
UNIVERSITI PUTRA MALAYSIA

# PRODUCT COMPLIANCE PERFORMANCE OF MALAYSIAN ELECTRICAL AND ELECTRONICS MANUFACTURING SECTOR

MUHAMAD KAMAL BIN SABRAN

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**MUHAMAD KAMAL BIN SABRAN**

**MASTER OF SCIENCE**

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# PRODUCT COMPLIANCE PERFORMANCE OF MALAYSIAN ELECTRICAL AND ELECTRONICS MANUFACTURING SECTOR

**By**

**MUHAMAD KAMAL BIN SABRAN**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,**
**In Fulfillment of the Requirements for the degree of**
**Master of Science**

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in fulfillment of the requirement for the degree of Master of Science

**PRODUCT COMPLIANCE PERFORMANCE OF MALAYSIAN ELECTRICAL AND ELECTRONICS MANUFACTURING SECTOR**

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**July 2012**

**Chairman:** **Norzima Zulkifli, PhD**

**Faculty:** **Engineering**

The study aims to investigate the quality improvement practices of Malaysian Electrical and Electronics manufacturers and differences may exist between them. Based on the findings, a proposed set of guidelines for Product Certification Scheme was established.

Based on SIRIM QAS's findings on compliance to product standard, the sampled manufacturers showed an increment in their failure rate. The gradual increment in the failure rate seems to indicate the alarming issue which concerns the manufacturers' quality practices. The objectives of this study is to investigate the influence of the quality improvement practices among Malaysian Electrical and Electronics manufacturers on their compliance performance. The differences between manufacturers were used as a guide to develop certification guidelines. A quantitative research method which involved the distribution of a set of questionnaire was used in the study.

The findings have revealed that there tend to be a similar trend in the current quality improvement practice of the selected Electrical and Electronics manufacturers. 'Process Management' was selected to be the 'most preferred' quality improvement practice. 'Process Control' was the least preferred quality improvement practice. The relevant findings which furnished the details to complete the existing requirements were obtained by investigating the significant difference between the groups of manufacturers. From the findings, three aspects of quality improvement practice were found to be significantly different and they are Process Control (significant at alpha value 0.044), Customer Involvement (significant at alpha value 0.045) and Interfunctional Design Process (significant at alpha value 0.034). The present study's findings were used to develop the Product Certification Guidelines for Product Certification Scheme.

This guidelines will benefit local manufacturers to develop their procedure to comply with Product Certification Scheme especially to companies without ISO 9001 certified. This guidelines has pointed out all the three areas that manufacturer should pay attention to; quality system, product design, process control and quality control. Briefly, this guidelines is very useful for the manufacturer in order to satisfy regulatory requirements and customers expectation in terms of product quality and safety.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

**PENCAPAIAN PEMATUHAN PRODUK OLEH SEKTOR PEMBUATAN ELEKTRIK DAN ELEKTRONIK DI MALAYSIA**

Oleh

**MUHAMAD KAMAL BIN SABRAN**

**Julai 2012**

**Pengerusi: Norzima Zulkifli, PhD**

**Fakulti: Kejuruteraan**

Kajian ini dijalankan bertujuan untuk menyelidik amalan peningkatan kualiti pengeluar Elektrik dan Elektronik di Malaysia dan perbezaan yang mungkin wujud di antara mereka. Berdasarkan hasil kajian, garis panduan cadangan untuk Skim Pensijilan Produk telah dicadangkan.

Berdasarkan penemuan SIRIM QAS pada pematuhan kepada standard produk, sampel yang diuji telah menunjukkan kenaikan dalam kadar kegagalan mereka. Kenaikan secara beransur-ansur dalam kadar kegagalan menunjukkan isu yang agak membimbangkan berkenaan dengan amalan kualiti pengeluar. Objektif kajian ini adalah untuk mengkaji pengaruh amalan peningkatan kualiti di kalangan pengeluar Elektrik dan Elektronik Malaysia ke atas prestasi pematuhan mereka. Perbezaan antara pengeluar telah digunakan sebagai panduan untuk memurnikan garis panduan pensijilan yang sediada. Satu kaedah penyelidikan kuantitatif yang melibatkan pengedaran set soal selidik telah digunakan

dalam kajian ini. Dapatan kajian menunjukkan bahawa terdapat kecenderungan tren yang sama dalam amalan peningkatan kualiti pengeluar Elektrik dan Elektronik. ‘Pengurusan Proses' telah dipilih untuk menjadi 'yang paling digemari' di antara amalan peningkatan kualiti. Selain itu, 'Kawalan Proses' adalah amalan peningkatan kualiti yang paling kurang digemari. Penemuan yang relevan telah diperolehi dengan menyiasat perbezaan yang signifikan antara kumpulan pengeluar. Daripada penemuan ini, tiga aspek amalan peningkatan kualiti telah didapati berbeza dengan ketara dan mereka adalah Kawalan Proses (signifikan pada nilai alpha 0.044), Penglibatan Pelanggan (signifikan pada nilai alpha 0.045) dan Proses Rekabentuk (signifikan pada nilai alpha 0.034). Hasil dapatan kajian ini telah digunakan untuk menghasilkan Garis Panduan Pensijilan Produk untuk Skim Pensijilan Produk.

Garis panduan ini akan memberi manfaat kepada pengeluar tempatan untuk membangunkan prosedur mereka untuk mematuhi Skim Pensijilan Produk terutama kepada syarikat-syarikat tanpa persijilan ISO 9001. Garis panduan ini telah merangkumi tiga faktor yang perlu diberi perhatian; sistem kualiti, reka bentuk produk, kawalan proses dan kawalan kualiti. Secara ringkasnya, garis panduan ini sangat berguna untuk pengilang bagi memenuhi keperluan undang-undang dan jangkaan pelanggan terhadap kualiti dan keselamatan produk.

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THANK YOU ALL!

Muhamad Kamal Sabran

2012

I certify that an Examination Committee has met on 19 July 2012 to conduct the final examination of Muhamad Kamal Bin Sabran on his Master of Science thesis entitled "Product Compliance Performance of Malaysian Electrical and Electronics Manufacturing Sector" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee were as follows:

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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Date:

## 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 at any other institution.

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**MUHAMAD KAMAL BIN SABRAN**

Date:

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