PERFORMANCE MEASUREMENT SYSTEM FOR JABATAN KERJA RAYA MALAYSIA

NOOR RAHIM BIN SULEIMAN

A capstone project report submitted in partial to fulfilment of the requirements for the award of the degree of
Master Project Management

Faculty of Civil Engineering
Universiti Teknologi Malaysia

MAY 2011

I declare that this project capstone report entitled "*Performance Measurement for Jabatan Kerja Raya Malaysia*" is the result of my own research except as cited in the references. The capstone project report has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature :.....

Name : Noor Rahim bin Suleiman

Date : 18 May 2011

DEDICATION

To my beloved wife, sons and daughters.

ACKNOWLEDGEMENT

First of all, I thank Allah who has given me the strength and will to complete the study. I wish to express my sincere appreciation to my supervisor, Associate Professor Dr. Mohamad Ibrahim bin Mohamad, for his precious advice, patience and guidance and in completing this study. Special thanks to the JKR experts in the subject matter; Ir. Nazari bin Hashim, Hj. Roslan bin Abdul Ghani, Ir. Hj. Mohd. Daud bin Harun, Hj. Zainal Abidin bin Saidun, Ir. Wan Ibrahim bin Wan Yusoff, En. Redzuan Jaafar, and Ir. Rusdi bin Mohamad for sparing their time to participate in the interview sessions, contributing ideas and information for the progress of this study.

I would like to express my gratitude to all my course mates for giving me encouragement and being supportive through the master program. I also would like to thank all JKR professionals who generously spent their time in answering the survey questionnaire.

Without contribution of all those mentioned above, this work wouldn't have been possible. Thank you.

ABSTRACT

Recently, JKR's top management have received complaints and bad reviews from client departments, government agencies, general public and mass media for projects delays and structural failures as well many other problems. The reasons for these grievances are probably due to lack of response and sense of urgency in dealing with problems in managing and implementing building and infrastructure projects. Despite JKR has its own Performance Measurement System (PMS) however the existing system may not be effectively translated the result as measurements and indicators for managers to response and make important and timely decision. Hence, this study has been carried out is to improve the current performance measurement system (PMS) in JKR. The methodology adopted for this study include interview with expert panels and questionnaire survey. The findings of the study indicate that current approach in PMS has not been up to JKR's expectation and need to be reengineered. Problem and limitation of current PMS has also been identified. Finally this study has identified important recommendations that can be used by JKR to developed the framework to establish a more effective and practical PMS. It is hope that the new improve PMS can help JKR to better serve their clients and other stakeholders need in the future. This will also help JKR to achieve the Key Performance Indicators (KPI) as targeted for them especially for the top management level.

ABSTRAK

Pada masa kini pihak pengurusan tertinggi jabatan Kerja Raya seringkali menerima aduan dan mungkin juga cemuhan dari pelbagai pihak yang berkaitan seperti agensi kerajaan, jabatan pelanggan dan pihak awam mengenai masaalah yang dihadapi oleh projek yang dilaksanakan. Dianatara masaalah yang dihadapi adalahh kelewatan penyiapan projek, kegagalan struktur serta masalah lain. Punca utama sungutan ini mungkin disebabkan oleh kurangnya kepekaan dan tindakan segera oleh JKR dalam mengatasi masaalah yang dihadapi dalam pengurusan projek yang dijalankan. Walaupun JKR mempunyai sistem pengawalan projek sendiri tetapi ternyata system ini kurang berkesan terutama didalam membuat penilaian dan memberi petunjuk kepada pengurus projek untuk bertindak segera dan membuat keputusan yang cepat dan tepat. Oleh itu, kajian ini dijalankan untuk mencadangkan penambahbaikan kepada sistem pengukuran prestasi (PMS) sediada di JKR. Metodologi yang digunakan untuk kajian ini merangkumi temubual dengan panel pakar dan kajian soalselidik. Penemuan dalam kajian ini menunjukkan bahawa pendekatan sediada dalam PMS tidak memenuhi jangkaan JKR dan perlu untuk ditambahbaik. Kelemahan dan kekurangan pada PMS sediada telah juga dikenalpasti. Akhir sekali, kajian ini telah mengenalpasti cadangan penting yang boleh digunapakai oleh JKR sebagai rangka kerja untuk membangunkan PMS yang lebih berkesan dan praktikal. Diharapkan PMS baru yang ditambahbaik ini dapat membantu JKR dalam memberi perkhidmatan yang lebih baik kepada pelanggan mereka dan stakeholder yang lain pada masa hadapan. Ini jga dapat membantu JKR untuk mencapai Petunjuk Prestasi Utama (KPI) yang disasarkan kepada mereka terutama sekali kepada pengurusan atasan

.

TABLE OF CONTENT

CHAPTER	TITLE	PAGE
	DECLARATION	
	DEDICATION	
	ACKNOWLEDGEMENTS ABSTRACT	
	ABSTRAK	
	TABLE OF CONTENTS	
	LIST OF TABLES	
	LIST OF FIGURES	
	LIST OF APPENDICES	
1.0	**INTRODUCTION**	
	1.1 Introduction	
	1.2 Problem Statement	
	1.3 Research Questions	
	1.4 Aim and Objectives	
	1.5 Scope and Limitation	
	1.6 Research Methodology	
	1.7 Significance of Study	
	1.7.1 To the Project Management	
	1.7.2 To the Organization	

CHAPTER **TITLE** **PAGE**

2.0 PERFORMANCE MEASUREMENT SYSTEM

2.1 Introduction

2.1.1 Performance Measurement

2.1.2 Performance Measures

2.1.3 Performance Measurement System

2.2 Performance Measurement and Control System

2.3 Feedback for Making Decisions

2.4 Tools For Performance Measurement

3.0 PERFORMANCE MEASUREMENT SYSTEM IN JKR

3.1 Introduction

3.2 SKALA in JKR

3.3 Key Performance Indicators (KPI) for JKR

3.4 The Program and Project Management Office (PMO) in JKR

4.0 RESEARCH METHODOLOGY

4.1 Introduction

4.2 Literature Review and Document Search

4.3 Interview with Expert Panel

4.4 Questionnaire Survey

4.5 Method of Data Analysis

4.5.1 Cronbach's Alpha

4.5.2 Frequency Analysis

4.5.3 Average Index Analysis

4.5.4 Kruskal-Wallis Test

4.5.5 Correlation Analysis

4.6 Conclusion

CHAPTER	TITLE	PAGE

5.0 DATA COLLECTION AND ANALYSIS

5.1 Introduction

5.2 Interview with Expert Panel

5.2.1 Content Analysis Summary

5.2.1.1 Existing PMS as Practiced in JKR

5.2.1.2 Expectation of PMS in JKR

5.2.2 Summary of Interview

5.3 Questionnaire Survey

5.3.1 Reliability Test (Cronbach's Alpha)

5.3.2 General Background of Respondents

5.3.3 Review on PMS in JKR

5.3.4 Identify Problems and Limitations of PMS in JKR

5.3.5 Identify Effective Solutions to Improve PMS in JKR

5.3.6 Identify Factors Constitute To Good Techniques in PMS

5.3.7 Summary of Questionnaire Survey Results

5.3.8 Test of Significance Different on Perception

5.3.8.1 Significant Different in Perception between Different Level of Staff

5.3.8.2 Significant Different in Perception between Different Level of Experience

5.3.8.3 Significant Different in Perception between Different Position

5.3.9 Correlation Analysis

CHAPTER	TITLE	PAGE

5.3.9.1 Correlation for Answer and Analyze Leading Questions

5.3.9.2 Correlation for Let Us Know If We are Meeting Our Goals

5.3.9.3 Correlation for Difficult to Understand and Analyze

5.3.9.4 Correlation for Provide Correct Measurement for Each Objective

5.3.9.5 Correlation for Leadership Committed in Performance Analysis Reporting

5.3.9.6 Correlation for Monitor Execution of Strategic Objectives and Initiatives

5.3.9.7 Correlation for Monitor Overall Performance Daily At A Glance

5.3.10 Conclusion

DISCUSSION OF RESULTS

6.0 6.1 Introduction

6.2 Problems and Limitation of Existing PMS

6.3 Need for a Good PMS

6.4 Expectation of the Management

6.5 Towards Establishing an Effective PMS

7.0 **CONCLUSION**

7.1 Introduction

7.2 Proposed Strategy to Improve PMS in JKR

7.3 Recommendation for Future Study

7.4 Summary

REFERENCES

APPENDICES

LIST OF TABLES

TABLE NO.	TITLE	PAGE
2.1	Example of a simple Balanced Scorecard Summary	
5.1	Content Analysis for Structured Interviews	
5.2	Cronbach's Alpha	
5.3	Organization and Position of Respondents	
5.4	Organization and Experience in Project Management of Respondents	
5.5	Score frequency for Review of existing PMS in JKR	
5.6	Ranking of items from Review of existing PMS in JKR	
5.7	Score frequency of items from Problems and Limitation of PMS in JKR	
5.8	Ranking of items from Problems and Limitation of PMS in JKR	
5.9	Score frequency of item from Effective Solution to Improve PMS in JKR	
5.10	Ranking of item from Effective Solution to Improve PMS in JKR	
5.11	Score frequency of Factors Constitute Good Techniques in PMS	
5.12	Ranking of Factors Constitute Good Techniques in PMS	
5.13	Correlations for Variables related to areas examined	

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
1.1	JKR Organization Chart	
1.2	Research Methodology	
2.1	Spider Chart	
2.2	A Dashboard Design	
3.1	A Framework for Delivery Strategic Change	
5.1	Breakdown of Respondents by Position	
5.2	Breakdown of Respondents by Experience in Project Management	

LIST OF APPENDICES

APPENDIX NO.	TITLE	PAGE
A	Semi-Structured Interview Qstionnaire	
B	Survey Questionnaire	
C	Statistical Test Result	
C-1	Kruskal-Wallis Test (Different Level of Staff)	
C-2	Kruskal-Wallis Test (Different Position)	
C-3	Kruskal-Wallis Test(Different Level of Experience)	
C-4	Variable Correlation Analysis	

CHAPTER 1

INTRODUCTION

1.1 Introduction

Performance Measurement is the process whereby an organization establishes the parameters within which programs, investments, and acquisitions are reaching the desired results. This process of measuring performance often requires the use of statistical evidence to determine progress toward specific defined organizational objectives. According to Neely *et al.* (1995), Performance Measurement System is defined as a broad system of measurement which functions to generate information to be used by various levels in the organisations.

Jabatan Kerja Raya (JKR) Malaysia is a government department which the main core business is to implement and maintain of public building and infrastructure in Malaysia such as federal and state roads, bridges, government buildings and complexes, institutional and campus developments, water treatment plants and many more. This agency is park under the Ministry of Works, Malaysia (MOW). JKR Malaysia is headed by a Director General and is assisted by three

Deputy Director General which comprises of three major sectors supported by 15 branches. The organization chart of JKR Malaysia is as in Figure 1.1:

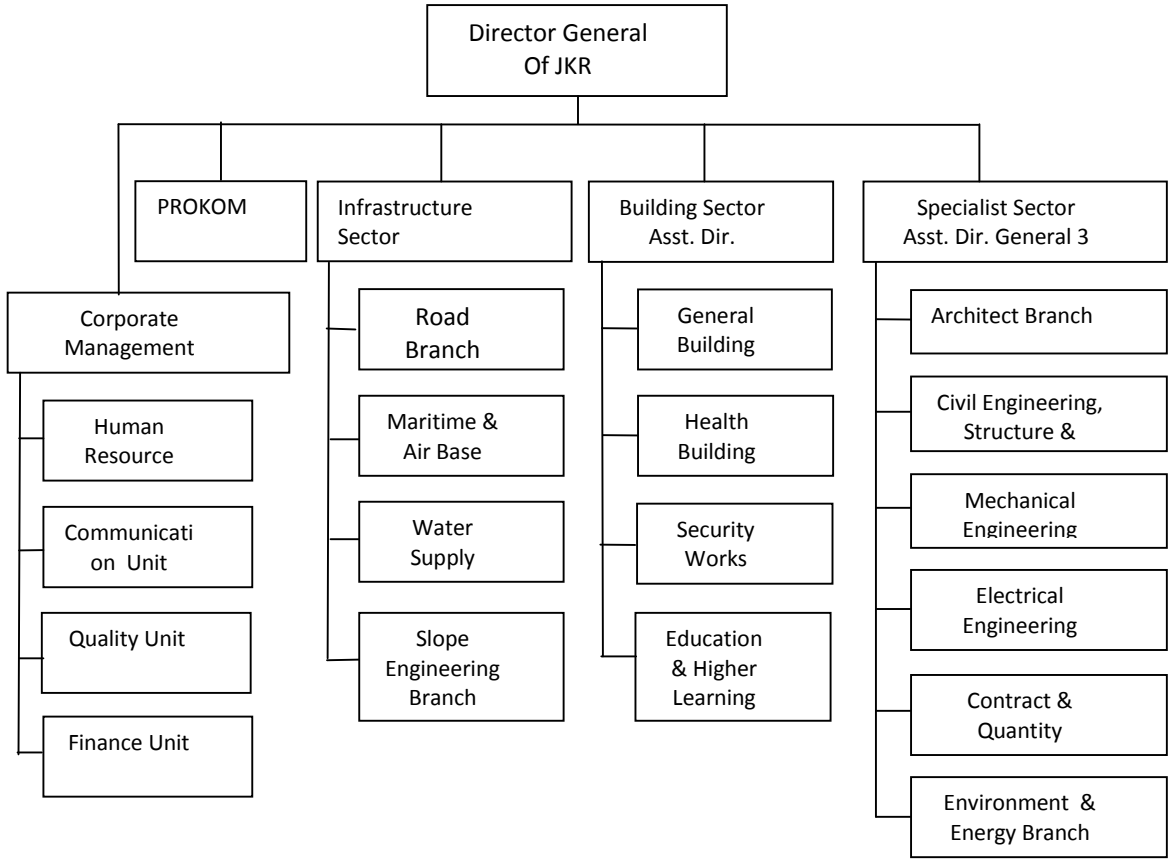

Figure 1.1: JKR Organization Chart

In JKR Malaysia, the Key Performance Indicator (KPI) has been set to measure the performance of the organisation which directly related to the objectives of JKR as a main consultant to the government to deliver each assigned projects with acceptable quality, on time delivery and completed within allocated budget. To achieve its KPI, JKR Malaysia has developed SKALA Workflow, an online tool system to monitor and control all its projects. In this study, I will interview and conduct a survey by using questionnaire on several Project Managers, Heads of Project Team, Program Managers and the Project Management Offices (PMOs) who are the main players of project management in JKR, to establish their needs

and problems that they are facing with existing performance measurement systems (PMS) in the organisation.

Performance measurement systems (PMS) were widely developed in the 1990's as a means by which large companies can support their strategic management functions (Kaplan and Norton, 1992, 1996; Simons, 2000). In the public organizations, its fundamental objectives are to maximize performance of all aspects of government functions. PMS in the public organizations are to improve the effectiveness of the public services, making the operation of government more efficient, increase the chances that the policies which has been chosen and implemented will be effective and also to improve the public organizations accountability. In general, public organizations seem to face more problems than private organizations.

The research on performance measurement in the public sector suggests that the problems are caused by the conflicting requirements of different stakeholders (Lawton et al., 2000; Wisniewski and Stewart, 2004). Government agencies and public institutions in the new millennium are faced with a far greater mandate for *"customer-oriented"* delivery and performance than ever before. Given the sophisticated demands for information from a wide range of stakeholders including the Parliament, government ministries and agencies are required to respond with world-class performance measurement and reporting systems.

1.2 Problem Statement

Recently, JKR's top management had received complaints and bad reviews from client departments, government agencies, public and media for many projects were experiencing delays, structural failures, disputes, termination and retendered. Evidences from several newspaper articles show the public concern on the status

of project implementation managed by Ministry of Works (KKR) and its agencies especially JKR.

An article written by Tan Sri Lee Lam Thye, titled "*We must learn from past disasters"*, appeared in the Malay Mail, Thursday, June 11th, 2009 mentioned the roof collapse of the RM292 million, 50,000-capacity Sultan Mizan Zainal Abidin Stadium in Gong Badak, Kuala Terengganu. He assumed that the stadium incident raises many questions concerning the professional conduct of the various parties involved in the construction of the building , the public expects nothing short of a thorough and transparent investigation. In addition to the issue of professional conduct of those involved, the article mentioned that the issue of workmanship, work supervision, the quality of building materials and of course, the safety aspect and other related issues, was also critical. Tan Sri Lee express his view that major problems with public projects such as the repeated roof leakages of the Parliament building and the repeated cracks on the Kepong MRR2 Expressway, public confidence in the JKR projects will undoubtedly be affected.

By the end of 9th Malaysian Plan (2010) the top management of JKR has identified four (4) key issues in Project Delivery System in JKR, as follows:

- No standardization in the Project Management system
- Not fully based on best practices in project management
- Lack of effective communication
- Information and knowledge not being shared

Obviously there has been a lack of effective communication at project management level in dealing with problems in managing and implementing building and infrastructure projects. Most data retrieved from existing monitoring tool in JKR were not effectively translated as measurements and indicators for managers to response and make important and timely decision.

1.2 Research Question

The study seeks to develop answers to the following major questions:

1. What are the needs of the Project and Program Managers in relation to PMS in JKR?
2. What are the weaknesses and problems of the existing PMS during implementation?
3. How do the performance measures being used in the operations and decision-making processes and who are the main recipients of the reports of the performance results?

1.4 Aim and Objectives

The aim of this study is to recommend improvements to the existing PMS in JKR. The objectives of this study are as follows:

- To establish needs and expectation of the Project and Program Management Office (PMO) in relation to existing Performance Measurement System (PMS) in JKR.
- To determine the limitation and problems of existing PMS in JKR against PMO needs and expectation.
- To propose effective solutions as a strategy to improve existing PMS in JKR.

1.5 Scope and Limitation

The scope and limitation of this study are as follows:

- The data for the study were collected from JKR personnel and organization only.

- The study only identifies key important factors that can be used as a guide toward establishing effective PMS for JKR...
- Interviews with experts from the PMO, PROKOM and the top management of JKR only.

1.6 Brief Research Methodology

In order to achieve the objectives, *Figure 1* illustrated the schematic of research methodology for this study. Generally, the study will be carried out in 3 phases, which are phase 1, phase 2 and phase 3. The first stage is planning stage where the topic of research is identified, aim and objectives are determined. Literature review on the subject will be carried out to determine the scope study. The second stage is data collection stage, where the data collecting through structured interview with experts to provide views, and questionnaires survey where list of weakness and problems from existing PMS in JKR can help in the proposal for improvement. The third stage is the proposal and recommendation for improvement of the existing PMS and conclusion.

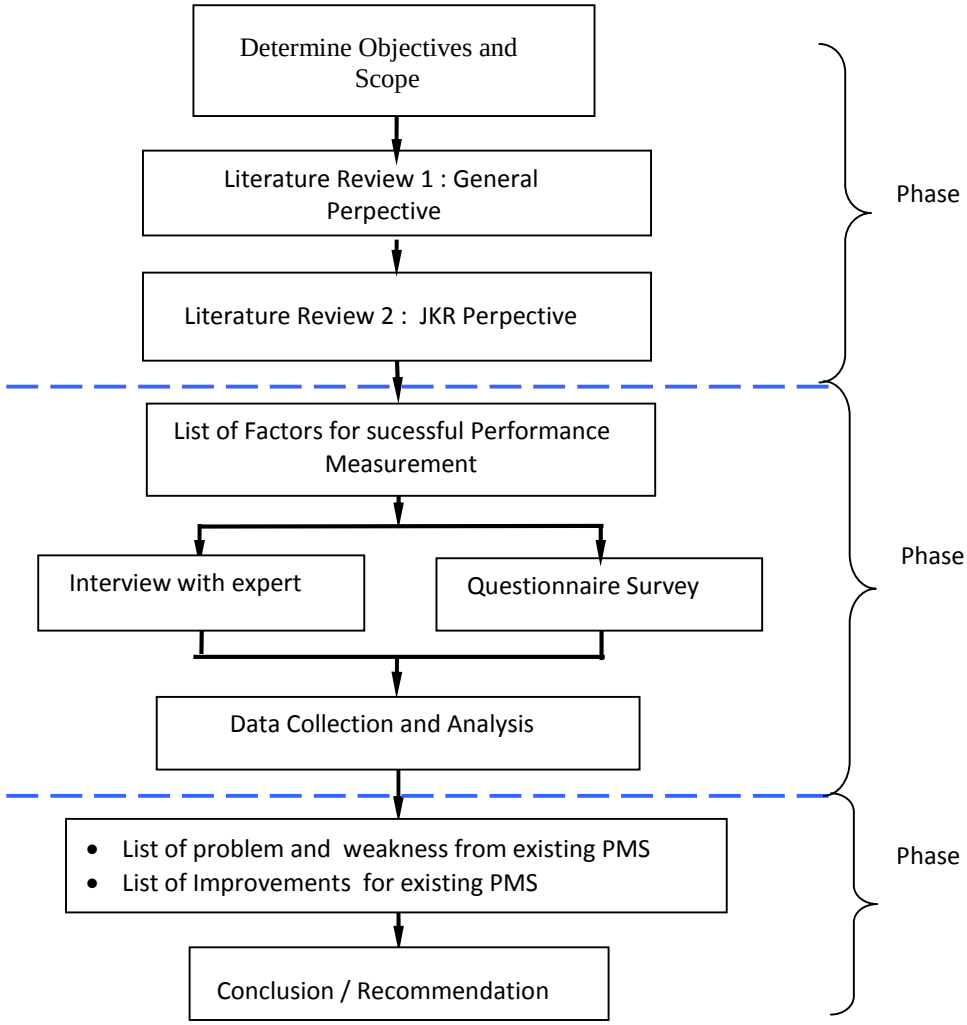

Figure 2: Schematic diagram of research methodology