accounting procedures and resistance to lean accounting systems would serve to impede the successful implementation of the lean manufacturing system. As in the words of(Debusk & Debusk, 2014),managers in Lean businesses managers sometimes state that the accountants don't support them and employ a traditional system involving raw material variances, labor variances, and machine efficiencies that managers only find nagging at best. It simply means that the managers in a lean system actually desire management accounting to evolve and innovate to the extent that it addresses the informational needs of the mangers involved in the lean environment.

### **1.2 Problem Statement**

The nature and value of lean accounting has been thoroughly discussed in the relevant literature. A lean accounting system is generally considered as an important ingredient of a lean manufacturing system. However, it is a complex process the success of which can depend on several factors. Efforts to implement and/or maintain a successful lean accounting system have failed many times, however, only a few studies have addressed as to why lean accounting systems fail. The failure or ineffectiveness of a lean accounting system may not occur in vacuum rather it may induce the failure of the entire lean manufacturing system.

### **1.2 Research Gap/s**

Only a few studies have thoroughly discussed the factors that contribute towards the failure of a lean accounting system. There are certainly several studies which have compared the traditional accounting systems with a lean accounting system, and studies which have discussed the value stream costing system and its importance, but none have discussed the very gap identified by the author of this study.

### **1.3 Objectives**

The objective of this paper is to determine the importance of a lean accounting system, and the reasons behind its successful implementation.

### **1.4 Research Questions**

1. Can a lean manufacturing system be successful without a lean accounting system?
2. What role does top management play in the successful implementation of a lean accounting system?
3. What is the best lean accounting techniques for a lean manufacturing system?
4. What are the factors required for effective lean accounting implementation?
5. What are the expectations of Value- Streams-Teams'for a lean accounting system?

### **1.5 Scope of the Review**

The review is limited to the lean philosophy as applied to a manufacturing system. It is well recognized that the lean philosophy can easily be applied to other areas than manufacturing systems and equally well in non-manufacturing business.

## **2 Methodology**

This study employs a qualitative approach using a literature review strategy. The rigorous and systematic literature review for this study was performed in order to meet the research questions and the objective of this study. Several steps were employed to select the literature for this study, these were: one, searching popular research databases; two, identifying the appropriate articles and books as per their titles; three,further screening the article and books through browsing of their contents, abstracts, and conclusions; and finally, selecting only those items which had at least h ranking based on google scholar standard. The process produced 50 items for the review.

### **3 Literature Review**

#### **3.1 Research Question 1**

Why a lean manufacturing system can not be successful without a lean accounting system?

##### **3.1.1 Inappropriate Cost Management Orientation**

The lean philosophy requires a relentless commitment to the idea of cost management. Therefore, an emphasis on reducing cost at much higher than the level of unit cost is warranted (Cunningham & Fiume, 2003). The conventional costing system and accompanying full-costing technique pose hurdles to an effective lean transition. This is because a conventional accounting system, focusing precision of product costs and profitability, requires complicated approaches to identify and allocate costs (Maskell & Katko, 2007). But when companies design the operations focusing value streams, the cost structure becomes easy to handle requiring only a minimal allocation (Cunningham & Fiume, 2003). Contrary to traditional accounting, lean accounting correctly suggests that all costs are fixed. If costs are treated as variable, management has much lesser control over the costs than is the case if they are treated as fixed costs. And if this is the case then, the firm has actually allowed the relevant managers a liberty to increase the level of spending in various areas, in proportion to sales levels (Ruiz-de-Arbuló-Lopez, Fortuny-Santos, & Cuatrecasas-Arbós, 2013).

Standard costing is not good for companies adopting a lean business strategy for two reasons. First, the principles in which a lean company operates are unique. Second, standard costing system compares standard rates, based on estimates, to actual information to evaluate performance. Lean companies thrive by maximizing flow on the pull from the customer, and suggest that maximization of resource utilization causes overproduction, and build-up of inventory (DeBusk & DeBusk, 2012). Thus, using standard cost utilization and efficiency information as performance measures creates messages that operations are not improving, and that resources are being underutilized even when operational performance is actually improving. Standard costing uses estimates, and assumes a fixed assignment of resources. In a lean environment, innovation in the operating environment is the way of life, therefore, updating standards in such a dynamic environment is almost impossible. Standard costing was designed to support the mass production and is unsuitable for organizations making the transformation to a lean enterprise (Maskell & Katko, 2007).

##### **3.1.2 Existing Accounting System Inhibits a Lean Manufacturing Strategy**

According to (Cunningham & Fiume, 2003), the accounting departments inhibit progress towards the lean initiatives by not adapting to the desired lean system, and, by not becoming a primary support system to the lean implantation. The systems originally designed to be consistent with a conventional batch orientation will necessarily transmit wrong signals within a lean setting (Maskell & Katko, 2007), (Panwar, Nepal, Jain, Rathore, & Lyons, 2017). One significant hurdle to an effective lean implementation is an accounting system not synched with lean manufacturing philosophies (Staedele, Ensslin, & Forcellini, 2019). Without a suitable accounting system, accounting reports are not aligned to promote operational excellence (Li, Sawhney, Arendt, & Ramasamy, 2012). According to (Hutchinson & Liao, 2009) the existence of conventional costing system is the reason of promoting nonlinear behavior among the accountants. (Kennedy & Widener, 2008) argue that lean manufacturing initiatives have a direct relationship with the relevant control components, and the effective accounting practices. Furthermore, they also argue that, accounting practices is a significant intervening variable for measuring the relationship between the lean manufacturing strategies and their control components.

##### **3.1.3 Encourage Production without Customer's Demand**

In contrast to lean accounting, the regular standard costing system promotes labor and machine efficiency, this creates a momentum to manufacture heavily irrespective of demand, accumulates inventory, and seeks financial, instead of operational excellence (Carnes & Hedin, 2005). Lean manufacturing emphasizes that production should only take place to fulfill customer's demand, and should not consider idle machine as an adverse scenario. Manufacturing and accounting myths explain the differences between traditional manufacturing and lean manufacturing (Harris & Cassidy, 2013).

##### **3.1.4 Complex and Wasteful**

According to (Maskell & Baggaley, 2006) the conventional accounting structures are unnecessarily extensive, complicated, and carry wasteful tasks, with many activities that do not add value. They further add that the reports generated by such systems are found to be very difficult by the employees in other departments. Moreover, precious time is wasted over an attempt to precise record and allocate cost which may be allocated to book keeping and report generation should be reduced and ideally be used in product valuation and performance assessment (Maskell & Katko, 2007). The assumption is that, the more detailed the data collection, the more knowledge is available. But, as the data gathering becomes a burden, people tend to manipulate it. Often there is inordinate level of data that it is difficult to manage. A strict regimen to collect machine-by-machine data

becomes very arduous in most cases. Although, the inability to gather required data in a manufacturing system is often considered a hindrance to implementation, but in a lean manufacturing system such an activity is considered nothing more than a non-value added pursuit (Carnes & Hedin, 2005).

### **3.1.5 Unwanted Emphasis on Inventory Tracking**

In a lean setup the requisite congruence among actual work and designed practices is obtained by controlling processes, rather than financial accounting figures (Fullerton, Kennedy, & Widener, 2014). Thus, detailed inventory tracking is not warranted in a lean manufacturing strategy; in fact, inventory tracking can actually backfire in a lean system (Bellisario & Pavlov, 2018). An elaborate inventory tracking system harms the lean implementations by promoting inventory build-up, seeking product costs accuracy rather than enhancement of customer value, using tools such as volume and efficiency variances not favoring extra capacity, and installing a complex system of information gathering and reporting that is difficult to follow (Maskell & Kennedy, 2007). Although the conventional systems claim to track inventory rigorously, the holding cost of inventory is somewhat ignored. The costs comprise actual storage, warehouse insurance, staff compensation, temperature and similar items. Much of these costs are traced through overhead allocation schemes are in fact much higher in amount than actually recognized (Carnes & Hedin, 2005).

### **3.1.6 No Reflection of Changing Strategies**

Researchers argue that the conventional management accounting systems do not reflect differences in strategy, operating environment, or competitive pressures. If the firm desires to change its manufacturing strategy, then the accounting system should change to ensure required information for the managers (Hilker, 2011). Therefore, firms which implement lean systems realize that congruent accounting approaches are warranted (Fullerton, Kennedy, & Widener, 2013). A traditional accounting system would not be able to correctly measure the financial impact of lean improvement being more calculative than performative (Revellino & Mouritsen, 2015). In contrast, lean accounting, as it recognizes creation of additional capacity, stresses that there should be strategies in place to utilize the freed-up capacity. It is no use eliminating the wastages, and not knowing what to do with them. The real financial impact of lean is only seen if the available capacity is utilized profitably (Maskell & Katko, 2007).

## **3.2.1 Research Question 2**

What role does top management play in the successful implementation of lean accounting?

### **3.2.1 Motivation and Resources**

The role of top management in the pursuits of an effective lean accounting system has been discussed by several researchers. Researchers, e.g., (Reynders, Kumar, & Found, 2020) have stressed the importance of top management support in the successful implementation of an advanced system. The support of top management is needed not only to motivate the lean accounting team but also to provide necessary resources. Without the support of top management appropriate resources needed for the transition cannot be ensured whenever required (Kaynak, 2003). A transition to lean would make the whole manufacturing environment dynamic. In such a manufacturing setting, top leadership must be a catalyst or agent of change to encourage and motivate employees to the adoption of the lean initiatives (Reynders, Kumar, & Found, 2020). This makes the role of top management even more important. Even though firms may have devised the best strategy in lines with a strong vision, if managers continue to employ old practices that do not agree with the visionary strategies, congruence would be harmed and progress slowed. With strong top management support, the lean manufacturing initiatives have strong effects on both the management accounting practices and relevant controls within the manufacturing environment (Fullerton, Kennedy, & Widener, 2013).

### **3.2.2 Commitment**

The commitment from the top management is the most important aspect of lean accounting implementation (Antomarioni, Bevilacqua, Ciarapica, Sanctis, & Ordieres-Mere, 2020). The commitment is needed from actual participation in the value stream team meeting, to the analysis of accounting metrics. Accounting is considered the most important information source for the CEO in determining which metrics to be used for performance measurement. At the time of transition to the lean culture, the CFO, needless to say, is expected to have a sharp understanding of the desired behavior being the hallmark of a lean culture (Holmemo & Ingvaldsen, 2016). Therefore, the CEO and CFO must perform an analysis of company matrices to decide which matrices should be eliminated, and which ones to be added (Fullerton, Kennedy, & Widener, 2014).

The active participation of senior management in the Sales and Operations meetings is also critical. In these meetings planning and execution takes place in relation to a specific value stream. Senior management's presence in such meetings is crucial (Alefari, Salonitis, & Xu, 2017). Support from the top management should

also come in the form of reassurances that employees will not be terminated as a result of lean initiatives. The fruits of lean management occur over a period of time, hence the vision and the commitment of the top management is inevitable (McVay, Kennedy, & Fullerton, 2013). Strategies and targets set only once a year are not consistent with the high-change environment that a lean system maintain as the causal relationships built into the plans do not remain the same. In this environment, planning systems must incorporate continuous feedback mechanisms to adapt to continuous change in the environment and the critical factors for success in adapting to this change (Holmemo & Ingvaldsen, 2016). The top management is expected to create management systems that embody the principles of adaptive culture and interrelated enterprise systems that constantly interact with the environment as well as with the network of internal relationships (Baggaley, 2007).

### **3.2.3 Active Participation of the Accountant**

The resources, including training and time, needed to transit from a traditional accounting system to a lean accounting system are substantial. But, accountants, having the confidence in their lean accounting skills, should think about convincing the top management about the merits of a lean initiative and hence ensure approval of requisite resources from them. Even then, the support of top management is needed for the accountant to be provided the right playing field to lead the lean transformation (McVay, Kennedy, & Fullerton, 2013). When a lean strategy holistically is designed to include both lean manufacturing and lean accounting practices, the performance is likely to be enhanced (Revellino & Mouritsen, 2015). Without accountants, operations management cannot effectively implement even with a well-constructed lean strategy. It is therefore imperative that operations management should have a strong relationship with accountants to ensure that the specified financial control data are attuned to lean objectives (Grasso L. P., Barriers to Lean Accounting, 2006).

The operating managers desire an active participation of accountants in the strategic direction to the lean transitions, as they appreciate performative accounting information rather than calculative information (Revellino & Mouritsen, 2015). The result is more positive when implementation of lean accounting is strategically aligned with the lean manufacturing activities. In many organizations lean initiatives have been made the domain of a designated group of lean experts, with almost no support from top level executives, and only vague appreciation from the operating employees and managers (Debusk & Debusk, 2014). This is one of the important reasons as to why Lean does not find any concrete footings within the corporate culture observed by many manufacturing organizations. This clearly suggests that without the engagement of top management lean initiatives cannot be fully materialized.

### **3.2.4 Short-term Results and Reporting Requirements**

It is found that companies, which implement lean manufacturing, generally experience decreased level of net income during the lean implementation using traditional financial-accounting principles (Brosnahan, 2008); (Maskell & Kennedy, 2007). A predictable obstacle to the acceptance of lean is that financial statements will not indicate improved financial performance quickly enough (Cooper & Maskell, 2008). For accountants who desire to be ready to implement the lean accounting system, support from the senior executives is essential. They need the assurance that the substitute system will be consistent with the reporting requirements from GAAP. It is also important that the internal auditors should be completely conversant and supportive of such a transition (McVay, Kennedy, & Fullerton, 2013).

## **3.3 Research Question 3**

What is the best lean accounting techniques for a lean manufacturing system?

### **3.3.1 Activity Based Costing (ABC)**

The literature on lean accounting criticizes activity-based costing system as it contradicts the essence of lean philosophy (Johnson, 2006; (Grasso L. P., 2006); (Silvi, Monica, & Hines, 2008); (Maskell & Kennedy, 2007). (Hrabal, 2016) states that activity-based costing is not consistent with the lean philosophy, because by ignoring essential lean factors, it does not provide a framework to manage indirect costs.

In fact, ABC has done nothing to change the traditional approach which assumes accounting information is important to control indirect costs and to achieve desirable results. The essence of eliminating indirect costs is restructuring operations and not in dividing them by activity (Johnson, 2006). (Grasso L. P., 2005) considers activity-based costing (ABC) as a management accounting system that inadequately supports lean philosophy. A lean system aims to manage costs by restructuring the factory physical environment and creating value streams, the hallmark of lean transformation, which an ABC system aims to eliminate by process value analysis cost allocations. ABC help lean environment by making inefficiencies in the system highly visible and prioritizing activities. Nevertheless, this is not a strong reason to justify implementation of such a sophisticated system as ABC (Grasso L. P., Barriers to Lean Accounting, 2006); (Silvi, Monica, & Hines, 2008).

### 3.3.2 Value Stream Costing

The implementation of value stream costing system starts with the formation of the very essence of lean accounting, that is, essential value streams. The costs in a lean accounting system are accumulated by the streams and not the producing departments (Bellisario & Pavlov, 2018). Generally, value streams are specified as one of the groups such as: order execution, demand creation, or product development (McVay, Kennedy, & Fullerton, 2013). Value stream costing is hailed by many researchers and practitioners as the most suitable system for cost accumulation and financial reporting in lean philosophy (Maskell & Kennedy, 2007). This system is characterized by collecting costs in terms of value stream costs, and by the significant elimination of overhead allocation. It provides information that is easily understood and recognized by every member of the value stream team (BÜYÜKİPEKÇİ, 2019). This translates into informed decisions, encouragement to affect lean initiatives wherever needed within the value stream, and unambiguous accounting reports (Čečević & Đorđević, 2020). The costing reports are prepared weekly. This provides for an excellent cost control mechanism, because the information can be accessed by the value stream manager and the appropriate action taken while it is still relevant and recent. In a value-stream based costing standards for materials, labor and overheads are not set, rather costs are accumulated in actuals (DeBusk & DeBusk, 2012). Because of simplified transactions, the need to identify costs by job is not required, resulting in simplified reporting for labor. It is the value-stream costing only, as an accounting system, which could achieve all of the goals of a lean system (Rosa, Cristina, Machado, & João, 2013).

In value stream costing, labor costs and materials tracking transactions are eliminated. Also, with a pull system in operation, there is no need to have documents that track production transactions- effective visual management methods do not require these documents. All of this, along with the corresponding system, saves the time and investment that can be used to pursue further lean initiatives (Hilker, 2011).

## 3.4 Research Question 4

What are the factors required for effective lean accounting implementation?

### 3.4.1 Accountant's Understanding of Lean

The accountants should fully appreciate the dynamics of the lean management system; this is needed for them to play an active role in the implementation of a lean accounting system and do away with the various barriers such as fear of failure, lack of technical knowledge, and the resistance to cultural change (Stenzel, 2007).

Unfortunately, many firms operate in functional silos, with accounting, operations, human resources, finance, marketing, and engineering working in isolation to the functions performed by each of them respectively. Therefore, accountants facing these silo environments find it difficult to understand lean or find the opportunity to see lean put in practice (Grasso L. P., 2006).

Moreover, accountants are known to be quite conservative and conventional with their behavior, therefore they hardly seek improvements and innovations in the accounting system. Which, clearly suggest the existence of a specific cultural resistance in addition to the commonly discussed resistance to change that prevails within every organization (McVay, Kennedy, & Fullerton, 2013). There is also a cultural barrier to overcome in the accounting field. In addition, accountants are not accustomed to significant interaction with operations people, so they may be uncomfortable in their expanded role as more of a strategic adviser than a bean counter.

### 3.4.2 The Transition towards Lean

The transition from the conventional accounting system to the lean accounting is time-consuming and complex. Many firms have sophisticated, large units of equipment that are common to two or more Value Streams. This warrants continual allocation of the costs of the equipment until the time the equipment is substituted by smaller machines for each of the Value Streams. Therefore, the transition from traditional management to Value Streams and Lean Accounting – should be considered a continuing process, rather than as a temporary process (Debusk & Debusk, 2014).

Lean manufacturing stresses reduction of operating cycle time or lead time of all of the products manufactured by the firm. Therefore, integration of the non-financial measures and financial measures should take place to realize the full benefits of lean manufacturing. This will be possible only by allocating manufacturing costs of the products based on operating cycle time (Stenzel, 2007). The value stream costing requires dedicated and specific resources available to each value stream or focused factory setup. In practical terms this may not be possible during the transition period. Further it does not have any guidelines to share the resources among value streams.

### 3.4.3 Financial Reporting Issues

Dealing effectively with external auditors is always an issue. However, good relationship matter, as in the words of (McVay, Kennedy, & Fullerton, 2013), the companies that were using a lean accounting system, they never found it problematic to deal with the auditors if their management kept a constant contact with the auditors. Much of lean accounting involves internal reporting issues but the external reporting requirements cannot be ignored. For the firms the primary external reporting issue is the valuation of inventories. Therefore, a trustworthy system should be in place for the valuation of inventory to satisfy the auditors (Bicheno & Holweg, 2009). As the companies generally have minimal level of inventories, the direct costing focus of lean accounting should be favorable in terms of accurate valuation of inventory. This is because a lean accounting system actually result in a more accurate inventory valuation than the traditional costing system of estimated overhead allocations, with which most auditors are comfortable (Stenzel, 2007).

### 3.5 Research Question 5

What are the expectations of Value- Streams-Teams' for a lean accounting system?

#### 3.5.1 Improvement-based Targets, not Financial Targets

The main reason lean accounting is considered different from traditional accounting is that it does not agree with the manufacturing accounting, rather it connects well with manufacturing economics; therefore, that is the reason why a lean accounting system appears strongly integrated with business strategy (Pieter & Tillema, 2018). In the context of lean, this business strategy encompasses the vision and goals which focus on continuous improvement. In other words, accounting for lean is different from traditional accounting in that it aims at improvement-oriented numbers rather than the financially-oriented numbers (Maskell & Katko, 2007). Lean philosophy states that in controlling financial results managers should not be using financial targets, instead they should be working on the relationships which tend to produce the results (Bicheno & Holweg, 2009). Accountants have two roles in providing customer value. First, they need to determine what their customer values, and then provide that product in a timely and relevant manner. It appears that too often accountants just do what has always been going on, rather than carefully evaluating the needs of their customers (McVay, Kennedy, & Fullerton, 2013).

According to (DeBusk & DeBusk, 2012) value stream managers in lean organizations need the financial information from a value stream costing (VCS) to be effective. The value stream managers cannot make use of the standard cost variances, reports and product cost information from absorption costing. The authors further add that the value stream managers need financial information which is consistent with the lean philosophy of maximizing the production levels flowing through the entire value stream. Management accountant, according to (McVay, Kennedy, & Fullerton, 2013), need to be supportive to lean implementation by providing the requisite tools to the managers for them to manage the value streams according to the lean philosophy. When this is done, management accountants are perceived as a partner for success.

#### 3.5.2 Ongoing Relationship

In a lean based manufacturing system, the operations managers attempt to maintain strong relationship with the accountants encouraging and convincing them to produce information which is useful and not complex (McVay, Kennedy, & Fullerton, 2013). In a traditional accounting environment majority of the reports are not styled in a format that all users can easily understand, and the information is not always accessible to the managers. Even if the accountants agree to interpret the information in such cases, enough valuable time may be lost to take timely decisions (Stenzel, 2007). An important aspect of accounting function is the compliance to the external agencies. Therefore, accountants must always make certain that they are adhering to the rules of external reporting, and satisfying the needs of both their internal and external auditors, who are also their customers.

Traditional accounting systems work against the philosophy of lean, and therefore do not look towards improvement in operating environment. They do not provide prompt response in that they provide information only periodically based on whether targets are met on a quarterly, semi-annually and yearly basis. (Bicheno & Holweg, 2009) state that this approach to managing a business is backwards; here, the emphasis is on targets, and, therefore, benchmarks are first set, subsequently actual solutions are figured out. Lean contradicts this in that it starts with a purpose and then reinforces achievement around the problem/solution. (McVay, Kennedy, & Fullerton, 2013) state that accountants can also help value stream managers to determine what their customer value, and then developing a set of performance measures that help assess whether or not the value streams are properly serving their customers. They added that accountants should also play a central role in formulating an overall business strategy and then devising appropriate measures at each level of management to ensure evaluation of the strategy.



## **Findings for the Research Questions**

### **Research Question 1**

Why a lean manufacturing system cannot be successful without a lean accounting system?

The conventional accounting system needs radical changes to make it reflective of the changes in the manufacturing strategies emanating from the lean philosophy. The conventional accounting system is volume based whereas the lean strategies are demand based. On one hand, a conventional accounting system vigilantly tracks inventory on the other hand it ignores holding cost of inventory; in quite a contrast, a lean system seeks to eliminate inventories from the manufacturing system. Similarly, a conventional accounting system discourages idle capacity whereas lean strategies seek to find spare capacity by eliminating wastages from the system. The lean managers desire meaningful, simple, and prompt reporting from the accounting system. Also, they want to focus on creating customer value rather than wasting their time in the collection and provision of data to the accountants. Therefore, they desire the accountants to understand the lean system and participate in making it successful by understanding the lean system, identifying value enhancing areas, and prepare financial reports accordingly. The financial reports are prepared using a simplified form, and are promptly made available to the value stream team for timely decision making.

### **Research Question 2**

What role does top management play in the successful implementation of lean accounting?

Without the support of top management, a lean accounting system cannot function effectively. The transition towards a lean accounting system requires time, competence and resources, therefore management support is a prerequisite. The top management involves the accountant in the implementation of lean strategies, finance the requisite resources, and attend value stream meetings regularly. The positive outcome of a transition would only come when the system is fully developed, therefore the management has to remain patient.

### **Research Question 3**

What is the best lean accounting techniques for a lean manufacturing system?

The best lean accounting system to support a lean manufacturing system is value-stream costing. The technique is characterized by collecting costs in terms of value streams, and by the significant elimination of overhead allocation. It provides information that is easily understood and recognized by every member of the value stream team. This translates into informed decisions, encouragement to affect lean initiatives wherever needed within the value stream, and unambiguous accounting reports. The costing reports are simplified, and prepared weekly. This provides for an excellent cost control mechanism, because the information can be promptly accessed by the value stream manager and the appropriate action can be taken while the information is still relevant and recent.

### **Research Question 4**

What are the factors required for effective lean accounting implementation?

Other factors related to effective implementation of a lean accounting system are: Accountants understanding of lean, the transition towards lean, and financial reporting issues.

The accountants should fully appreciate the dynamics of the lean management system, only then they can play their active role in seeking improvements and innovations, and in effectively collaborating with the value streams teams. The understanding would also allow them to do away with the barriers such as fear of failure and resistance to cultural change. The transition from the conventional accounting system to the lean accounting is time-consuming, and complex. Many firms have sophisticated, large units of equipment that are common to two or more Value Streams, therefore, the transition from traditional management to Value Streams and Lean Accounting requires dedication, heavy financial commitment, and innovative approaches; only then the full benefits of lean manufacturing may be realized. Although, much of the lean accounting involves internal reporting issues but the external reporting requirements cannot be ignored, therefore, relationship with the external auditors should not be overlooked.

### **Research Question 5**

What are the expectations of Value- Streams-Teams' for a lean accounting system?

The value stream managers expect information from a lean accounting system which is consistent with the lean philosophy of maximizing the production levels flowing through the entire value stream. The expectation is also that the management accountants are supportive to lean implementation by providing the requisite tools to the managers for them to manage the value streams according to the lean philosophy. When this is done, management accountants are perceived as a partner for success. In a lean based manufacturing system, the operations managers attempt to maintain strong relationship with the accountants encouraging and convincing them to produce information which is useful and not complex. Instead of complex variance reports and costing reports the value stream managers require easy to understand freely and readily available information from the accountants. Value stream managers need information to determine what their customer value so that they can

develop a set of performance measures to assess whether or not the value streams are properly serving their customers. Furthermore, accountants are expected to play a role in formulating an overall business strategy, and then devising appropriate measures to ensure evaluation of the strategy.

## CONCLUSION

A lean accounting system is a complex phenomenon the success of which can depend on several factors. Efforts to implement and/or maintain a successful lean accounting system have failed many times, however, only a few studies have addressed this predicament of the implementers. The objective of this study is to find out the importance of lean accounting system and the reasons behind its successful implementation. A thorough literature review was performed to meet the research questions.

It was found that a lean accounting system is a very important ingredient for a lean manufacturing system which cannot function effectively in the presence of a traditional accounting system where more emphasis is placed on inventory tracking, complex cost allocations, short-term profitability, and limited role of accountants. It was also found that the most important reasons for a successful implementation of a lean accounting system are these: number one, commitment of top management to fund, nourish, and promote the system; number two, accountants understanding of the lean philosophy, their strategic role, and cooperation to the value-stream teams; number three, the selection of value stream costing method as the accounting system; and number four, value stream costing method helping and feeding the value streams effectively.

This study has contributed to extant research by unearthing the interrelationship among the variables such as manufacturing system, traditional accounting system, lean accounting system, role of top management, and others to find out the importance, and the ingredients of a successful lean accounting implementation.

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