

UNIVERSITI TEKNOLOGI MARA

**INTEGRATION OF IATF 16949 AND
TOYOTA PRODUCTION SYSTEM
AUDIT REQUIREMENTS IN AN
AUTOMOTIVE ASSEMBLY LINE**

QHAIRUNISHA BINTI MOHD KHALID

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ABSTRACT

This research presents a case study on the integration of International Automotive Task Force (IATF) 16949 and Toyota Production System (TPS) audit requirements in an automotive assembly line. Redundancy of documents used at production floor has caused the difficulty in analysing the actual data taken by people at production. This is due to similar record sheets being used for both IATF 16949 and TPS with the same function and objective of the documents. The separate Quality Management System (QMS) has led to inefficiency of Internal Quality Audit due to the missed match between parameters and audit requirements in IATF 16949 and TPS. With the main objective to develop a framework that can harmonize both systems, this research was executed based on five main stages which were Plan, Analyse, Design, Implement and Evaluate. This is a revolutionized version of the famous model and approach of Deming's Cycle or Plan-Do-Check-Act (PDCA) Cycle and Toyota's 8's steps process. Research was carried out to define the gaps and problems faced by this organization. A comparison and contrast for a QMS between IATF 16949 and TPS were plotted and it showed that the processes had similar elements, tools and process objectives which involved similar documents applied in the organization on daily tasks. Survey questionnaire was used and distributed to the people involved in the organization. This is to gauge the level of satisfaction, difficulties, and challenges faced by the people in the organization. Statistical software named Rasch model analysis was used to analyse the survey questionnaire. From the analysis, respondents agreed that operating in two separate systems has led to inefficiency of QMS in the organization. For the case study, Internal Quality Audit (IQA) process at Mass Production has been chosen as a tool to measure the effectiveness of this QMS integration. A 5M (Man, Machine, Method, Material, Measurement) methodology were used to study the audit requirements for both IATF 16949 and TPS which showed that both systems shared most of the audit items. Simulation software named Arena software was used for simulation modelling and analysis of this integration system implementation at Mass Production process. By integrating the QMS through internal audit process for both IATF 16949 and TPS, it has benefited in increasing the production capacity and flexibility while improving operational efficiency. Decreasing the number of documents in implementing the internal audit process proved that the "wastes" occurred during the execution of both audit systems were reduced. Through performance analysis, it was revealed that the cycle time used to complete the audit was reduced and implemented effectively to achieve both IATF 16949 and TPS objectives. Based on the findings, this case study proposed that the integration of QMS of the IATF 16949 and TPS will harmonize the systems and reduce the hassle faced by the people in the organization.

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TABLE OF CONTENTS

	Page
CONFIRMATION BY PANEL OF EXAMINERS	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS	xiii
CHAPTER ONE INTRODUCTION	1
1.1 Research Background	1
1.2 Problem Statement	3
1.3 Research Questions	5
1.4 Objectives	5
1.5 Scope and Limitation of the Research Study	6
1.6 Significance of Study	7
1.7 Structure of the Research Study	7
CHAPTER TWO LITERATURE REVIEW	10
2.1 Introduction	10
2.2 Quality Management System	10
2.3 Toyota Production System	11
2.4 IATF 16949 standard	14
2.5 Rasch Analysis model	16
2.6 Arena Software	21
2.7 Methods of data collection and analysis	22
2.8 Methods of performance analysis	23
2.9 Research gap and literature review analysis	24

CHAPTER THREE RESEARCH METHODOLOGY	27
3.1 Introduction	27
3.2 Stage 1: Plan - Planning of research activities	29
3.2.1 Identify gap and harmonize the gap	29
3.2.2 Satisfaction level and gauge challenges determination	31
3.3 Stage 2: Analyse - Process analysis on current state	34
3.3.1 Identify the gaps and similarities for both IATF 16949 and TPS on the current state	34
3.3.2 Instrument reliability analysis and content validity of survey questionnaire – Pilot Study	36
3.4 Stage 3: Design	37
3.4.1 Documents and processes integration	37
3.4.2 Establishment of survey questionnaire	38
3.5 Stage 4: Implement – Implementation of proposed integrated quality management system	40
3.6 Stage 5: Evaluation and performance analysis	40
3.7 Summary of Research Methodology	41
CHAPTER FOUR RESULTS AND DISCUSSION	44
4.1 Introduction	44
4.2 Case study	44
4.3 Results and discussion: Planning stage	45
4.4 Results and discussion: Analysis stage before the integration process	52
4.4.1 Data collection at the case study area	53
4.5 Results and discussion: Design of proposed integrated system	64
4.5.1 Integration of documents and processes between IATF 16949 and TPS at mass production process	64
4.5.2 Design of questionnaire for pilot study	66
4.6 Results and discussion: Implementation of proposed integrated system	80
4.6.1 Integration of documents	80
4.6.2 Final survey on the implementation of both systems	88
4.6.3 Cycle time after the integrated system	101