UNIVERSITI TEKNOLOGI MARA

THE ACCEPTANCE OF COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM (CMMS) IMPLEMENTATION IN BUILDING FACILITIES MANAGEMENT (FM): A CASE STUDY

SYAMSYEER MOOHAMMAD BIN MUSA

Master in Engineering Management
EM 774

July 2016
AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This dissertation has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student : Syamsyeer Moohammad Bin Musa
Student I.D. No. : 2011544683
Programme : Master of Engineering Management
Faculty : Mechanical Engineering
Dissertation Title : The Acceptance of Computerized Maintenance Management System (CMMS) Implementation in Building Facilities Management (FM): A Case Study

Signature of Student

Date : July 2016
ABSTRACT

In the present century, post millennium, society are racing to create and building up the instruments or even high-tech buildings, yet the awareness for the vitality of building maintenance and preservation, their facilities and equipment are still lacking of attention. Thus, studies of the former maintenance concepts should be carried out, which related to the computerized maintenance system by the question of why the system is underutilized and why there were defaults in its operation? Simultaneously, with the increasing of global competition for the productions or services, there are numerous companies looking forward the measures to get extra competitive advantages in relation to the services, qualities, costs and productivity increment. In the industry, equipment failure means loss of lots, supposedly opportunities, revenue and clients. Hence, the particular maintenance organization is targeting to reduce the cost related to the maintenance operations. To achieve this goal, the maintenance tasks should no longer be done conventionally. By utilizing quantitative methods, this study is focusing on Facility Maintenance or FM contract provided by the Government Departments which are available in the vicinity of Kuala Lumpur and Putrajaya including all over Malaysia. From the results of the study, the root causes of why the maintenance management system is not being utilized or possibly the failures occurred throughout the implementation, could be determined. By utilizing computerized management system or better known as CMMS (Computerized Maintenance Management Systems), it would be benefited the particular organization in the collection of information or maintenance data. Nonetheless, by possessing these data, maintenance activities can be done more effectively and efficiently. Therefore, this study is expected to provide awareness and ideas to the organization on identifying the vitality of utilizing the system and the additional efficacy of implementation methods.
ACKNOWLEDGEMENT

I begin with bismillaahirrahmaanirrahiim. Alhamdulillah and the deepest praise to the Almighty, Allah S.W.T., with His blessing and guidance, I managed to complete this project paper entitled “The Acceptance of Computerized Maintenance Management System (CMMS) Implementation in Building Facilities Management (FM): A Case Study” The writing of this dissertation has been the most significant academic challenges I have had to face. Without the supports, patience and guidance of the following people, this study would not have been completed successfully. It is to them I owe my deepest gratitude.

- Prof. Ir. Dr. Abdul Rahman Bin Omar who act as my supervisor despite having other academic and professional commitments, His knowledge, experiences, wisdom, patience, dedication and commitment had motivated me;
- All the members of Engineering Management Program under the Faculty of Mechanical Engineering, Universiti Teknologi MARA (UiTM) for their guidance especially dedicated to Dr. Bulan Binti Abdullah who act as the Program Coordinator;
- Thanks to Mr. Rohaizan Bin Abdullah as the COO and Mr. Huzaini Mohd Noor, the Business Development Manager of CWorks Berhad for your references and cooperation either written or oral information;
- Special thanks and deepest appreciation goes to my family members who had supported me physically and morally;
- My fellow friends who inspired me in spite of having pressures we were facing together; and
- I am also indebted to those who supported me directly or indirectly in completing this dissertation.

Only Allah S.W.T. will repay all your kindness which is priceless.

Syamsyeer Moohammad Musa
June 2016
Master in Engineering Management
Universiti Teknologi MARA (UiTM)
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONFIRMATION BY PANEL OF EXAMINERS</td>
<td>ii</td>
</tr>
<tr>
<td>AUTHOR’S DECLARATION</td>
<td>i</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF CHARTS</td>
<td>x</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS / NOMENCLATURE</td>
<td>xii</td>
</tr>
</tbody>
</table>

## CHAPTER ONE – INTRODUCTION

1.1 Introduction                                     13
1.2 Background of Study                              15
1.3 Problem Statement                                19
1.4 Research Questions                               21
1.5 Research Objectives                              21
1.6 Significances of Study                          22
1.7 Limitation of Study                              22
1.8 Outline of Thesis                                23

## CHAPTER TWO – LITERATURE REVIEW

2.1 Introduction                                     24
2.2 The Maintenance                                  24
   2.2.1 Maintenance History                          25
   2.2.2 Maintenance Scope of Works and Techniques    27
2.3 Maintenance / Facility Management                29
   2.3.1 Maintenance Management Approach              29
   2.3.2 Maintenance Management Model                 31
2.4 Data Collection and Measurement                  33
   2.4.1 Primary Data                                 34
   2.4.2 Secondary Data Collection                    36