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Date : December 2010

**PROPOSAL FOR THE ENHANCEMENT OF JKR MATRIX ORGANIZATION**

**ATIKAH BINTI ABDUL HAMID**

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

Faculty of Civil Engineering  
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DECEMBER , 2010

I declare that this capstone project report entitled “ *Proposal For The Enhancement Of JKR Matrix Organization*” 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.

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Name : ATIKAH BINTI ABDUL HAMID

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To my beloved husband and family

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## ABSTRACT

The matrix is a complex organizational structure that groups individuals from different functional organizations work together to accomplish a common purpose. The advantage is, it balance up both technical and project goals by specifically allocate responsibilities to both. In contrast the disadvantage is the creation of two lines of supervision with its potential for conflict for project team members and between the project and functional managers relating to skill resources.

The aim of this study is propose several methods to enhance the current JKR Matrix Organization. Matrix Organization has been implemented in the headquarters of JKR since 2007. But due to some reasons, overlapping of works, confusion of roles and responsibilities between the project and the functional manager still exist. Therefore, in meeting the aim above, three objectives are stipulated, that are to study the perception of JKR professional towards JKR Matrix Organization, to determine what are the problems encountered with the system and thus the proposals for enhancement are recommended.

The study has focused into matrix organization at the headquarters of JKR Malaysia, Kuala Lumpur. The respondents are the professional in the JKR headquarters ranging from Jusa post until J41 and they came from various disciplines at the three sectors available in the current JKR Organization chart. Questionnaires are formulated into written set of questions with likert scale to measure the level of agreement or disagreement and a quantitative research output are expected. 200 questionnaires' are given out and 160 have responded giving the percentage respondent of 95.6%. Analysis done using Statistical Packages for Social Sciences (SPSS) version 17 to obtain the mean, frequency and the result are presented into table and simplified into pie chart.

## ABSTRAK

Matrix adalah satu struktur organisasi yang kompleks dimana kumpulan individu dari berbeza fungsi organisasi bekerjasama untuk menjayakan sesuatu tujuan yang sama. Kelebihannya ialah mengimbangi matlamat teknikal dan juga projek dengan pembahagian tanggungjawab yang khusus kepada setiap struktur. Sebaliknya terdapat juga kekurangan dimana ianya menjadikan dua punca pengawasan yang berpotensi menyebabkan berlakunya konflik antara ahli-ahli pasukan projek dan antara kedua pengurus projek dan fungsi yang berkaitan dengan sumber kemahiran.

Tujuan kajian dijalankan ialah untuk mencadangkan beberapa kaedah untuk menambailbaik matrix Organisasi JKR semasa. Organisasi matrix telah dilaksanakan di Ibu Pejabat JKR Malaysia semenjak 2007 lagi. Walaubagaimanapun, atas beberapa sebab tertentu, pertindihan kerja masih berlaku dan terdapat kekeliruan peranan dan tanggungjawab di antara pengurus projek dan fungsi. Oleh yang demikian, untuk mencapai matlamat di atas, tiga objektif utama digariskan iaitu untuk mengetahui persepsi professional JKR terhadap organisasi matrix JKR, untuk mengenalpasti masalah-masalah yang dihadapi oleh organisasai matriks JKR dan juga untuk mencari jalan penyelesaiannya.

Kajian ini memberikan focus kepada organisasi matrik di peringkat Ibu Pejabat JKR Malaysia, Kuala Lumr. Responden terdiri dari pegawai-pegawai professional di Ibu Pejabat dari jawatan Jusa sehingga kepada pegawai J41 dari pelbagai bidang di ketiga-tiga sektor yang sediada didalam carta organisasi semasa JKR. Soalan-soalan di formulasikan dengan menyediakan set-set soalan dengan menggunakan skala Likert untuk mengukur tahap bersetuju atau tidak bersetuju dan hasil kajian kuantitatif adalah diharapkan. 200 soalan telah diedarkan kepada kakitangan terpilih dan hasilnya seramai 160 responden telah memberikan maklumbalas dengan peratus sebanyak 95.6%. Analisa menggunakan 'Statistical Package for Social Science (SPSS) versi 17 telah digunakan untuk mendapatkan penengahnya, kekerapan dan juga keputusan dalam bentuk jadual dan juga 'pie chart'



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## LIST OF ABBREVIATION

ABBREVIATION	STANDS FOR
JKR	Jabatan Kerja Raya
SPSS	Statistical Packages for Social Sciences
SLA	Service Level Agreement
PMO	Project Management Office
HRP	Human Resources Planning
ICT	Information Computerized Technology
RMK10	<i>Rancangan Malaysia ke 10</i>
SKALA	<i>Sistem Kawal dan Lapur</i>
PMBOK	Project Management Book Of Knowledge
HODT	Head Of Design Team
HOPT	Head Of Project Team
SO	Superintending Officer
PM	Project Manager
QMS	Quality Management System
SBU	Sector Business Unit
DG	Director General
QMP	Quality Management Plan
MOU	Memorandum Of Understanding
PMC	Project Management Consultant
PMCS	Program Management and Constrol System
PROKOM	<i>Projek Kompleks</i>

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

Jabatan Kerja Raya Malaysia or Malaysia Public Works Department (JKR) has established since 1872 and currently, the department has developed to be the biggest technical body to the Government of Malaysia. The main role of JKR is to implement all development projects and maintenance of infrastructures for various ministries and agencies in the country that include road, building, airport, port, jetties and many others for the benefit of the public. JKR has developed expertise in various disciplines that enable to provide technical advisory services to the Government.

JKR Malaysia has implemented matrix organization since 2007 and the department is currently divided into three main sectors which comprises of business, specialist and corporate sector. Each of these sectors is headed by the Deputy Director General who is directly answerable to the Director General of JKR.

#### **1.2 Background**

JKR has begun since the colonization time and until today, still maintaining the main function, which is to provide the infrastructure to the country. The department has progressed and became more excellent after gaining the independence in the year 1957. Planning and execution of projects are properly organized and implemented according to the government five-year planning of the country development starting from the First Malaysia Plan which was launched in 1966. JKR

is responsible for the development of the country and more challenges occur in this new millennium with the beginning of the Eight Malaysia Plan starting from the year 2000.

JKR at the early formation was managed by the general management, which covered the whole project life cycle including the asset disposal. The standards of living especially at the rural areas are improved through the provision of various facilities to the people, and vice versa, JKR has helped to boost up the economy of the country.

Matrix organization in JKR started in the year 1970 to 1998 in which additional branches like architect, research and development are established to support implementation sector. In the year 2000, JKR was reorganized into functional organization where branches like building works, health works, education works and also security works are allocated with designers to accelerate the design works and thus improving the project deliveries.

In 2007, JKR organization is reorganized into matrix to ensure there are complex network of reporting relationships and to establish team and product simultaneously. Restructuring need to be carried out in order;

1. To improve the effectiveness of JKR delivery system
2. To align with Government Project Implementation Strategy (RMK10)
3. To strengthen the role of JKR as the main implementer of Government infrastructure
4. To raise the competency of JKR staffs
5. To clarify the role of Sectors/Branch/State and Districts.
6. To optimize manpower and strategic placement of staffs
7. To enhance effectiveness of JKR ICT system
8. To encourage Creativity and Innovation
9. To enhance decisions and Information flow
10. To strengthen JKR in Asset and Facility Management

### **1.3 Problem Statement**

JKR has restructured into matrix organization for the last three years, but somehow, the level of understanding and acceptance of the system is to be discovered. Confusions over the roles and responsibilities and overlapping of works still happen within the sectors. The probable reason is that matrix function is not really understood by all staffs; moreover, awareness to the system and training was not given before the implementation begins. As a result, matrix implementation in JKR is still weak and improvements need to be done.

Zohar Laslo et.al (2001), stated that in division of authority, responsibilities must be defined especially on decision making in technical matters, determination of salaries, promotional opportunities and also staffing in both project and functional managers involved.

### **1.4 The Objectives**

The objectives of the studies are;

1. To study the perception of JKR professionals toward JKR Matrix Organization
2. To identify problems in the current JKR Matrix Organization
3. To propose enhancement of current JKR Matrix Organization

### **1.5 Scope of Study**

The study is giving focus on the enhancement of matrix organization at JKR headquarter in Kuala Lumpur. Having clear objectives, literatures reviews are collected by browsing into related articles in the internet. To ensure enough relevant articles obtained allocation of time need to be given to read through the articles and understand it so that some related issues can be gathered to supplement the study.

The project team has to overcome many documented challenges in related to individual differences including roles and responsibility, clarity of project objectives, dynamic project environments, credibility of project leader, commitment, communication and senior leadership support in order to execute a project successfully (Kerzner, 1992)

## **1.6 Organizational Structure**

Kerzner, (2006) define organization as a group of people that coordinate their activities to meet the organizational objectives and it need a strong communication and a clear understanding of the relationships and interdependencies among people to ensure coordination function.

Organizational structure in simple word can be described as the systematic arrangement of works and it is also known as organizational chart. Organizational structure is defined as mainly hierarchical concept of subordination of entities that collaborate and contribute to serve one common aim. There are many types of organizational structure and the category chosen depend on the factors like hierarchy, geographical regions or product. In this study, three main types of organizational structures are discussed, that include functional, projectised and matrix organization.

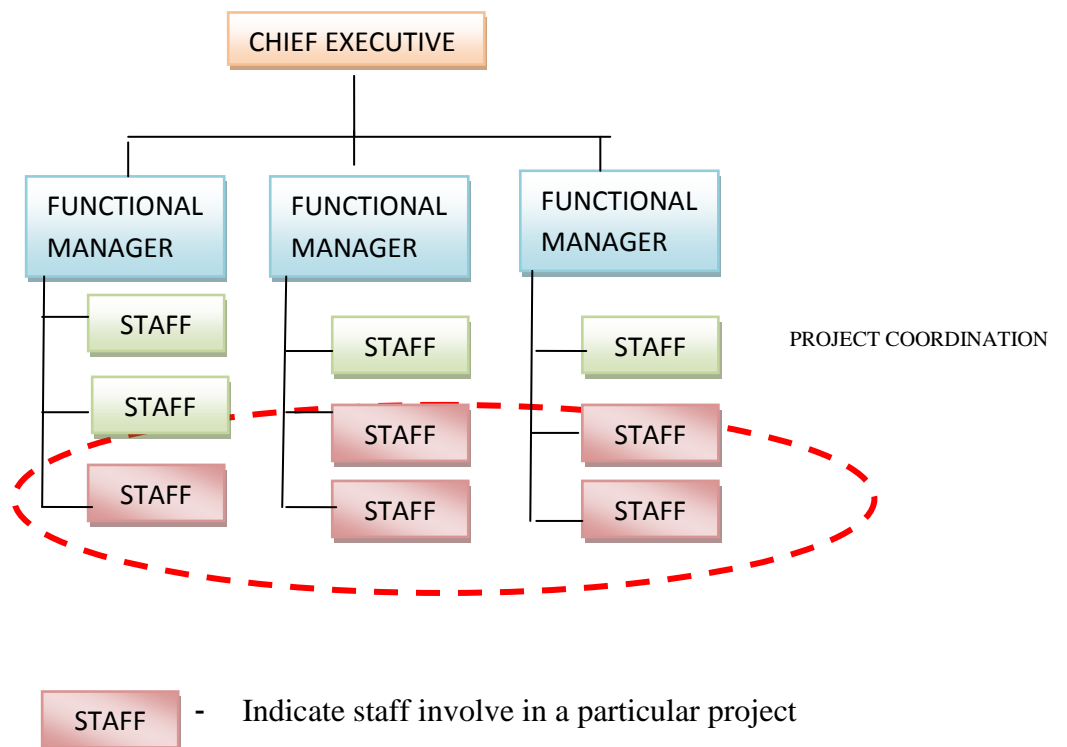
Organization must change in order to survive; large scale organization change stretches management skills and knowledge to the limit and beyond; change in organization help to keep up pace of technological and administrative innovation (David Partington, 1996).

In PMBOK an organizational structure is described as the formal system of task and reporting relationships that controls, coordinated and motivates employees so that they cooperate to achieve an organizational goal

### 1.6.1 Functional organization

Functional organization consist of group of people work together in an organization due to similar position or perform similar task of works and have the same kind of skills. The networking of engineering, marketing, finance, administration and others are managed and organized by the top management. This type of structure is more likely orientated for technical sector and not suitable for product producing companies or business.

Functional divisions of an organization tend to train employees to perform a specialized set of tasks and normally are centralized, so products or services provided are efficient and predictable. Moreover, integration of activities is normally vertical. Under functional organization, the project coordination are done bottom up where the supporting staffs usually report to the functional manager. Information and discussion need to be made known to other functional managers in the organization. However, role of project manager is very little and sometime do not exist. Figure 1.1 illustrates the functional organization.



**Figure 1.1:** Functional structure

### **1.6.1.1 Strength in functional organization**

The strengths in functional organization are as follows;

1. It maximize the functional expertise where all knowledge, expertise and infrastructure that are necessary to strengthen functional activities in the organization.
2. Individual expertise can be used in the organization and there's flexibility to maximize it.
3. Functional structure is handled by experience and competent leader.
4. For a bigger organization, the functional structure will develop individual career development to those who intend to be a technical expert. This type of organization enable to implement mentor and coaching training program

### **1.6.1.2 Weaknesses of functional organization**

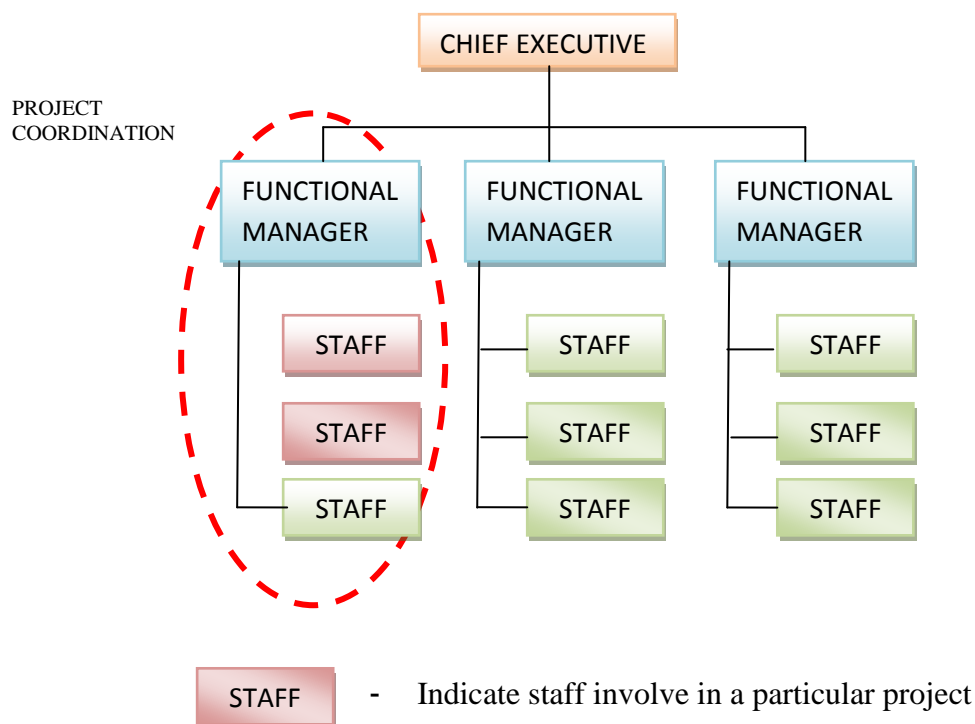
The functional organization also has weaknesses and it summaries' as below;

1. The structure do not focus on customer or project need, but instead it only concentrate toward to the functional needs.
2. Every functional unit in the direction of expertise in their discipline and less focus toward organization direction.
3. There exist many levels of hierarchy between the customers and the staffs. Coordination between the unit is done by the functional manager before the directive received by the subordinates, hence, it may delay those action to be implemented.

4. None of the individual is given full responsibility to implement the project. As a result it is difficult to evaluate productivity.
5. Functional organization is suitable for a smaller size organization where specific product is produce and do not need many input from other technical function.

### 1.6.2 Projectized Organization

In teamwork project organization, grouping is implemented as one or group project task. Each project group consist of individual functional unit such as contract procurement, designing and it works as self contained unit. Project team organization has less hierarchy compared to functional organization which give more focus toward project implementation but discourage the technical competency. Fig. 2 illustrates projectized organization.



**Figure 1.2:** Projectized Organization



### **1.6.2.1 Strength in projectized organization**

1. Projectized organization gives the project manager full authority to make decision and have clear line of responsibilities, thus decision making would faster.
2. Project team need to focus at one directive in producing specific products to simplify the evaluation on the project achievement.
3. Functional unit or individual under one team will cooperate effectively due to clear aim of the project and moreover sharing is expected. It will develop in-win scenario to all individuals involved.
4. Organization chart can be easily understood and this will accelerate implementation of the project.
5. To work together with different kind of experts is an advantage because it gives opportunity to learn new skills and something different from the usual practices. This will encourage the development of project manager because it opens up opportunities to understand other functional areas.
6. Projectised organization manage to receive unstable environmental change due to project monitoring hierarchy is shorten and every team formed complete and self contained.

### **1.6.2.2 Weaknesses of projectised organization**

1. Every team needs to move individually, thus staffing for functional organization which actually can be shared and this is a waste to the government.
2. Expertise and knowledge in particular discipline is not easy to share and to cross over other team will definitely causing troubles.

Moreover, it is difficult to get access to the expertise available in the functional unit. Thus It will limit the development of experts.

3. The workers felt that it is easier to cooperate in their own group rather than to cooperate with other project team to achieve the organizational objective.
4. Inconsistence in method of implementation may happen between the teams due to the effectiveness of the Project Manager toward the organizational aim and this may not motivate them to integrate with other teams.
5. Motivation may die off at the end of the project implementation because feeling lack security is widespread among the team members due to their needs ended up with project completion.

### **1.6.3 Matrix organization**

Matrix organization groups employees by both function and product (project). John A. Kuprenas (2003) define matrix organization as the establishment of a set of horizontal project groups over the traditional vertical function in the organization which is overlaid by some form of lateral authority, influence or communication. This structure frequently uses teams of employees to accomplish work, in order to take advantage of the strengths besides making up the weaknesses of functional and decentralized forms. Matrix organization is a technique to manage an organization through networking of dual reporting. The implementation success in matrix always depends on organization's purpose and function. Three types of matrix structures are discussed; weak or functional matrix, balance matrix and strong matrix.

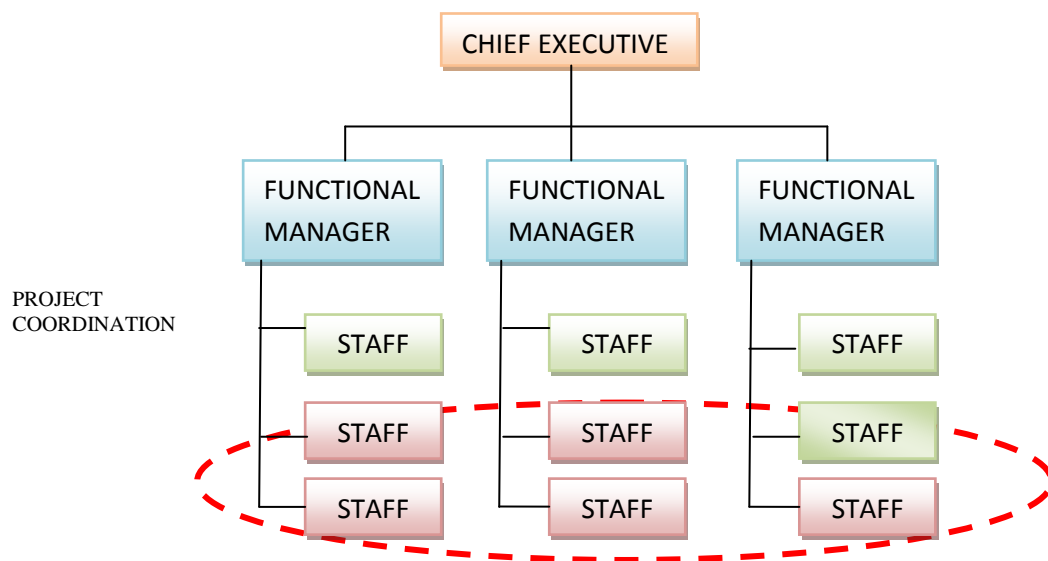
#### **1.6.3.1 Weak/Functional Matrix Organization**

This is where the general manager with only limited authority is assigned to oversee the cross-functional aspects of the projects and the functional managers maintain control over their resources and project areas. This type of matrix is based on functional organization whereby the project manager is responsible to implement

the project; however they only facilitate the projects. The project managers develop the planning and monitor the implementation but they do not have control on the individual and also on the project implementation. Overall implementation is mostly done by the functional manager who is responsible on the staffs and offer workforce resources to implement the project. Figure 1.3 illustrates the weak/functional matrix organization.

### 1.6.3.2 Balances/Functional Matrix Organization

Project manager is assigned to oversee the project and where the power is shared equally between the project manager and the functional managers. The ideal aspects are where the functional and projectized organization can be merging as one team. However it is not easy to maintain sharing power and sometime ending up as failure to the organization. Figure 1.4 illustrates the balance matrix organization.



**Figure 1.3 :** Weak/Functional matrix organization