UNIVERSITI PUTRA MALAYSIA

DEVELOPMENT OF PRELIMINARY SIX SIGMA FRAMEWORK FOR MALAYSIAN MANUFACTURING COMPANY

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DEVELOPMENT OF PRELIMINARY SIX SIGMA FRAMEWORK FOR MALAYSIAN MANUFACTURING COMPANY

By

ASLINA BINTI SIMAN

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

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In dedication to:

My beloved husband, for his continuous support, encouragement and affectionate caring; and my lovely daughter and son, Nur Aifa Eryna and Muhammad Fi Firdaus who always cheer my life.
Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

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February 2012

Chairman : Ir. Hj. Mohd Rasid bin Osman
Faculty : Engineering

In today’s industrial climate, manufacturing companies need to find and use any approach that will help them work smarter and achieve higher performance level to compete effectively in the global market. Although the overall average efficiency and quality levels have risen, companies are now hitting a “glass ceiling”; with their existing improvement efforts having little impact on often deep rooted quality issues. Appropriately applying the Six Sigma approach and toolset is, as a growing number in manufacturing companies already found, it is a good way for working smarter. The standard Six Sigma deployment protocol, are acceptable for large organizations, but way beyond Small and Medium Enterprise (SME) organizations. Without having a basic framework as a guideline and help from expert such as consultants, companies
that are interested in implementing Six Sigma are having difficulties in identifying and understanding the implementation process needed. This study aims to examine success factors and to develop a framework on how to implement Six Sigma. A questionnaire was used as one of the research tools and it was developed based on established literature. A total of 239 questionnaires were distributed. The response rate is 22.18 percent. The survey results from this study show that 28.3 percent of the manufacturing companies have already implemented Six Sigma for an average period of 5.3 years. Some impeding barriers highlighted in Six Sigma implementation are high entry cost, no dedicated resources and no clear mandate from top management. Case studies in some selected manufacturing companies were carried out whereby comparisons were conducted between the existing framework and actual practices. Actual practices vary depending on the practitioner knowledge and guidelines from the top management. Out of five case study companies, company D shows to have the biggest impact and benefits from Six Sigma implementation whereby they have achieved an average saving of RM 5 Million per year and having a good system and an organization wide real time communication. Based on literature review, survey result and case studies, Six Sigma implementation framework was developed accordingly. It consists of a step by step procedure from initial implementation until the successful Six Sigma project implementation stage, together with some tips, information and examples that need to be emphasized or aware off. This research seeks to conclude that a strategic Six Sigma framework for Malaysia manufacturing company as a guide so that Six Sigma can be effectively implemented, subsequently utilized and deliver business benefits to Malaysia manufacturing companies.
Abstrak tesis yang dikemukakan kepada Senat Universiti Putera Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

PEMBANGUNAN RANGKA KERJA AWAL ‘SIX SIGMA’ UNTUK SYARIKAT-SYARIKAT PEMBUATAN DI MALAYSIA

Oleh

ASLINA BINTI SIMAN

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Pengerusi : Ir. Hj. Mohd Rasid bin Osman
Fakulti : Kejuruteraan

Pada keadaan industri sekarang yang sangat mencabar, syarikat–syarikat pembuatan perlu mencari dan menggunakan cara yang dapat menolong mereka untuk bekerja lebih bijak dan mencapai prestasi yang lebih tinggi untuk bersaing dengan lebih efektif dalam pasaran global. Walaupun secara kesuluruhan, aras kecekapan dan kualiti telah meningkat, banyak syarikat telah menemui jalan buntu tehadap masalah kualiti yang sudah berakar umbi kerana usaha penambahbaikan yang telah dijalankan tidak memberi kesan yang berkesan. Semakin banyak syarikat pembuatan mengakui bahawa cara yang baik untuk bekerja lebih pintar adalah dengan menerapkan pendekatan ‘Enam Sigma’ dan teknik yang bersesuaian. Garis panduan perlaksanaan Enam Sigma sesuai untuk organisasi yang besar tetapi ia adalah mustahil bagi syarikat-syarikat kecil dan sederhana. Tanpa garis panduan rangka kerja dan bantuan daripada pakar-pakar
Enam Sigma yang strategik untuk syarikat-syarikat pembuatan di Malaysia sebagai panduan agar Enam Sigma boleh dilaksanakan dengan efektif, dan seterusnya dilaksanakan secara berkesan dan menghasilkan keuntungan perniagaan yang signifikan kepada syarikat-syarikat pembuatan di Malaysia.
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I certify that an Examination Committee has met on ___________ to conduct the final examination of Aslina binti Siman on her thesis entitled “Development of Preliminary Six Sigma Framework for Malaysia Manufacturing Company” in accordance with the Universities and University College Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1993. The Committee recommends that the student be awarded the Master of Science.

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DECLARATION

I declare that the thesis is my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously, and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or other institutions.

________________________
ASLINA BINTI SIMAN

Date : 16 February, 2012
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