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# **Lean Accounting and its potential in the Egyptian Environment: An Exploratory Study**

Thesis submitted as partial fulfillment of the requirements for the award of the  
M.Sc. in Accounting

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ

الْعَلِيمُ الْحَكِيمُ﴾

(سورة البقرة: الآية ٣٢)

﴿رَبِّ اشْرَحْ لِي صَدْرِي وَيَسِّرْ لِي أَمْرِي

وَاحْلُلْ عُقْدَةً مِّنْ لِّسَانِي يَفْقَهُوا قَوْلِي﴾

(سورة طه: الآيات ٢٥-٢٧)

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## **ABSTRACT**

Evidence from practice suggests that adopting a lean management system is critical for achieving a competitive advantage in the current complex global environment. Lean enterprises, however, are unable to gain the benefits of a lean management system without the support of a simple lean accounting system.

Therefore, this study has the objective of exploring different aspects of lean accounting and identifying its actual and possible implementation in the Egyptian environment. It starts with presenting the fundamentals of a lean management system. Then, it identifies the fundamentals of lean management accounting, the conditions necessary to implement it, and how it supports planning, performance measurement, and decision making. Moreover, it identifies the effect of applying lean principles on the accounting domain itself.

In order to achieve the objectives of the exploratory study, two types of questionnaires are distributed on a sample of manufacturing companies operating in Egypt to determine whether these adopt lean production and accounting systems , and 25 pairs of valid questionnaires are used to perform the descriptive analysis.

Results of the exploratory study indicate that a small percentage of companies have adopted lean thinking principles in their manufacturing floors. Lean accounting, however, is not yet adopted but results suggest that it can be implemented in the Egyptian environment. Some cultural issues, however, may postpone the effective implementation of a lean management system and a simple lean accounting system in the Egyptian environment.

## DEDICATION

*This thesis is dedicated to my father, my mother, my husband  
and children. May Allah bless them, protect them from all the bad,  
give them continued good health, prolonged lives, and the best  
rewards.*

## ملخص الدراسة

يشير الواقع العملي الى أن الشركات التي تقوم بتطبيق "نظام إدارة بدون فاقد" "lean management system" تحصل على ميزة تنافسية في ظل بيئة الأعمال المتغيرة. ولكن لا يمكن أن تقوم تلك الشركات بتحقيق المنافع المرجوة من هذا النظام بدون تطبيق "نظام المحاسبة بدون فاقد" "lean accounting system".

ومن ثم ركزت الدراسة على مناقشة النواحي المختلفة لنظام المحاسبة بدون فاقد و إستطلاع ما إذا كانت تطبق وإمكانية تطبيقها في البيئة المصرية. وتبدأ الدراسة بعرض أساسيات نظام الإدارة بدون فاقد، ثم تقوم بتوضيح أساسيات المحاسبة بدون فاقد والمقومات التي يجب توافرها لتطبيقها، و كيفية الإستفادة من تطبيقاتها في مجالات المحاسبة الإدارية، و على وجه الخصوص في مجالات: التخطيط، وتقييم الأداء، و إتخاذ القرار. بالإضافة إلى ذلك تقوم الدراسة بتحديد تأثير تطبيق مبادئ فكر التخلص من الفاقد "Lean Thinking Principles" على وظيفة المحاسبة.

ولتحقيق أهداف الدراسة الأستطلاعية، فقد تم توزيع نوعان من قوائم الاستقصاء على عينة من الشركات الصناعية التي تعمل في جمهورية مصر العربية وذلك لتحديد ما إذا كانت تطبق نظام إنتاج بدون فاقد "lean production system" و نظام محاسبة بدون فاقد. واستخدمت الدراسة ٢٥ قائمة إستقصاء من كلا النوعين في تحليل النتائج.

وقد توصلت الدراسة إلى أن نسبة قليلة من الشركات محل الدراسة قد نجحت في تطبيق مبادئ فكر التخلص من الفاقد في مرحلة الإنتاج. أما بالنسبة لنظام المحاسبة بدون فاقد فإنه لم يتم تطبيقه بعد. بينما توصلت النتائج إلى أنه يمكن تطبيقه في البيئة المصرية.



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## LIST OF ABBREVIATIONS

- **BOD:** Board of Directors
- **BSC:** The Balanced Scorecard
- **BVA(C,F,A):** Business Value Added (Current, Future, Administrative)
- **CLCM:** Customer-Driven Lean Cost Management
- **CMA:** Certified Management Accountant
- **CSF:** Critical Success Factors
- **EDI:** Electronic Data Interchange
- **F&C:** Features and Characteristics Costing
- **FIFO:** First-In, First-Out
- **FMCG:** Fast Moving Consumer Goods
- **FMS:** Flexible Manufacturing System
- **FTT:** First Time Through
- **IMA:** Institute of Management Accountants
- **JIT:** Just-In-Time
- **KPI:** Key Performance Indicator
- **OEE:** Operational Equipment Effectiveness
- **ROI:** Return on Investment
- **SMED:** Single-Minute Exchange of Dies
- **SOFP:** Sales, Operational, and Financial Planning
- **SPC:** Statistical Process Control
- **TOC:** Theory of Constraints
- **TQM:** Total Quality Management
- **TPM:** Total Productive Maintenance
- **VSCA:** Value Stream Cost Analysis
- **WIP-to-SWIP:** Work in Progress-to-Standard Work in Progress
- **3P:** Production Preparation Process
- **5S:** Sort, Straighten, Scrub, Standardize, Sustain

## Introduction

In order to achieve the objectives of the organization, a firm's management accounting system should be carefully coordinated with its strategy. A management accounting system that does not support its strategy, however, provides inadequate information, can lead to inappropriate planning, performance measurement, and decision making. (Paula van Veen-Dirks, 2006; Jermias and Gani, 2004; Fullerton, 2003; Sim and Killough, 1998; Ittner and Larcker, 1995; Johnson, 1992; Daniel and Reitsberger, 1991; Govindarajan and Gupta, 1985; Robert Kaplan, 1983)

One of the major changes in the business and production environment is the introduction of the concept of lean (IMA, 2006a). After its successful implementation in many Japanese companies, especially Toyota, many companies have recently adopted lean thinking principles to focus on their customers' needs and eliminate waste, thereby enhance their competitiveness and increase their wealth. Lean enterprises use different tools and techniques in a systematic, customer focused manner that increases the flexibility of their production/logistical processes with the objective of producing/providing high quality products (good or service) in small lot sizes according to customer demand. This is achieved within an environment of continuous improvement and employee empowerment. (Searcy, 2004 p.1)

Organizations that have adopted a lean strategy, however, have discovered that their current management accounting system is "considered a barrier to implementing lean production and lean management" (Grasso, 2006 p.6). This is due to the fact that it was designed to support a mass production system that seeks economies of scale through long production runs. A lean production system violates the assumptions of a mass production system as it focuses on producing one item at a time according to customer demand. This misalignment between the lean management system and the current management accounting system affects the following areas:

1. The current planning and budgeting process does not support a lean management system because it usually starts several months before the new year starts and is usually out of date even before it comes into action, it is therefore not dynamic to enable a lean enterprise to satisfy its changing customer needs (IMA, 2006b p.26). The budgeting process is wasteful in terms of the large amount of time and costs spent in preparing it. Moreover, it lacks transparency and often leads to games played by the managers. Even though it starts with the operational issues, it soon concentrates on the financial side and disregards the operational side. (Maskell and Baggaley, 2004 p.183)
2. The current performance measurement and reward systems are incapable of supporting the new customer-focused lean system since its measures are mainly financial (for instance, efficiency and productivity), are too complicated for most non-accountants to understand (variances), are too late to provide useful real-time information for decision making (are provided on a monthly basis due to the monthly close cycle), and are developed to support a command and control culture (used to monitor and discipline the labor force and managers make most decisions) while a lean management system operates in a cooperative continuous improvement culture (all employees, especially shop-floor workers who actually perform the processes, must be engaged in continuous improvement conducted by teams) (Maskell and Baggaley, 2004 p.8; IMA, 2006a p.20;

IMA, 2006b p.1). Measurements such as labor efficiency, earned hours, machine utilization, and overhead absorption variance encourage non-lean behaviors, such as producing in large lot sizes (IMA, 2006b p.13). Moreover, monthly variances, used to evaluate performance, motivate meeting a standard, rather than continuous improvement. And, the positive financial impacts of lean improvements in manufacturing are not reflected in financial statements. Some non-financial measures, such as lead times, scrap rates and on-time deliveries, show significant improvements, but they are not presented in GAAP financial statements. Also, adopting lean manufacturing will lead to a temporary decline in net income. As a result of reducing inventory, deferred labor and overhead moves from the asset section of the balance sheet to the expense section of the income statement. Although this impact is only temporary, it causes worry to many financial statement users (Kroll, 2004). Furthermore, current responsibility accounting systems seek to achieve accountability by dividing the organization into functional silos. Consequently, managers attempt to achieve their targets by optimizing departmental performance instead of managing in harmony with other departments (Brewer and Kennedy, 2006 p.22). Finally, the traditional performance measurement system is also wasteful due to the large amount of time required to collect data about labor time, machine time, and materials issued for every job step. (Maskell and Baggaley, 2004 p.25)

3. Adopting current management accounting practices in a lean enterprise will lead to wrong management decisions on important issues, such as pricing, profitability, make/buy, and product/customer rationalization. Standard costing classify costs by product and work centers; there is no classification by value stream or process flow (Maskell and Baggaley, 2004 p.135). Standard cost systems arbitrarily assign all organization-sustaining overhead costs to products which leads to waste concealed in the standard cost. They do not assign marketing, selling, general, and administrative costs to products, they distinguish between product and period costs, which has nothing to do with managing by value stream. Moreover, standard costing systems require complicated and wasteful reporting systems, and they treat direct labor as a variable cost which is perceived by employees as that they are expendable and that layoffs are the solution to reducing overhead. Finally, standard cost accounting tends to be internally focused (high attention to depending on internal cost structure) rather than externally focused (little attention to profitably serve customers and to world-class benchmarks). (Brewer and Kennedy, 2006 p.27)
4. Current management accounting systems are extremely wasteful as they are based on the assumption that it is essential to track every aspect of the business in order to maintain financial and operational control. But as lean thinking concepts and methods are systematically and continuously applied, the company's processes come under control and it is no longer important to track all the steps in the processes in great detail.(Maskell and Baggaley, 2004 p.9)

Consequently, a lean enterprise requires a different management accounting system that supports lean goals and strategies. Therefore, "Lean Accounting" is recommended.