

MANUFACTURING EXECUTION SYSTEM APPLICATION PROTOTYPE DEVELOPMENT USING DYNAMIC SYSTEMS DEVELOPMENT METHOD

A Case Study at PT United Tractors Pandu Engineering

By

Mario Alexander

A Thesis submitted to the Faculty of

ENGINEERING

Department of
INDUSTRIAL ENGINEERING

In Partial Fulfillment of the Requirements for

BACHELOR'S DEGREE

IN

INDUSTRIAL ENGINEERING

SWISS GERMAN UNIVERSITY

Swiss German University
EduTown BSDCity
Tangerang 15339
INDONESIA

Telp. +62 21 3045 0045
Fax. +62 21 3045 0001
E-mail: info@sgu.ac.id
www.sgu.ac.id

July 2011

Revision after Thesis Defense on August 1st 2011

STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

Mario Alexander

Date

Approved by:

Ir. Invanos Tertiana, MBA

Date

SWISS GERMAN UNIVERSITY

Dr. Ir. Prianggada I Tanaya, MME

Date

Chairman of the Examination Steering Committee

Date

Mario Alexander

ABSTRACT

MANUFACTURING EXECUTION SYSTEM APPLICATION PROTOTYPE
DEVELOPMENT USING DYNAMIC SYSTEMS DEVELOPMENT METHOD
A Case Study at PT United Tractors Pandu Engineering

By

Mario Alexander

SWISS GERMAN UNIVERISTY

Bumi Serpong Damai

Ir. Invanos Tertiana, MBA

In this information era, information exchanges between departments within a company are the most important things. An industrial engineer should be designing and integrating a system to achieve its optimum condition.

In PT United Tractors Pandu Engineering, there still exist barriers to prevent information exchanges between departments. To break those barriers should be done a stovepipe elimination, which is used to exchange information between departments. Stovepipe elimination is a theory from Cross Functional Integration, Cross Functional Integration can be categorized as a main pillar for Manufacturing Execution System.

To develop manufacturing execution system application prototype, Dynamic Systems Development Method is employed in order to simplify the information exchanges between departments,

Keyword : Stovepipe Elimination, Dynamic System Development Method, Manufacturing Execution System

DEDICATION

I dedicate this thesis to my beloved family without their love and support this thesis cannot be finish.



ACKNOWLEDGMENTS

The author wishes to express endless gratitude to Jesus Christ for his blessings and guidance throughout the completion of this thesis.

The author also owes deepest gratitude to Mr. Invanos Tertiana and Mr. Indra Tanaya as advisor and co-advisor for this thesis. Their willingness to help, guide and motivate to the completion of this thesis.

The author would express sincere appreciation to Mr. Tutuko Prajogo as head of Industrial Engineering and Mr. Yosef Adji Baskoro as junior advisor for this thesis. Their explanation and guideline to completed this thesis.

The author would like to thanks to Mr. Martono as the General Manager of PT United Tractors Pandu Engineering, Mr. Isnaryanto Wibowo as the Manager of Manufacturing Department 2 of PT United Tractors Pandu Engineering, and Mr. Sugiyanta as supervisor of small-medium vessel sectors.

Finally, the author would like to acknowledge the contribution his colleagues: Chion Ciang Thenario, Erwin Hadhiwaluyo, Gumilang Wicaksono, Azis Rizky, Reinardus Aliwarga, Trusti Pratiwi, Jessica Kesumah and other third party who helped the development of this thesis project.

TABLE OF CONTENTS

STATEMENT BY THE AUTHOR	2
ABSTRACT	3
DEDICATION	4
ACKNOWLEDGMENTS	5
LIST OF APPENDICES	9
CHAPTER 1 – INTRODUCTION	10
1.1 Background.....	10
1.2 General Statement of Problem Area	10
1.3 Thesis Purpose	12
1.4 Thesis Description	12
1.5 Thesis Scope.....	13
1.6 Thesis Problem	13
1.7 Significance of Study	13
1.8 Thesis Organization	14
1.9 Thesis Limitation.....	15
CHAPTER 2 – LITERATURE REVIEW	16
2.1 Introduction.....	16
2.2 Manufacturing Execution System	18
2.3 Cross Functional Integration.....	22
2.4 Integration Enterprise Information Systems.....	25
2.5 N-Tier Architecture	27
2.6 Dynamic System Development Method.....	28
2.7 Resource, Event and Agent (REA) Ontology.....	32
2.8 Database Management System.....	35
2.9 Conclusion	38
CHAPTER 3 – METHODOLOGY.....	40
3.1 Introduction.....	40
3.2 Feasibility Study.....	41
3.3 Functional Model Iteration.....	43
3.4 Design and Build Iteration.....	44
CHAPTER 4 – RESULT & DISCUSSION.....	48
4.1 Introduction	48
4.2 Feasibility Study.....	49
4.3 Functional Model Iteration Sign Off	49
4.4 Functional Model Iteration.....	50
4.5 Design and Build Iteration	50
4.6 Design and Build Iteration Sign Off	55
CHAPTER 5 – CONCLUSION AND RECOMMENDATION.....	56
5.1 Conclusion.....	56
5.2 Recommendation	56
GLOSSARY	58
REFERENCES.....	59
APPENDICES	61
ARCHIVES.....	125
CURRICULUM VITAE	126