

UNIVERSITI TEKNOLOGI MARA

**DATA MART FOR DECISION SUPPORT SYSTEM: A
CASE STUDY AT PETRON FUEL INTERNATIONAL
SDN BHD**

NORZAREENA BINTI ZAHARI

IT Project submitted in partial fulfillment
of the requirements for the degree of
Master of Science in Information Technology
Faculty of Computer and Mathematical Sciences

January 2015

ABSTRACT

In organisation, manager plays an important function in decision making. As the volume of data evolved and the methods of analyzing have improved, therefore organisation have been integrating data more firmly into decision making process. Manager need to know about the sales person performance and how to gain rapid insight into fast-growth products, and services. Therefore a Decision Support System (DSS) play important roles for manager as a decision maker in organisation. To answer question that arise from user information needs, a data mart was create to distill the relevant information to targeted DSS users. This project presents the design of data mart for sales analysis using dimensional modeling techniques. The designed data mart was implemented from current tools in Commercial Vehicle Sales (CVS). Appropriate data mart dimensions and fact were modeled in order to ease data analysis and queries. Data models based on dimensional modeling (snowflakes) are provided and discussed. This project also intended to design and develop data mart in order to assists in decision making process. One of the most use DSS interface in organisation are Microsoft's Excel. Microsoft Excel do provides the ability to generate a output like examples pie chart, bar charts and many more function. The capability of Mircosoft Excel as a DSS for organisation is become slower as the data getting growth over a time. This results to an error for the some of the require output and automatically affected in decision making process. Throughout an analysis of current tools that being used by the manager in Commercial Vehicles Sales team (CVS) of Petron Fuel International, found out that Microsoft Excel as DSS interface was produce a non-accuracy on the monthly basis reports. Through this project, the problems from current tools for CVS have been pointed out and the recommendations have been analysed based on the development design review.

Keywords: Decision Support System (DSS), Data Mart, Microsoft Excel, Dimensional modeling technique, Snowflakes schema.

Acknowledgment

Praise be to Allah SWT Most Gracious, Most Beneficent

I would like to say thanks to those who helped me completed in this thesis. My supervisor Madam Nalini Dharmarajan encouraged me throughout this thesis. She helped me a lot to understand this project and enabled me to complete this project within the time limit.

Secondly, I am indebted to my CV Sales team of Petron Fuel International, my ex-manager Mr. Danny Chen and Mr. Azmi Ahmad who give recommendation to further my part time study at Universiti Teknologi MARA (UiTM).

I would also like to express my gratitude for the support during my study to the CV Sales manager Mr. Bok Ru Chuan, Mr. David Low. To my colleagues in CV sales team Mr. Derek Wong and Ms. Jin Wong, thank you for the assistance during my study.

A special thanks to my parents who always give support to me and grateful to Allah s.w.t for giving me strength, good health, determination and opportunity to further my study. Finally, I would like to show my gratitude to everyone who has helped me to complete this project.

Thank you.

TABLE OF CONTENTS

	Page
AUTHOR'S DECLARATION	i
ABSTRACT	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	ix
LIST OF FIGURES	x
CHAPTER ONE: INTRODUCTION	
1.1 Introduction	1
1.2 Project Background	1
1.2.1 Petron Fuel International Sdn Bhd	1
1.2.2 Retail Business department	2
1.2.3 Commercial Vehicle Sales (CVS)	3
1.2.4 Core Business for Commercial Vehicle Sales team and Card Operation and Technology	4
1.3 Problem Statement	4
1.4 Research Objectives	6
1.5 Scope of the Research	7
1.6 Significance of the Research	7
1.7 Research Design Summary	8
1.8 Summary	9

CHAPTER TWO: INTRODUCTION		Page
2.1	Introduction	10
2.2	Decision Making (DM)	10
	2.2.1 Introduction of Decision Making	10
	2.2.2 Factor that influence in Decision Making	11
	2.2.3 Relational Model of Decision Making	12
2.3	Background of Decision Support System(DSS)	14
	2.3.1 Types of DSS	16
	2.3.2 Advantages of DSS	17
2.4	Data Mart	18
	2.4.1 Type of Data Mart	19
	2.4.2 Data Mart Concept	20
	2.4.3 Data Mart Creation Purpose	22
	2.4.4 Data Mart Designing Approach	23
	2.4.5 Advantages of Building Data Mart	24
	2.4.6 Various Technology Consideration	25
2.5	Data Warehouse and Data Mart	25
2.6	Inmon Model	26
2.7	Kimball Model	27
2.8	Comparison of Inmon Model and Kimball Model	28
2.9	Multidimensional Model	29
2.10	Roles of Sales Data	31
	2.10.1 Sales Forecasting	32
	2.10.2 Forecasting Method	33
	2.10.3 Quantitative Forecasting Methods	34