

**“Competency and Role Path from Being Project Manager,
to Program Manager, to Portfolio Manager”**

“مجرى الكفاءة والمهام بين مدير المشروع، مدير البرنامج ومدير المحفظة”

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Dedication

I dedicate my research paper to... My dearest family...

My father Ahmad Al Shaiba...

Who is always there to support, provide advice and always believe that I can do it. Thank you Dad.

My mother, Sakena Hussain...

Who is my closest friend who I shared my different stages and challenges of the dissertation with and always get required support from. Who reminded me of my deadlines. Thank you Mom.

My sisters, Hind and Buthaina...

Who were always following my progress and who were patient as many of our outings were cancelled due to my dedication to finalize the research. I would like to tell you expect the Phd.

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Who was the main source to add fun in stressful moments during my journey towards finalization of the research.

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Who I consider my older sister for her support.

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I really learnt from him. His valuable advice and guidance made the difference.

My dearest friends...

Who postponed most of their plans to support me and who used to ask "When will you graduate?" and "If you needed any help inform us?".

To all readers...

I hope you will enjoy reading every line of the research that includes the best of moments, knowledge, skills, emotions and lessons learnt I experienced towards finalizing my dissertation.

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Abstract

Existing literature indicated an extensive recognition of project management in recent years as a business discipline that is required to be managed by educated, skilled and experienced individuals to get the job done right. This research aims at exploring the list of required competencies and main responsibilities of project, program and portfolio managers' roles and identifying the relationships between the roles in regards to career path progression. To fulfill this aim, extensive literature review in the fields of project, program and portfolio management was undertaken from which the conceptual framework was derived and verification was done through the empirical research. The research was based on qualitative research method that followed case study approach using semi-structured interview as data collection tool with selected respondents from one of the government organizations responsible for transportation infrastructure in Dubai in the United Arab Emirates. For confidentiality reasons the organization will be called AB throughout the research. The research was conducted according to an opportunity found in AB, which was the organization the researcher worked in. The ambiguity in the selection process of project managers, unavailability of clear list of required competencies and main responsibilities related to project manager role, non realization of program and portfolio managers roles encouraged the researcher to investigate and verify the required list of competencies and main responsibilities under project, program and portfolio managers' roles and explore the relationship between the three in regards to career progression. After conducting the semi-structured interviews, analysis of individual cases was presented followed by cross case analysis including comparison with literature findings and shared documentations by the HR Department. The interesting finding was that there was major discrepancy between the list of required competencies and main responsibilities that were based on the literature review and the final list produced as part of research outcomes. The research closes by presenting the final list of required competencies across the three roles according to input received from respondents. The list illustrated required competencies that were agreed on by the highest number of respondents and similar competencies across the roles were highlighted. Moreover, the final list of main responsibilities was developed based on input received from respondents and the overall career progression relationship was presented. This research recommends using the final developed list of required competencies and main responsibilities to reevaluate existing job

descriptions and competency framework of project manager role in the organization. Also, it can support in constructing the same for program and portfolio managers. Furthermore, it is proposed to revisit the existing career path plan of project manager role and to incorporate the program and portfolio managers' roles to project manager career path that would support effective management and control of project management function within the organization. Additionally other suggestions related to project management improvements were introduced such as the use of software application that manages projects, programs and portfolios across the organization.

Keywords: project manager; program manager; portfolio manager; required competencies; main responsibilities; career progression

المخلص

استنادا إلى الدراسات الحديثة حول إدارة المشاريع فقد تبين أن هناك وعي وإدراك حول أهمية إدارة المشاريع التي تعتبر مهنة بحد ذاتها، وبأن ممارس هذه المهنة يجب أن يكون ذو كفاءة، خبرة ومستوى علمي يؤهله لأداء مسؤولياته بالصورة المثلى. يهدف البحث إلى استنباط الكفاءات الأساسية والمسؤوليات الرئيسية لكل من مدير المشروع، مدير البرنامج ومدير المحفظة. كما ويقوم بتسليط الضوء على العلاقة بين هذه الوظائف من منطلق التدرج الوظيفي. لتحقيق هذا الهدف فقد تمت مراجعة الدراسات السابقة حول إدارة المشاريع، إدارة البرامج وإدارة المحفظة والتي اعتمدت عليها عملية دراسة، تحليل وإثبات موضوع البحث الذي استند على الدراسة التطبيقية بأحد الدوائر الحكومية بإمارة دبي في دولة الإمارات العربية المتحدة. لقد تم الحصول على البيانات المتعلقة بالدراسة باستخدام أسلوب المقابلات ضمن منهجية دراسة الحالات المنتقاة من الدائرة. لقد لوحظ أن عملية اختيار مدراء المشاريع تفتقر إلى الوضوح التام خاصة مع عدم توفر مرجعية واضحة متضمنة الكفاءات الأساسية والمسؤوليات الرئيسية التي يجب أن تتوافر بمدراء المشاريع. كما أن مفهوم مدير البرنامج ومدير المحفظة غير واضح بالدائرة، مما دفع منفذ البحث إلى إجراء الدراسة.

يقدم البحث العديد من المخرجات متضمنة مجموعة الكفاءات الأساسية والمسؤوليات الرئيسية لكل من مدير المشروع، مدير البرنامج ومدير المحفظة. كما يقدم اقتراحات عديدة منها أن تقوم الدائرة بإعادة صياغة محتوى الوصف الوظيفي و دليل الكفاءات الخاص بمهام مدير المشروع، والعمل على مراجعة خطة المسار الوظيفي لمدير المشروع لتشمل مدير البرنامج ومدير المحفظة.

الكلمات المفتاحية: مدير المشروع، مدير البرنامج، مدير المحفظة، الكفاءات الأساسية، المسؤوليات الرئيسية، التدرج الوظيفي

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Abbreviations

APM	Association for Project Management
CCPM	College of Complex Project Managers
EPMO	Enterprise Project Management Office within AB organization that aims at the overall governance of all projects running in AB organization, but currently it is mainly responsible for projects monitoring through monthly reports raised by project managers.
GAPPS	Global Alliance for Project Performance Standards
HR	Human Resources
IPMA	International Project Management Association
IT	Information Technology
OGC	Office of Government Commerce
PMI	Project Management Institute
PMO	Project Management Office that exists in some of the business units within AB Organization. PMO is responsible for maintaining projects' governance including standards, rules and procedures and reporting projects status to the organization operational plan.
PMP	Project Management Professional

Chapter 1 - Introduction

1.1 Introduction

There is a significant movement towards the recognition of project, program and portfolio management fields in non project based organizations, which emphasizes the demand to select and assign candidates who are competent to manage and hold the role of project, program or portfolio manager. According to Melton and Iles-Smith (2009), it is indicated that project, program and portfolio are terms used in project management to describe certain activities. Project is defined as a bounded set of non-routine activities to accomplish defined set of objectives for the overall benefit of the organization, it is not part of business as usual (BAU) but has a defined start and end point. While, the program is defined as set of interdependent related projects that work collaboratively to achieve a defined shared organizational goal, there is dependency across projects' outputs and delivered benefits. On the other hand, portfolio is defined as a collection of related and non related projects, using a common resource pool that can be people, funding or assets which need to be utilized optimally. Most literature reviews support the definitions of project, program and portfolio as per Melton and Iles-Smith (2009), adding to that portfolio elements are projects, programs and sub portfolios as per PMI (2008). The research adopted the above definitions of the three which were also similar to the definitions provided by majority of interviewed cases from AB Organization. Furthermore, the researcher accepted the definition of competency supported by Patanakul and Milosevic (2008), Ahadzie, Proverbs and Olomolaiye (2008), and Stevenson and Starkweather (2010) as the knowledge, skill, experience, ability and characteristic associated with high performance in the job. Also, Stretton (1995) reported that Heywood, Gonczi and Hager (1992) emphasized that competency cannot be observed directly, consequently it is crucial to obtain an indirect measure from which competency can be inferred.

It is noted by Holzle (2010) and strongly supported by Aitken and Crawford (2007), Gallstedt (2003) and Turner, Huemann and Keegan (2008) that there is an increased demand in recent

years of project related career as organizations are moving towards developing dynamic work environments through undertaking temporary work forms such as projects and programs. Also, Turner, Huemann and Keegan (2008) indicated that tasks are transferring from traditional line organization into project based organization that demands motivated and qualified project managers. In addition, Turner (2006) stressed on the importance of being selective in employing a person to manage a project or a group of projects as projects are becoming instruments of resource and risk management and organizational change. Adding to that, El-Sabaa (2001) indicated that understanding the role of project managers, skills required and their career path is a crucial step towards the selection and development of effective managers that can cope with problems, risks, resource and time constraints exist in projects. Moreover, it is emphasized by El-Sabaa (2001) that the role of project managers demands the ability to manage crisis, uncertainty, suspense and dealing with diverse set of information, situations, people in which he/she is mostly having little control over.

Existing Literature by Melton and Iles-Smith (2009) indicated that typically the project manager career path involves gradual management of larger and more complex projects within specific project type. However, there are other possible routes that include broader project management experiences and moving to the management of different project types, expanding into program management and then to portfolio management.

Based on the review of personality trait literature, Dolfi and Andrews (2007) indicated that the characteristics of the project manager can affect his/her reaction towards the surrounding work environment, and that the negative behavior of the project manager will lead to the exposure of unproductive energy which causes a gap between the planned and actual work done.

Additionally, Seligman (1991) contended that negative behavior towards existing work environment is an accurate predictor of task failure.

This document presents a dissertation research, which aims at investigating existing literature on the relationship between the three roles (project, program and portfolio managers) through a thorough exploration to identify the required competencies of the roles as well as the main responsibilities under each. The research included a semi-structured interview method conducted on 10 selected sample case studies taken from one of the government organizations in Dubai, in the United Arab Emirates that was specialized in transportation infrastructure. For confidentiality

purpose the organization will be called AB throughout the research. The research assumes that the reader is having knowledge in project management field, therefore certain terminologies have not been extensively explained throughout the research such as PMO. Also, the researcher adopted that school of thought that project advances to program and program advances to portfolio in the project management career path which sets as the startup base for the research. Moreover, the researcher took into consideration the knowledge and experience selected candidate cases have before joining AB and while working in AB Organization, especially as AB was established 6 years back and 8 out of 10 cases has more than 3 years experience within the organization.

The research was proposed by the researcher based on the new role the researcher started to perform in the IT Department within AB Organization, which was the role of project manager. The researcher noticed that due to the financial situation, which was an economical external factor affecting the whole world including AB Organization, and due to the lack of resources because of the employment limitation, AB depended on the best utilization of its existing resources. This was done by allowing individuals who demonstrated certain basic capabilities to manage projects as per different criteria used by section managers based on their knowledge in project management field and not according to defined clear list of competencies that were commonly used by all section managers in the selection process. Therefore the general purpose of this research is to help utilize the findings to produce set of outcomes that can be implemented in the context of real organization.

1.2 Research Problem

Being a member of the IT Department in AB organization and working as a project manager enabled the researcher to identify an opportunity to investigate about the relationship between being a project, program and portfolio manager with a focus on the required competencies and main responsibilities of each. This is because based on involvement in projects and observation of project management processes followed in the IT Department, it was noticed that there were no clear defined list of competencies related to the selection process of project managers in the department except the defined list in the job description provided by HR Department. Also, it was quite clear that any senior employee who demonstrated basic skills of project management

was assigned a project even if his/her job description and role was not related to project management field. This was due to the lack of human resources in the department, leading to negative effects on projects that were caused by some of the project managers. Moreover, other project managers who showed extensive project management knowledge during the interview lacked the ability to manage projects effectively when real projects were assigned, which in return caused delays in projects, scope changes, cost overruns and stakeholders' dissatisfaction. As a result the department's overall performance was affected. This was reported by the Director of the IT Department. The same was supported by the PMO Supervisor within the department, he reported that due to lack of resources and employment constraint in AB organization, the selection of project managers was done based on different criteria in addition to the defined list in the existing job descriptions. A clear example was that section managers within the IT Department did not follow and use similar selection criteria. He stressed that the selection in some cases was done as per the ability of the candidate to pass the interview without a focus on evaluating the capabilities and the ability to perform within AB's organization culture that required extensive communication skills. He supported his statement, by indicating that there were selected project managers reporting to PMO who lack the knowledge, experience and skills to manage projects. They demanded extensive consultancy from their higher management or senior colleagues in order to take project related decisions, which in return led crucial decisions to be delayed causing a delay in project scope, cost and schedule. Another shared example was selecting a project manager with more than 10 years experience in the field. Then during the project management life cycle and reporting provided to PMO, it was noticed that the selected project manager lacked the ability to deal with business users in AB organization and to cope with organizational culture that demanded tremendous efforts in managing business users and overcoming politics across departments, he elaborated that what was supposed to be tested was not only the technical capabilities and experience of the project manager, but also the communication skills.

Another reason that encouraged the researcher to undertake the research and explore more in the fields of project, program and portfolio management, was the observation that there was no clear differentiation between project and program managers' roles within the department. Moreover, the role of portfolio manager was not clearly identified. This is because whenever the researcher asked respective management and section within the department that interacts with the portfolio

team, about the portfolio manager in AB Organization, she always gets the answer, we are not aware of who is holding this role. Accordingly, the researcher decided to investigate and verify the existence of the portfolio manager role and its main responsibilities in AB Organization.

1.3 Research Questions

The research addresses the below questions:

- What are the main responsibilities of project, program and portfolio managers?
- What are the required competencies of project, program and portfolio managers?
- Is there relationship in career progression from project to program to portfolio manager roles?

1.4 Aim and Objectives

The aim of the research is to explore the required competencies and main responsibilities of project, program and portfolio managers and the overall relationship in career path progression.

In order to achieve the aim, the research has the following objectives:

1. Explore the field of project, program and portfolio management.
2. Identify the required competencies and the main responsibilities of project, program and portfolio managers.
3. Develop the conceptual framework summarizing the occupational relationship between the three roles.
4. Collect and analyze empirical data to test the conceptual framework.
5. Provide conclusions in the study area and produce list of required competencies and main responsibilities of project, program and portfolio managers and define the relationship between them, which can later be used to modify existing job descriptions of AB organization, to create job descriptions that are currently not available and to support the

development of existing career path of project manager and enhance the existing project manager's competency framework developed by HR Department.

1.5 Scope of Work

The research is undertaken in one of the government organizations in Dubai in the United Arab Emirates, it is responsible for transportation infrastructure in the emirate and includes various business units related to different functions such as IT, strategy and planning, construction and others. The availability of diverse business units in the organization was the main reason behind selecting AB Organization to have the empirical research in.

1.6 Organization of the Dissertation

The research is divided into different chapters. Chapter 2 demonstrates an extensive literature review in the field of required competencies and main responsibilities of project, program and portfolio managers and the relationship between the roles. This is followed by Chapter 3 which is a summarized graphical representation developed by the researcher according to the literature review. At the end of the research it will be either accepted, rejected or differences between it and the findings can be defined. The research will then go through the research methodology in Chapter 4 which presents the research overall methodology, the data collection approach and the analysis mechanism used to undertake the research. Chapter 5 will then be presented in which data analysis is going to be demonstrated, providing interpretation of data and comparison between literature and findings based on interviewing sample cases and exploring shared materials by the HR Department in AB Organization. Finally, conclusions and recommendations are being covered in Chapter 6 highlighting the final list of required competencies of project, program and portfolio managers and main responsibilities of each, showing the interfaces between the three roles. Moreover, Chapter 6 will also include limitations of the research and recommendations for further topics to be studied. This research will close with a mixture of experiences and knowledge taken from researchers, employees and management from the real practical field.

Chapter 2 - Literature Review

2.1 Introduction

This chapter presents detailed literature review in the area of project, program and portfolio management. First it covered general literature about project, program and portfolio management and explored the different existing definitions of each in order to build a proper theoretical understanding of the fields and adopt the definition relevant to the research. Then the relationship between the three fields by a focus on similarities and differences was investigated. This was followed by the definition of competencies and role, in order to add clarity to the terms used throughout the research. Furthermore, the importance and impact of identifying competencies on projects was reviewed. This was followed by exploration of general management competencies especially as project, program and portfolio managers roles are related to the management discipline. The last three sections of the chapter focus on the required competencies and main responsibilities of project, program and portfolio managers.

2.2 Project and Project Management

The literature findings indicated that although there are various definitions of the term project, most of literatures share similar understanding of a project. PMI (2008) described project as a temporarily endeavor carried out to produce a unique product, service or result, it may include set of repetitive elements presented as deliverables. Adding to that being temporarily in nature does not mean it is undertaken in a short period of time. It is elaborated by PMI (2008) that the end of the project is determined by its objectives fulfillment or when the end product, service or result is achieved. Also, it ends when it is terminated, if the objectives cannot be achieved or when the need of the project is no more of a value to the organization. Krogh and Roos (1996, p. 425) presented a different understanding of a project as they described it as an event that depends on the “intersection between a particular task and the knowledge and skill of the person or team doing it”. While GAPPS (2007) supported the definition of IPMA and PMI which looks at project as temporary endeavor that includes realization of cost, time, scope and quality restrained to create unique service or product and achieve certain objectives.

Project management is defined as “the application of knowledge, skills, tools and techniques to project activities to meet the project requirements” (PMI 2008, p. 6). Adding to that, project management is defined as a collaborative organization of human, material and financial resources to execute a unique scope of work as per given specifications and the cost, quality and time constraints, to achieve quantitative or qualitative objectives and deliver expected benefits (Shehu & Egbu, 2007, Turner, 1993).

According to PMI (2008) project management includes five main processes which are initiating, planning, executing, monitoring and controlling and closing. Additionally, Ayer and Bahnmaier (1995) noted that project management is a distinct managerial approach, and studies showed that projects are managed differently according to the nature, complexity, and size of the project (Pettersen, 1991, Patanakul & Milosevic, 2008). The same was supported by Patanakul and Milosevic (2008) who reported that to effectively manage projects, different roles emerged depending on project type and size, they provided an example of single projects, being small or large have strategic value in nature are managed by a single project manager, who is fully dedicated to it.

2.3 Program and Program Management

According to PMI (2005), program consists of a family of projects managed concurrently by a single project manager named program manager, leading to the delivery of a single product or service. Shehu and Egbu (2007) supported similar definition and added that it is the alignment, planning and coordination of portfolio of projects to deliver benefits will not be realized if managed separately. PMI (2008) agreed on Shehu and Egbu (2007) above definition and noted that managing projects under a program supports better control than managing each individually. Furthermore, GAPPS (2011) supported program definition of UK Office of Government Commerce (2007), which is a temporary and flexible organization structure that is formed to manage and coordinate the implementation of group of related projects to achieve organizational strategic benefits. It is indicated by GAPPS (2011) that program life span can be over several years.

It is pointed out by PMI (2008, p. 6) that program management is defined as “a centralized coordinated management of a program to achieve the program’s strategic objectives and benefits” and it includes aligning multiple projects so that program goals are achieved and cost, schedule and effort are optimized and integrated. It also asserted that managing projects under a program can support in resolving resource constraints and conflicts that will have an impact on the projects, having a shared governance structure to support effective management of change and supports resolving issues and aligning project and program goals and objectives with strategic organizational direction.

2.4 Portfolio and Portfolio Management

Patanakul and Milosevic (2008) defined portfolio as the management of multiple aggregated projects within an organization. The same was elaborate by Martinsuo and Lehtonen (2007) and Jonas (2010) to include that portfolio includes set of projects that share and compete for similar resources and are being managed under the sponsorship or management of an organization. They reported that portfolio is a dynamic decision making process used in periodic reviews of projects in the organization. It includes prioritization, evaluation and selection of projects according to the organization’s strategy. PMI (2008) Added to above definitions that portfolio consists of projects and programs that are been managed under the portfolio to meet strategic business objectives. Furthermore it is described that projects or programs in the portfolio may not be directly related, although they may share resources and compete in funding. On the other hand, projects or programs that share similar strategic objectives fulfillment can be grouped together under the same portfolio (PMI, 2008). Cooper, Edgett and Kleinschmidt (1999) presented an interesting definition that portfolio is an approach used to operationalize and achieve business strategy.

According to Cooper, Edgett and Kleinschmidt (1999, p. 335) portfolio management mainly deals with maintaining a balance between number of projects undertaken and the number of available resources and capabilities. Furthermore, they defined portfolio management as “a dynamic decision process that includes list of active new projects, which is constantly updated and revised. In this process, new projects are evaluated, selected, and prioritized, existing projects may be accelerated, killed, or reprioritized, and resources are allocated and reallocated

to the active projects”. They noted that portfolio decision process is characterized as being uncertain, having dynamic opportunities, multiple goals and strategic considerations, changing information, interdependence among projects, and multiple decision-makers and locations. Additionally, they presented that portfolio decision process involves overlapped decision making processes, including periodic reviews of all projects, developing product strategy for the business, taking strategic resource allocation decisions and making go/kill decisions based on stage-gate process that focuses on check points exist per project. On the other hand, PMI (2008) reported that portfolio management focus is on linking the portfolio with the organizational strategy to achieve organizational goals. Also, it focuses on centralized management of one or more portfolios including various activities, which are identifying, prioritizing, authorizing, managing and controlling projects, programs and other related work to fulfill strategic business objectives.

Generally, PMI (2008) explained that project portfolio exists in organizations that have running projects. Also, it is a measurement tool of organization’s direction as it considers investment decisions, resource allocation and prioritization to align portfolio components being project, program and other portfolios with organizational strategy. Moreover, it is elaborated by PMI (2008) that portfolio is re-examined when strategic direction changes, to verify projects and programs viability.

2.5 The Relation between Project, Program and Portfolio Management

Shehu and Egbu (2007) stated that project management includes a single project, program management includes more than one related projects forming a portfolio of related projects and shared resources. On the other hand, portfolio management includes all projects and programs of related and non-related projects. Martinsuo and Lehtonen (2007) added that project portfolio management is equivalent to multi-project setting with huge number of projects depending on organization’s size which is the main difference between portfolio and program management, as the number of projects within each program is far smaller than the portfolio. It is noted by PMI (2008) that project management in mature organizations is governed by program management and portfolio management.

According to Melton and Iles-Smith (2009) project, program and portfolio are terms used in project management to describe certain activities. Moreover, it is highly emphasized by Melton and Iles-Smith (2009) that project management process is valid for all projects being in a program or a portfolio.

Project is defined as “A bounded piece of work which is non-routine for the organization. It is not a part of business as usual (BAU) but has a defined start and end point (when it is integrated into BAU)” (Melton & Iles-Smith 2009, p. 15). On the other hand, program is defined as “a set of interdependent projects working together to achieve a defined organizational goal. There is dependency between project outputs/benefits” (Melton & Iles-Smith 2009, p. 15). In terms of portfolio, it is defined as “A collection of projects using a common resource pool. These resources could be assets, people or funding. There is a dependency between these project resources, which therefore need to be used optimally” (Melton & Iles-Smith 2009, p. 15).

It is indicated by Melton and Iles-Smith (2009) that the main commonality between projects, programs and portfolios is that all implement similar project management processes. All need to deliver defined scope that demands the completion of specific activities. Also, all have limited resources (funds, people, assets). Moreover, all are used to deliver benefits to the organization. On the other hand PMI (2008) pointed the main difference between project and program is that program will always consist of projects, but a project may or may not be part of a program. Projects are grouped under one program if they were interdependent and have collective capabilities or deliver common objectives and benefits. On the other hand, PMI (2008) indicated that if the relationship between projects was having shared resources, client, technology, it is to be managed by the portfolio and not by the program. It is reported by PMI (2008) that the project manager may report to the functional manager, who is managing oversight of an administrative area in the organization, or may report to portfolio or program manager depending on the organization’s structure. It is described by Melton and Iles-Smith (2009) that portfolio can consist of many projects or programs in different stages of delivery, while a program is comprised of interdependent projects. Moreover, it is noted by Melton and Iles-Smith (2009) that in large organizations many portfolios may exist across departments or project types forming hierarchy of portfolios in which each portfolio manages its own projects and programs. The below Table 2-1 illustrates the comparison between project, program and portfolio management.

	Project	Program	Portfolio
Scope	Project has defined objectives. Scope is progressively elaborated throughout the project life cycle.	Program has larger scope and provides more significant benefits.	Portfolio has a business scope that changes with the strategic goals of the organization.
Change	Project manager expect change and implement processes to keep change managed and controlled.	Program manager must expect change from both inside and outside the program and be prepared to manage it.	Portfolio manager continually monitor changes in the broad environment.
Planning	Project manager progressively elaborate high-level information into detailed plans throughout the project life cycle.	Program manager develops the overall program plan and creates high-level plans to guide detailed planning at the component level.	Portfolio manager creates and maintain necessary processes and communication relative to the aggregate portfolio.
Management	Project manager manages the project team to meet the project objectives.	Program manager manages the program staff and the project managers, they provide vision and overall leadership.	Portfolio manager may manage or coordinate portfolio management staff.
Success	Success is measured by product and project quality, timeliness, budget compliance, and degree of customer satisfaction.	Success is measured by the degree to which the program satisfies the needs and benefits for which it was undertaken.	Success is measured in terms of aggregate performance of portfolio components.
Monitoring	Project manager monitors and controls the work of	Program manager monitors the progress of	Portfolio manager monitor aggregate

	producing the products, services or results that the project was undertaken to produce.	program components to ensure the overall goals, schedules, budget and benefits of the program will be met.	performance and value indicators.
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Table 2-1: Comparative Overview of Project, Program and Portfolio Management (PMI 2008, p. 11)

Melton and Iles-Smith (2009) illustrated the differences between project, program and portfolio as per the below Table 2-2:

	Project	Program	Portfolio
Key characteristics	<ul style="list-style-type: none"> • SMART project objectives • SMART benefit metrics 	<ul style="list-style-type: none"> • A set of projects which together deliver a set of SMART benefit metrics 	<ul style="list-style-type: none"> • A set of a specific types of project within an organization
Managed by	<ul style="list-style-type: none"> • Project Manager 	<ul style="list-style-type: none"> • Program Manager • Team of Project Managers 	<ul style="list-style-type: none"> • Portfolio Manager • Team of Project Managers
Type of Thinking	<ul style="list-style-type: none"> • Tactical thinking, which includes thinking of tasks and the team 	<ul style="list-style-type: none"> • Strategic thinking, which includes thinking of benefits and stakeholders 	<ul style="list-style-type: none"> • Operational thinking, which includes thinking of operational goals and resources
Project selection rationale	<ul style="list-style-type: none"> • Approved business case • Organizational cost/benefit analysis 	<ul style="list-style-type: none"> • Contributes to program Goal • Prioritization of project activities versus benefit metrics 	<ul style="list-style-type: none"> • Contributes to organizational goal • Availability of required resources • Prioritization of resources versus benefits criteria
Key delivery challenges	<ul style="list-style-type: none"> • Managing change and project stakeholders 	<ul style="list-style-type: none"> • Managing dependencies and Program stakeholders 	<ul style="list-style-type: none"> • Managing resource • Prioritization • Manage Organizational

			stakeholders
Delivery baseline	<ul style="list-style-type: none"> • Project delivery plan 	<ul style="list-style-type: none"> • Program delivery plan 	<ul style="list-style-type: none"> • Portfolio delivery plan
Control focus	<ul style="list-style-type: none"> • Activity management 	<ul style="list-style-type: none"> • Dependency management 	<ul style="list-style-type: none"> • Resource management
Typical behaviors to support delivery management	<ul style="list-style-type: none"> • Structured, focused approach • Ability to build, motivate and manage a Project team 	<ul style="list-style-type: none"> • Strategic, focused approach, linked to program drivers • Ability to engage and influence stakeholders • Ability to build, motivate and manage a Program team 	<ul style="list-style-type: none"> • Strategic, focused approach , linked to portfolio drivers • Ability to engage and influence stakeholders • Ability to build, motivate and manage a team of Project Managers
Delivery process	<ul style="list-style-type: none"> • Project management 	<ul style="list-style-type: none"> • Program management 	<ul style="list-style-type: none"> • Portfolio management
Management Area Focus	<ul style="list-style-type: none"> • Managing cost, scope and time • Managing resources and resource dependencies • Managing contracts • Managing interfaces • Delivering stage gate requirements • Influencing stage gate decisions 	<ul style="list-style-type: none"> • Managing people and politics • Managing culture change • Managing strategic change • Managing stage gate reviews • influencing stage gate decisions 	<ul style="list-style-type: none"> • Managing project management capability • Managing the project pipeline • Managing stage gate reviews and • Delivering stage gate decisions
Competency Focus	<ul style="list-style-type: none"> • Specific project management tools • Skills and experience required 	<ul style="list-style-type: none"> • Specific capability required linked to ' softer ' areas (leadership, communication) 	<ul style="list-style-type: none"> • Specific line management skills and experience required

Table 2-2: Differences Between Project, Program and Portfolio (Melton & Iles-Smith 2009, pp. 16-17)

According to PMI (2008) program management includes similar project processes being initiating, planning, executing, monitoring and controlling and closing. However, it implements the processes at a higher level than a project because it addresses several projects simultaneously and attention is spread over projects and not only on a single project. Furthermore, PMI (2008) presented that in the program initiating and planning processes, information flows from the program to the individual projects so that overall program benefits, goals and management approach are considered by each project. Then during executing, monitoring and controlling and closing processes information flows from each project to the overall program in which risks, changes, issues are defined and monitored. On the other hand, information flows to projects and programs of the portfolio from the portfolio during initiating and planning process and flows back to the portfolio during executing, monitoring and controlling and closing processes to assure proper portfolio governance and management.

According to PMI (2008), the portfolio has a parent-child relationship with its components being projects or programs. Moreover, it is stressed that program has a parent-child relationship with its components being projects. Also, it is pointed out by PMI (2008) that organizations use project management processes to manage and implement portfolio management. Furthermore, it is described by PMI (2008) that portfolio management receives strategic objectives from executive management, similarly project and program management receives input and are governed by portfolio management.

Holzle (2010) demonstrated the career path progression of the project manager and illustrated matching it with leadership progression career path. It is clearly noticed that the role following program director is not yet planned, but it can be clearly noticed that project manager evolves into program manager role as demonstrated in the following Figure 2-1:

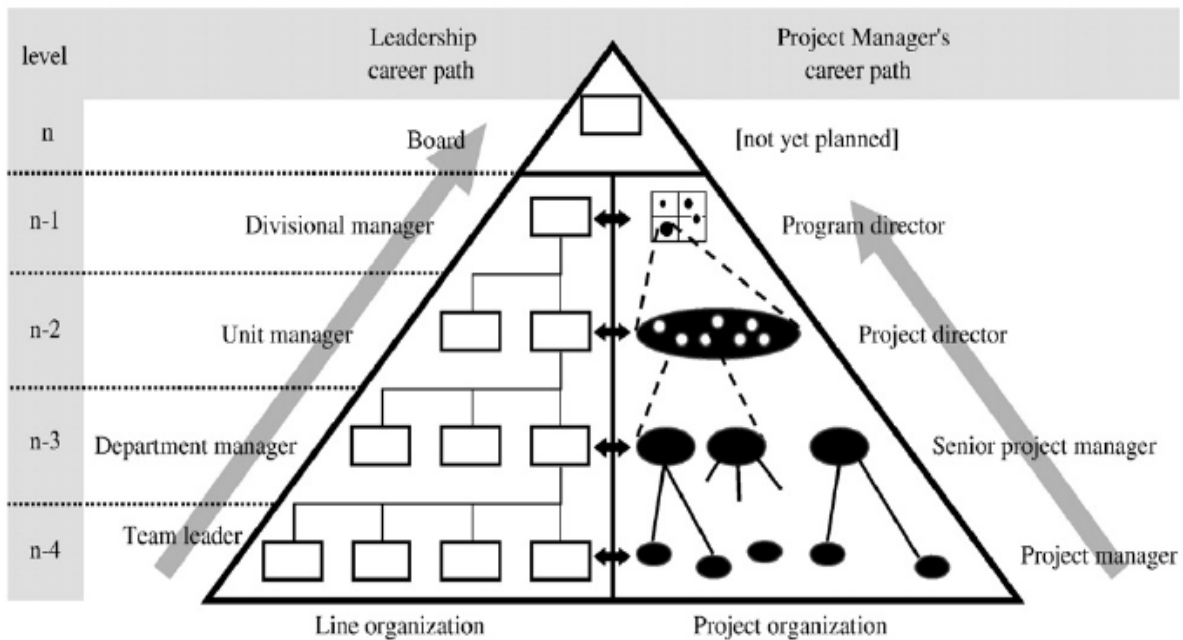


Figure 2-1: Matching of Leadership and Project Managers' Career Path (Holzle 2010, p. 784)

Existing literature (Melton & Iles-Smith, 2009) has highlighted that typically the project manager career path involves gradual management of larger and more complex projects within specific project type. However, there are other possible routes that include broader project management experiences and moving to the management of different project types, expand into program management and moving to portfolio management. This is modeled in Figure 2-2 below:

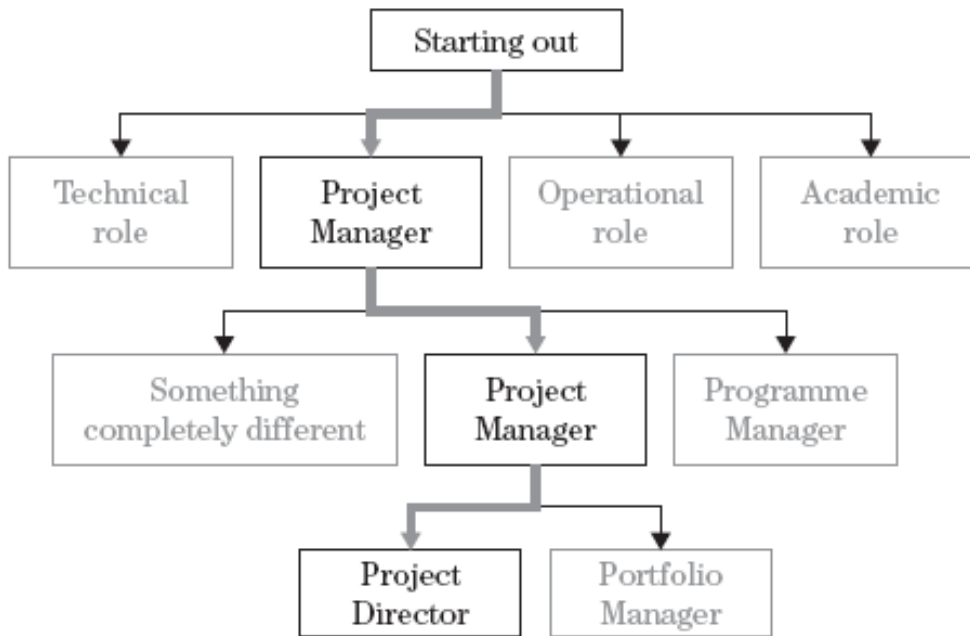


Figure 2-2: Possible Project Management Career Route (Melton & Iles-Smith 2009, p. 25)

It is pointed out by Melton and Iles-Smith (2009) that project managers have the option to move to program or portfolio manager's roles, if they selected to progress in their project management capability. Adding to that, APM (n.d.) reported that project disciplines consist of project management, project administration, project support office functions, project planning, program management, program planning, and portfolio management.

2.6 Definition and Importance of Competency

Ahadzie, Proverbs and Olomolaiye (2008, p. 632) provided general competency definition as "person's ability to comply with a range of externally agreed standards, which is output-based measure". Adding to that, Stevenson and Starkweather (2010) and Patanakul and Milosevic (2008) defined project management competency as the set of skills, abilities, knowledge, experience and characteristics required to lead a project. Furthermore, Stretton (1995) reported that Heywood, Gonczi and Hager (1992) indicated that competency cannot be recognized directly and a measure needs to be set in order for competency to be observed. Adding to the above GAPPS (2007) reported that competent comes from the Latin root *competere* which

means to be suitable. It described competent employee as the person who is skilled enough to fill certain position or to perform specified task. Moreover, Curcuru and Healey (1972) defined role as a set of responsibilities which a person performs as it is presumed by him that such responsibilities are part of his position. GAPPS revealed an interesting finding that in too many cases the position is not well defined leading the individual to perform additional responsibilities.

Muller and Turner (2010) reported that managers perform better and stay longer in their position within an organization, if their characteristics match position's requirements. In order for the project manager to successfully manage projects, certain knowledge and skills in project management are required (Patanakul & Milosevic, 2008). However, it is stressed by Stevenson and Starkweather (2010) that it is not necessarily that individuals demonstrating knowledge in specific field are competent in applying the knowledge in practice.

It is reported by GAPPS (2007) that competency is defined and assessed based on two approaches, which are attribute based and performance based. Attribute based approach focuses on knowledge, skills and defined characteristics that are available in the candidate. While, performance based approach focuses on work outcomes and performance levels defined and the ability of the candidate to demonstrate and satisfy the performance criteria.

It is explained by Stretton (1995) that there are three approaches that leads to the inference of competency and the determination that the individual is competent and fits into the position, which includes attribute-based inference, performance-based inference and combined inference. Attribute-based inference of competency includes defining series of personal attributes, skills, knowledge and attitudes and examining the existence of such attributes in the candidate at an appropriate level. While, performance-based inference of competency is based on observing the performance of the candidate in the actual workplace, its main focus is on achieved results and outcomes and not on the potential competency. Combined inference of competency that includes both attribute-based and performance-based approaches, is the third approach to the inference of competency, it is encouraged to be followed by Stretton (1995) because it includes evaluating personal attributes as well as the performance in the actual workplace.

Existing literature (Lampel, 2001) has reported about entrepreneurial competencies, which are experience based competencies. Lampel (2001, p. 473) defined entrepreneurial competencies as

“They are not closely tied to specific projects. They include the ability to provide correct judgment, detecting opportunities as they emerge, or even better, of stimulating the emergence of opportunities by bringing project ideas to the attention of potential client.

2.7 Impact of Competencies Identification on Projects

It is noted by Holzle (2010) and strongly supported by Aitken and Crawford (2007), Gallstedt (2003) and Turner, Huemann and Keegan (2008) that there is an increased demand of project related career as organizations are moving towards developing dynamic work environments through undertaking temporary work forms such as projects and programs. Also, Turner, Huemann and Keegan (2008) dragged the attention that tasks are transferring from traditional line organization into project-based organization that demands motivated and qualified project managers. In addition to that, Turner (2006) stressed on the importance of being selective in employing a person to manage a project or a group of projects as projects are becoming instruments of resource and risk management and organizational change. Supporting the recognition of project management, Ayer and Bahnmaier (1995) reported that recent US legislation including 1985 Goldwater-Nichols Act and the 1991 Defense Acquisition Workforce Improvement Act (DAWIA), has changed the directions of project manager’s selection and qualification towards recognizing project management as a business discipline that can be best managed by personnel who are educated, skilled and experienced to get the job done right. Furthermore, it is reported by Lampel (2001) and stressed by DeFillippi and Arthur (1998) that for projects to be executed effectively, core competencies are required, especially in large projects which has large investments and pay offs that last for many years in future.

According to Thomas and Mengel (2008) there is a growing interest in project management that shifts the attention to the high impact of complexity, chaos and uncertainty level on project success, which demands having project managers who can deal with increasing level of complexity, chaos and uncertainty in projects. It is also stated by Thomas and Mengel (2008) that there is an astonishing rate of projects that fail because of complexity, chaos and uncertainty. Complex systems are defined by Thomas and Mengel (2008, p. 307) as “dynamic yet unstable systems that are continually changing and evolving in a random fashion which involves decision making in unpredictable environment differently from linear, predictable systems”.

It is indicated by El-Sabaa (2001) that understanding the role of project managers, skills required and their career path is a crucial step towards the selection and development of effective managers that can cope with problems, risks, resource and time constraints exist in projects. Moreover, it is emphasized by El-Sabaa (2001) that the role of project managers demands the ability to manage crisis, uncertainty, suspense and dealing with diverse set of information, situations, people in which he/she is mostly having little control over. In terms of the relationship between the project manager and the team members, it is reported by Liu, Chen, Jiang and Klein (2010) and Mantei (1981) that the ability of the project manager to control his/her relationship with the team members has positive impact on team performance and overall project performance. Additionally they reported that cost overruns are often caused by the presence of inexperienced project personnel and lack of skills. Furthermore, it is noted by Liu, Chen, Jiang and Klein (2010) and Charette (1989) that Information Systems skill researchers suggest that the most important factor leading to Information Systems project success is the knowledge of the project members working on the system more than tools and methodologies used.

It is reported by Thomas and Mengel (2008) that according to a case study conducted by Christenson and Walker (2004) in a major IT project they argued that having clear project vision and executing the project toward accomplishing its vision is a significant contributor to project success. Moreover, Muller and Turner (2007) noted that leadership style has significant effect on project success, there is no single appropriate style for all projects, different styles are appropriate for different project types. According to Tullett (1996), it is reported that typically in multiple projects, the project manager has an innovative thinking style in which he/she has less attention to details and systematic approach to plan and manage projects successfully, which is argued by Tullett (1996) that this is likely to lead to budget overruns and late project delivery.

Based on the review of personality trait literature, Dolfi and Andrews (2007) indicated that the characteristics of the project manager can affect his/her reaction towards the surrounding work environment, and that the negative behavior of the project manager will lead to the exposure of unproductive energy which causes a gap between the planned and actual work done. Additionally, Seligman (1991) contended that negative behavior towards existing work environment is an accurate predictor of task failure. While, Muller and Turner (2007) highlighted project success criteria that includes end-user satisfaction, supplier satisfaction, team

satisfaction, other stakeholders satisfaction, performance in terms of time, cost and quality, meeting users requirements, achieving project's purpose and customer satisfaction. This indicates that the failure to fulfill the success criteria defined in the project may result into project failure.

2.8 General Management Competency

Patanakul and Milosevic (2008) pointed out that any individual in a managerial position need to demonstrate human skills related to the ability to be an effective team leader and member. Moreover, the manager is to have conceptual skills to be able to view the enterprise as a whole. The more senior the manager is, the more human and conceptual skills and the lower technical skills are demanded. The manager needs to understand behavioral theories and science and to be able to implement them in reality. Moreover, Patanakul and Milosevic (2008) identified the ability to organize, plan, operate and control organizational unit effectively as a critical managerial skill. Also, the manager is required to have the knowledge of the business and technical aspects to be able to monitor and direct overall performance.

According to Chong (2008) and Parry (1992) managerial competencies are grouped into four categories, administrative, communication, supervisory and cognitive. Administrative competency includes time management, prioritization, planning and scheduling and setting goals and processes. Moreover, communication competency involves organizing and listening, providing clear information and getting unbiased information through appropriate interpretation. Supervisory competency includes training, delegating, coaching, counseling, disciplining and appraising team's performance. Cognitive competency includes problems identification and resolution, decisions making, risk weighting and clear and analytical thinking.

It is emphasized by Curcuru and Healey (1972) that a manager does not operate in an isolated role, but in a multi-faceted position. They presented the need of a manager to wear different hats while performing his/her role in being a manager, leader, team member, representative and politician. The role of manager includes planning, organizing and controlling, while the role of leader includes motivating, training, guiding, disciplining, developing, communicating effectively and injecting his/her personality into the management process. The manager is the

team's representative that works on communicating team's achievements and requests to higher management in the organization. Moreover, the manager is considered a supportive pillar of the team members and also plays facilitating role. In addition to that, Curcuru and Healey (1972) stressed on one of the reasons that prevent the manager from successfully accomplish his/her goals, which is failure in understanding the political climate of the organization that covers how the organization operates and how decisions are made.

2.9 Competencies, Roles and Responsibilities of Project Manager

Based on the work of GAPPS (2007), it is essential to match competency to the need, demands and priority of the project, as if the project's main factor is to control project cost, the selected project manager should be capable for and has the competency of managing cost and financial aspects of the project. Holzle (2010) explained that the role of project manager usually requires more engagement and commitment than regular employees in order to successfully complete the project.

GAPPS (n.d.) asserted that project manager who is competent to manage an easier and less complex project may not be competent to manage more complex and harder projects. Additionally, it is described by Edum-Fotwe and McCaffer (2000) that senior project manager need to have a broader outlook and responsibilities during the management of projects. Also, it is reported by Holzle (2010), Hauschildt, Keim and Medcof (2000) and Huemann (2000) that project manager's competencies include project-specific expertise, leadership, social competence and problem solving competence that must be complemented by project management and entrepreneurial competence. They also, stressed that competencies vary in their depth and breadth depending on the project type, scope and demand.

Based on the work of Holzle (2010), it is found that project manager's experience is of highest importance in the selection process, followed by social competence and finally leadership competence. Furthermore, it is stated that small projects are usually lead by project manager, while medium-sized ones demand more experienced and senior project managers and projects of high strategic importance and involves many resources needs more senior project managers such as project directors.

It is noted by Holzle (2010) that required skills of project management differs as the person progress in the career path, soft skills such as leadership, social and entrepreneurial skills increases, while hard skills such as expertise and project management competence and knowledge area decreases. In small projects expertise and breadth of experience and knowledge of project management methods and how to implement them requires basic skills, while in medium projects medium skills are needed and in large projects advanced skills are must. In small projects knowledge depth and specialty that enable creativity in problem solving including analyzing complicated problems in fast and efficient manner require advanced skills, while in medium projects medium skills are needed and in large projects it is not a must as the project manager needs to have an overall eye and not detailed involvement. In small projects social competence including cooperation in the team, assertiveness, negotiation skills and communication requires basic skills, while medium skills are needed in medium projects and advanced skills are must in large projects. On the other hand, Holzle (2010) considers intercultural competence which is part of social competence that covers dealing confidently with other cultures as an optional competency of a project manager in small projects, while basic skills needs to be demonstrated in medium projects and advanced skills must be demonstrated in large projects.

Patanakul and Milosevic (2008) noted that there are different competencies a project manager needs to have in order to effectively manage single projects, which are administrative and process, interpersonal and intrapersonal, business and strategic and technical. Administrative and process competency includes monitoring, controlling, risk management, planning and scheduling, resource management and following company's project management processes. Interpersonal and intrapersonal competency includes problem solving, conflict management, flexibility to change, responsibility and commitment, proactivity, self-controlled and being organized. Business and strategic competency includes understanding business benefits, customer concern, strategic thinking and realization of profit and cost. Technical competency includes having the knowledge of technology and trends, having the skills of tools and techniques implementation and being able to solve technical problems. Thamhain (1991) agreed with Patanakul and Milosevic (2008) that the project manager has to demonstrate administrative and technical skills, and they added leadership as an additional competency.

Edum-Fotwe and McCaffer (2000) reported that the project manager is to have the skills of leading, communicating, negotiating, problem solving and general skills. Leading includes project leadership, technical leadership and team leadership, which consists of various skills being establishing direction by developing and communicating the vision, aligning stakeholders, motivating and inspiring subordinates to overcome political, bureaucratic and resource barriers to change. Communicating skill includes the ability to effectively exchange information throughout the project that can be achieved when the project manager has the skills of writing, oral and listening. Negotiating skill is a demand for the project manager to be able to overcome issues and changes of scope, cost, schedule, objectives, contract terms and resource availability and utilization. Problem solving skill includes a mixture of both problem definition and decision making. Problem definition requires the ability to distinguish between causes and symptoms. Moreover, Edum-Fotwe and McCaffer (2000) classified problems as being technical, managerial or interpersonal. According to the study done by Li, Yang, Klein and Chen (2010) it is highly emphasized that problem solving competency is a critical competency required in Information Systems development projects in order to perform a project successfully. According to Li, Yang, Klein and Chen (2010), Problem solving competency focuses on the ability to cope with uncertainty, which is considered a crucial competency in Information Systems development projects. Furthermore, it is stated by Muller and Turner (2007) that information systems project managers must be technically competent and task focused, while it is indicated by Muller and Turner (2007) that leadership skills are appropriate for organizational change projects. According to Meredith, Posner and Mantel (1995) required skills of project manager are categorized into communication, team building, leadership, organizational, coping and technological skills.

Based on the study done by Dulewicz and Higgs (2000), leadership competence scores 36%, while 27% represents intellectual competence and 16% represents managerial competence. It is emphasized by Dolfi and Andrews (2007) and supported by Boyatzis (1982) and Shenhar, Levy and Dvir (1997) that the competency of managers has been considered as a key contributor towards achieving organization's strategic goals. Moreover, they noted that leadership and soft skills related to interpersonal skills are required competencies of project managers, which has recently been given high attention. According to Boyatzis (1982), leadership skill is equal, if not more important, than functional discipline skills of managers.

It is indicated by Thomas and Mengel (2008) that required competencies of successful project managers in complex environments are leadership, social competence which includes team development to work effectively and creatively in change environments, emotional intelligence, communication skills, managing organizational politics, understanding the importance of visions and values. It is stated by Thomas and Mengel (2008) using Mengel and Thomas model, that being part of an environment of an increased level of complexity and uncertainty leads to comprehensive managerial and leadership knowledge. In regards to team development competency, it is pointed out by Fisher (2010) that academic and the community of practice recognized that the management of people plays an effective role in project management. The management of people promotes honesty, trust, open communications, pride of workmanship, commitment between project team and develops positive 'can do' attitude.

Fisher (2010) demonstrated skills and behaviors related to the effective people project manager as per the below Table 2-3:

Skill	Behaviors
Understanding behavioral characteristics	<ul style="list-style-type: none"> • Be genuine and open and honest with others. • Show openly that you believe in your team members' abilities. • Show an open and authentic concern for others that is based on true feelings and not on invented ones. • Develop an understanding of the relationship between behaviors and feelings and how you can make this work for you in your teams. • Adopt a collection of behaviors so you can deal with people in different situations and circumstances.
Leading others	<ul style="list-style-type: none"> • Show a high level of motivation towards innovation to inspire others to become more creative and innovative. • Adopt a leadership style that is appropriate to the situation, for example, situational, transitional, visionary or charismatic. • Ensure that your team members comply with your wishes. • Apply directive, firm or demanding behaviors according to the attitudes and behaviors of your team members.
Influencing others	<ul style="list-style-type: none"> • Convince, influence or impress others in order to support their agenda. • Influence others by selling them the benefit, for example, why they should change so they can see the benefit and make the appropriate changes to their behavior or attitude. • Share with others what it feels like to work in a highly successful team so they adopt the behaviors that are associated with success. • Influence team members to unblock the values and beliefs people have to help

	<p>them develop better.</p> <ul style="list-style-type: none"> • Share with others what it feels like to work in a highly-valued team.
Authentizotic behavior	<ul style="list-style-type: none"> • Show open concern for others. Accept people for what they are and do not try to force them to change. • Empower people by delegating tasks to them and ask them to take on broad more responsibilities. • Develop an understanding of what makes the other person tick and what is important to that person. • Show genuine concerns and feelings for the needs of others. • Make people feel good about work, themselves, others and the project itself.
Conflict management	<ul style="list-style-type: none"> • Establish the root causes of the conflict by talking to others openly and honestly to find out the causes. • Concentrate on the work issues and do not get personal. • Show loyalty, integrity, trust, help and support when dealing with conflict. • Be tolerant and prepared to compromise. • Observe behaviors of team members to sense early when conflicts begin to develop, and then take corrective actions to resolve these.
Cultural awareness	<ul style="list-style-type: none"> • Develop, display and apply an awareness of the cultural differences of team members. • Show an understanding and knowledge of the values and beliefs of other cultures. • Adapt some of other people's own home country behaviors appropriate to the situation when managing people from diverse cultures. • Show an open optimism about cultural differences and show views that confirm that you see cultural diversity as an enhancement to your own values and beliefs.

Table 2-3: Skills & Behaviors of Effective People Project Manager (Fisher 2010, p. 7)

The study conducted by El-Sabaa (2001) among Information Systems, Electricity and Agricultural Sectors showed that human skills of project managers that focus mainly on working with people have great positive impact on project management practices than technical and conceptual skills. However, this does not affect the finding that human, conceptual and technical skills are required skills of a project manager along with project management knowledge area, but they differ in importance. On the other hand, it is reported by El-Sabaa (2001) that human, conceptual and technical skills are required administration skills.

It is stressed by Muller and Turner (2007) that project managers in firms that regularly work with other cultures are expected to be culturally sensitive and able to communicate effectively cross cultural barriers.

Ahadzie, Proverbs and Olomolaiye (2008) presented contextual behavior as a competency of the project manager, which includes job dedication, task performance represented by monitoring and problem solving, job knowledge including administrative and technical knowledge, task proficiency and experience in the field of project management and within the organization.

Stevenson and Starkweather (2010) defined main competences of a successful project manager including, leadership, effective communication at multiple levels, written and verbal skills, attitude and being able to deal with change and ambiguity. According to Kloppenborg and Opfer (2002), the role of project managers is evolved to demonstrate their ability as leaders and not just managers. Other additional competencies that can be taken into consideration, noted by Stevenson and Starkweather (2010) are professional certification such as PMP, previous team size, applied experience, length of the engagement in the organization, education, cultural fit and the ability to escalate. Crawford and Nahmias (2010) noted that the ability to manage change in projects is one of the competencies of the project manager, as per the popular view that projects are undertaken as change initiatives. Crawford and Nahmias (2010) supported the human management skills of project managers more than technical skills as it is the main cause of failure in organizational change projects. Petterson (1991) added list of competencies to researchers' findings represented by the ability to motivate team members and having the appropriate temperament through being calm, realistic, generous, stable, quick thinker and persistent.

There are existing certifications that add to project manager's competency, such as PMI, APM and PRINCE2 (Whitty & Maylor, 2009). Stretton (1995) has explained that there are different certifications that enable the project manager to become a registered project manager. However, the evaluation mechanism differs. PMP certification requires a minimum entry level education along with experience points score, while APM certification model which is oriented towards competencies assessment along with knowledge without a formal examination. Furthermore, it is reported by Stretton (1995) that there is a widespread agreement among practitioners and academics, who attended the Project Management Education Forum, held on 16th May 1992, that an individual who possesses knowledge in certain field or subject is not necessarily competent in applying the same knowledge in practice.

A study conducted by Muller & Turner (2007) indicated that there is no difference between certified and non-certified project managers, but in highly performing projects, certified project managers got higher score in terms of project success and matching stakeholder's requirements and expectations, in oppose to non-certified project managers.

It is noted by Tullett (1996) that Turner (1993) has proposed six traits of effective project managers, which are problem solving ability and results orientation, energy and initiative, leadership, broad perspective, communication and negotiation abilities. Additionally, it is emphasized by Tullett (1996) that achieving project purpose is considered a problem and without problem solving ability, the project manager would be lost. Moreover, Tullett (1996) noted that technical skills and experience of the project manager are critical elements to successfully manage projects towards success. In terms of project manager competency, it is discussed by Whitty and Maylor (2009) that competency level evolves from development in which projects are managed under direct supervision, to practitioner, in which projects are managed without direct supervision, but under the boundaries of standards and policies, to competent, in which projects are managed without direct supervision and through supervising others and providing mentoring. The final evolved role is being a leader, in which the project manager demonstrates leadership competency and provides input into the policies and procedures. The learning progression of project managers is presented by Wateridge (1997) in four stages, higher education, system development, junior project manager, and experienced project manager. Adding to the above, understanding portfolio level issues and how projects are mapped into

portfolio to serve the overall organization's benefits is part of project manager's capabilities and not only executive management concern (Martinsuo & Lehtonen, 2007). PMI (2008) defines various knowledge areas of project management which are project scope management, project time management, project cost management, project quality management, project human resource management, project communications management, project risk management and project procurement management.

Project scope management consists of processes required to assure that the project includes required work only to complete the project successfully. It includes requirement collection process from stakeholders, defining detailed description of the project and deliverables, creating work breakdown structure that includes dividing project into smaller components, verifying the scope and obtaining stakeholder's acceptance and controlling scope through continuous monitoring of project's scope and managing changes in scope baseline. Project time management includes processes required to accomplish project in timely manner, which covers activities identification, documenting activities sequence through identifying relationships, estimating activity resources through defining resource type (e.g. people, equipment supplies) and quantity, estimating activity duration, developing schedule and schedule controlling through monitoring the status of defined activities and managing the change of schedule baseline. Moving to project cost management, it consists of three processes, which are cost estimation that includes defining approximate cost per project activity, budget determination that includes aggregating estimated cost per activity and establish authorized project cost baseline and finally cost controlling through monitoring the status of the project budget and manage the change of cost baseline. In terms of project quality management, it includes the processes and activities defined by the organization and used to evaluate the level of project's compliance to quality standards. Project human resource management has a main focus on project team members. It consists of different processes including developing human resource plan including human needs, responsibilities, skills needed and reporting mechanisms. This is followed by acquiring project team and confirming their availability. Then developing project team through enhancing team interaction and team's overall atmosphere and finally managing project team performance, provide feedback, resolve issues and manage changes to optimize project performance. Project risk management consists of list of processes represented by risk planning including identifying the way to conduct risk management activities, risks identification and characteristics, performing

qualitative risk analysis through representing risk impact and probability and calculating its exposure = impact * probability, performing quantitative risk analysis through representing risk impact in quantitative manner, planning risk responses and way to react to risks to reduce threats on project objectives fulfillment and finally monitoring and controlling risks through tracking risk response plan and track changes in risks as new ones may introduce as project evolves. Project procurement management includes processes related to acquiring products, services or results needed throughout the project from outside the project team in order for project activities to take place. It includes plan needed procurement, conduct procurement through obtaining seller responses, selection and awarding a contract, then administering procurement process through managing relationships and interfaces and monitoring performance and finally closing and completing project procurement.

It is indicated by Edum-Fotwe and McCaffer (2000) that in construction projects, project managers are responsible for the success of delivering the physical development according to the cost, schedule, quality and safety requirements constraints. Moreover, they pointed out that the required knowledge areas for the management of construction projects are time, cost, procurement, quality, Integration, communications, risks, scope, human resource, which are supported and similarly pointed out by PMI (2008). Time includes defining project activities, sequence, duration estimation, developing project schedule and schedule controlling. Cost includes cost estimating, cost budgeting, cost controlling and resource planning. Procurement's main focus is on procurement planning, solicitation planning, source selection, contract administration and contract closeout. Quality includes quality planning, quality assurance and controlling. Integration covers developing the plan, executing the plan and overall change control. Communication includes communications planning, information distribution, project administration and performance reporting. Risk covers risk identification, risk quantification, response development and response controlling. Scope includes scope planning, scope definition, scope verification and scope change control. Finally, human resource includes organizational planning, staff acquisition and team development.

Based on the work of Stretton (1995), project managers need to have generic project management knowledge of the project, project management, project lifecycle, tools and techniques that covers scope management, quality management, time management, cost

management, risk management, human resources management, contracting and procurement management, communications management and interface management. It is noted by Stretton (1995) that Industry/technology specific project knowledge is an added value to the project manager.

It is stressed by PMI (2008) that understanding and applying tools, techniques and knowledge that are part of good project management practice is not sufficient for the project manager to manage projects effectively. It is strongly indicated by PMI, PMBOK guide (2008) that the project manager must have the following characteristics in order to manage projects effectively, which are project manager's knowledge about project management, the ability of the project manager to perform and accomplish project's objectives while applying his/her project management knowledge and finally, project manager's personal aspects and the behavior when performing project related activities, overall attitude, leadership and overall team guidance and balancing project's constraints. Moving to an interesting characteristic of a project manager that is pointed out by Dolfi and Andrews (2007), optimism is one of the important characteristics a project manager needs to have as it is a source of success that enables the project manager to live in complex and hard working environments. Moreover, Dolfi and Andrews (2007) reported major project manager's personality characteristics that reflect optimism in challenging work environments, which are elaborated in Table 2-4:

Personality characteristics reflecting Optimism	Challenging Work Environment
Being a team player, open minded politician and people oriented.	Poor communication, isolation, feeling trapped.
Having vision, intuition, logic, pragmatism and strategic thinking.	Delays, unclear goals, unclear objectives, unclear plan.
Being responsible, loyal, dependable and reliable.	Lack of resources, unappreciated efforts, lack of support.
Organized, paying attention to details, follow rules, regulations and processes.	Unstructured environment, changing priorities, chaos.

Table 2-4: Project Manager's Personality Characteristics in Challenging Work Environments (Adapted from Dolfi & Andrews 2007, p. 676)

According to PMI (2008) project manager is a challenging high-profile role with extensive responsibilities and shifting priorities that demands a balance of technical, interpersonal and conceptual skills to support effective project management. Furthermore, flexibility, good judgment, strong leadership, negotiating, team building, motivation, influencing, decision making, political and cultural awareness and solid knowledge of project management practices are considered crucial skills to be in a project manager to effectively manage projects. It is described by PMI (2008) that project manager has to understand project's details, but is to provide overall management of the project. Also, the project manager is the leader responsible for effective communication between project's stakeholders including client, sponsor and project team members.

It is noted by Muller and Turner (2007) that the success of the project manager is dependent on his/her competence, which is comprised of emotional intelligence and leadership style.

Based on GAPPS (2007), GAPPS has developed an approach to categorize projects according to the complexity level through using a tool called Crawford-Ishikura Factor Table (CIFTER). It is used to drive the attention to the differences in project managers' roles depending on projects' complexity. Additional details about the CIFTER Factors as per GAPPS (2007), can be seen in Appendix B.

GAPPS (2007) presented the below table and criteria as elements to evaluate project's complexity. Any project that scores 12 points or more in total is considered GAPPS compliant with performance assessment at Global Level 1. Any project that scores 19 points or more in total is considered GAPPS compliant with performance assessment at Global Level 2. When a project is rated below Level 1, it is unlikely to require the skills of a competent Global Level 1 project manager. When a project is rated at Level 1, it is likely to require the skills of a competent Global Level 1 project manager. When a project is rated at Level 2, it is likely to require the skills of a competent Global Level 2 project manager.

Project Management Complexity Factor	Descriptor and Points			
Stability of the overall project context.	Very high (1)	High (2)	Moderate (3)	Low or Very low (4)
Number of distinct disciplines methods, or approaches involved in performing the project.	Low or Very low (1)	Moderate (2)	High (3)	Very high (4)
Magnitude of legal, social, or environmental implications from performing the project.	Low or Very low (1)	Moderate (2)	High (3)	Very high (4)
Overall expected financial impact (positive or negative) on the project's stakeholders.	Low or Very low (1)	Moderate (2)	High (3)	Very high (4)
Strategic importance of the project to the organization or organizations involved.	Very low (1)	Low (2)	Moderate (3)	High or Very high (4)
Stakeholder cohesion regarding the characteristics of the product of the project.	High or Very high (1)	Moderate (2)	Low (3)	Very low (4)
Number and variety of interfaces between the project and other organizational entities.	Very low (1)	Low (2)	Moderate (3)	High or Very high (4)

Table 2-5: Project Complexity Evaluation Criteria (GAPPS 2007, p. 7)

According to GAPPS (2007), the below Table 2-6 represents the units of competency of both Global Level 1 and Global Level 2 project managers. Units 1-5 are applicable to Global Level 1 project managers while Units 1-6 are applicable to Global Level 2 project managers. It is emphasized by GAPPS that although the below performance criteria are the same, but the

context in which they are demonstrated differs based on the project's complexity level using CIFTER.

Competency Unit No.	Unit Title	Unit Descriptor
PM01	Manage Stakeholder Relationships	This Unit defines the Elements required to manage stakeholder relationships during a project. It includes the Performance Criteria required to demonstrate competence in ensuring the timely and appropriate involvement of key individuals, organizations, and groups throughout the project.
PM02	Manage Development of the Plan for the Project	This Unit defines the Elements required to manage development of the plan for the project. It includes the Performance Criteria required to demonstrate competence in determining how to realise the project in an efficient and effective manner.
PM03	Manage Project Progress	This Unit defines the Elements required to manage project progress. It includes the Performance Criteria required to demonstrate competence in ensuring that the project is moving constructively toward delivery of the product of the project and in support of the agreed project outcomes.
PM04	Manage Product Acceptance	This Unit defines the Elements required to ensure that the product, service, or result of the project will be accepted by relevant stakeholders. It includes the Performance Criteria required to demonstrate competence in ensuring that the product of the project is defined, agreed, communicated, and accepted.
PM05	Manage Project Transitions	This Unit defines the Elements required to manage project transitions. It includes the Performance Criteria required to demonstrate competence in getting the project underway, in moving from one project phase to the next, and in closing the project down at its conclusion.
PM06	Evaluate and Improve Project Performance	This Unit defines the Elements required to evaluate and improve project performance. It includes the Performance Criteria required to demonstrate competence in ensuring that opportunities for improvement are applied on this project and made available for future projects.

Table 2-6: Competency's Units of Global Level 1 & 2 Project Managers (GAPPS 2007, p. 12)

2.10 Competencies, Roles and Responsibilities of Program Manager

Patanakul and Milosevic (2008) reported that there is a distinction between the management tasks performed by single project managers and multiple-project managers who are called program managers. They categorized multiple-project manager competencies into competencies to manage individual projects and competencies to coordinate multiple projects concurrently. According to Patanakul and Milosevic (2008) there are specific competencies related to program managers based on Delphi method including organizational experience, interdependency management, simultaneous team management, multi projects' processes management and multitasking, leading to management of complexity which is supported by Whitty and Maylor (2009) as one of the skills of the program manager. Patanakul and Milosevic (2008) stressed that organizational experience is represented by the understanding of the organization's culture and building relationship within the organization. Moreover, multiple-project manager who has organizational experience gains high credibility in the eyes of stakeholders. Additionally, Patanakul and Milosevic (2008) identified interdependency as the understanding of the impact of projects on each other within multiple project management, leading to enhance the ability of the program manager to solve problems effectively. They stated that multitasking is not about doing many things simultaneously, but it is about maintaining a balance between cost, performance and time across projects. Also, multiple-project manager needs to acquire high competency of communication skills as the time spent with team members across projects is shorter than in single project management. Furthermore, They noted that even if some argued that some competencies of multiple-project manager exists in single project manager, the competency level of multiple-project manager is more demanding, as the management of projects of different goals, resources and nature, with constraint of time and organizational complexity demands more effort than single project management.

It is stated by Shehu and Egbu (2007) that program manager needs to have the competencies of project manager in addition to a unique list of competencies including understanding the program vision, knowledge and skills of program design and management such as planning, monitoring and controlling programs, project managers' management, effective sequencing of projects execution, manage interfaces between projects and map program process to the

enterprise. Pellegrinelli (2002) added that program managers act as mediators between the projects in a program. On the other hand, project managers focus on their own projects.

It is noted by PMI (2008) that the main role of program manager is the management of related projects in coordinated way to achieve benefits, monitoring and control not available from managing them individually. Moreover, program managers provide support and guidance to project managers of each individual project under the program. Also, it reported that program management focuses on maintaining interfaces and interdependencies of projects within the program, which requires the program manager to coordinate the work and activities between the projects through having coordinated planning across projects, resolve conflicts across projects, manage resource constraints, mitigate risks that affect the program, track the contribution of individual projects and the non-project work to achieve program benefits, resolve scope, cost, schedule and quality changes issues and handle time, language, distance and cultural differences in global programs. It is highly emphasized by PMI (2008) that the program manager requires special blend of program management skills, time management and most importantly strong communication skills to be able to communicate program goals with the projects teams and stakeholders and understand their needs and expectations. Also, it is discussed that the program manager is required to understand political climate to be able to maintain positive atmosphere among projects' team members and stakeholders. Furthermore, program manager is to have leadership skills to be able to lead the program team towards program's direction, define program requirements, track progress, make decisions and resolve conflicts and issues. In addition, the program manager is to have strategic visioning and planning skills to align program's goals with overall organization's goals.

According to PMI (2008), there are various knowledge areas a program manager has to have, which are program integration management, program scope management, program time management, program communication management, program risk management, program procurement management, program financial management, program stakeholder management and program governance management. It is clearly pointed out by PMI (2008) that program cost management, program quality management and program human resource management are knowledge areas that are not included as part of the standard for program management.

Program integration management focuses on processes that support identification, definition, unification and coordination of various components of the program. Program scope management includes identifying projects deliverables that are components of the program with proper alignment with program objectives, estimating major risks on the program level, agreeing on interfaces between components, developing program work breakdown structure and monitoring and controlling the overall program scope. Program time management focuses on developing program schedule that includes defining the different components to deliver program final deliverables and the order of each component and then monitoring and controlling program schedule through comparing the actual with the baseline. Program communication management is wider than single project communication management as it affects wider range of stakeholders. It includes planning the information needs to be communication across the program, distributing information in timely manner and reporting program performance information. Program risk management starts by planning program risk management that includes risks identification across the projects, then identifying risks on the program level, analyzing program risks through identifying risk exposure that includes probability and impact and finally planning program risk response. Program procurement management includes processes that support identification of program procurements, plan the procurement process and determine suppliers/contractors and finally receive and close procurement. Program financial management is about managing the financial sources and resources, defining the budget across the projects, then integrating the budget to determine the program overall budget and finally monitoring and controlling the expenditure across program life cycle. Program stakeholder management includes capturing and defining all program stakeholders, who are individuals and organizations that may be negatively or positively affected by program's outcomes. It focuses mainly on creating stakeholder register, defining stakeholder influence and effect on the program success, engaging stakeholders to get their buy-in and satisfy stakeholders and resolve issues if arise. Program governance management mainly assures that decision-making and activities delivery are focused on accomplishing program goals in consistent manner through addressing risks and fulfilling stakeholders' requirements. It includes identifying governance goals, structure and roles, having audit plans to assure compliance with governance model and standards, assuring benefits delivery, supporting decision making in program components changes and ensuring knowledge transition and benefit realization from program to operations.

In regards to certification in the field, there are existing certifications that support program managers to acquire and enhance competencies, such as ProgM from PMI and Managing Successful Programs from OGC (Whitty & Maylor, 2009). An interesting finding presented by GAPPS (2011) in the below Table 2-7 illustrates different types of programs and stressed that the role of the program manager remains the same despite the type of the program.

	Type of Program			
Program Characteristic	Strategic Program	Operational Program	Multi-project Program	Mega-project
General Purpose	Deliver assets and benefits that are directly linked to attaining the sponsoring organization's desired future state	Deliver assets and benefits that are critical to the sponsoring organization's day-to-day operations	Achieve synergies from projects with common traits such as shared resources, similar clients, or product technology	Deliver a specific asset to the sponsoring organization
Key Differentiating Feature	Link to a specific business goal or strategic initiative	Relative interdependence of constituent projects	Relative independence of constituent projects	Significantly larger than the sponsoring organization's typical projects
Reason for Grouping Projects	Early results influence decisions about later projects	Minimize negative impact on ongoing operations	Benefits expected from synergy	So much larger than the organization's typical projects

Table 2-7: Program Types (GAPPS 2011, p. 4)

It is noted by GAPPS (2011) that the difference between project and program manager is that the program manager main action moves from develop or create on the project manager level, to shape and sustain on the program manager level. Also, it emphasized that a program manager who is competent to manage an easy less complex program may not be capable of managing a

hard and more complex program. It explained that there are various units of competency defined for the program manager, which includes provide leadership for the program, facilitate stakeholder engagement, craft the program, orchestrate the attainment of benefits, sustain program progress, manage organizational change, direct the management of contracts and engage in collaborative alliances. It is described by GAPPS (2011) that units 1-5 are to be applied to all program managers, while units 6-8 are to be applied on some as per Table 2-9. This indicates that units 1-5 are the required competency units for all program managers.

Accordingly, GAPPS (2011) categorized the program managers into six categories ranges from A to F as per Table 2-8. It is reported that the only difference between the categories is that some have broader range of responsibilities.

Identifier	A	B	C	D	E	F
Core Units	1-5	1-5	1-5	1-5	1-5	1-5
Additional Units	6, 7, 8	7, 8	6, 7	6	7	None

Table 2-8: Categories of Program Manager based on Breadth of Responsibilities (GAPPS 2011, p. 5)

Competency Unit	Title	Description
Core Units		
PgM01	Provide Leadership for the Program	This unit defines the Elements required to provide leadership for the program. It includes the Performance Criteria required to demonstrate competency in motivating and inspiring individuals and organizations to work constructively toward attainment of program benefits.
PgM02	Facilitate Stakeholder Engagement	This unit defines the Elements required to facilitate stakeholder engagement in the program. It includes the Performance Criteria required to demonstrate competency in working with stakeholders to achieve desired program benefits.
PgM03	Craft the Program	This unit defines the Elements required to craft the program. It includes the Performance Criteria required to demonstrate competency in establishing both <i>what</i> the program will accomplish and <i>how</i> it will do so.
PgM04	Orchestrate the Attainment of Benefits	This unit defines the Elements required to orchestrate the attainment of benefits. It includes the Performance Criteria required to demonstrate competency in ensuring that benefits are realized when and as expected.

PgM05	Sustain Program Progress	This unit defines the Elements required to sustain program progress. It includes the Performance Criteria required to demonstrate competency in ensuring that the program is moving toward the accomplishment of its vision and the attainment of its expected benefits.
Additional Units		
PgM06	Manage Organizational Change	This unit defines the Elements required to manage organizational change. It includes the Performance Criteria required to demonstrate competency in implementing effective cultural and behavioral change.
PgM07	Direct the Management of Contracts	This unit defines the Elements required to direct the management of contracts. It includes the Performance Criteria required to demonstrate competency in obtaining value from products and services acquired from external sources.
PgM08	Engage in Collaborative Alliances	This unit defines the Elements required to engage in collaborative alliances. It includes the Performance Criteria required to demonstrate competency in forging alliances with other organizations to facilitate attainment of program benefits.

Table 2-9: Competency's Units of Program Manager (GAPPS 2011, p. 14)

GAPPS (2011) illustrated an approach to categorize programs according to the level of complexity, which supports assigning the program manager to the program he/she is capable to manage. This is implemented through using a tool called the Aitken-Carnegie-Duncan Complexity Table (ACDC). GAPPS (2011) defined the scoring of program complexity across ACDC levels as described in Table 2-10:

Level	ACDC Score	Percent of Programs
1	29-40	~20%
2	41-75	~70%
3	76-116	~10%

Table 2-10: Aitken-Carnegie-Duncan Complexity (GAPPS 2011, p. 6)

GAPPS (2011) presented Table 2-10 of ACDC and rating criteria to evaluate program's complexity in order to consider assigning a program manager that is capable of managing a program based on its complexity level. ACDC includes 29 factors arranged into 5 groups presented in Table 2-11 to Table 2-15.

Program Management Complexity Factors		Criteria for Rating			
Governance Complexity		1	2	3	4
1	Sponsorship support. This factor covers how well sponsors anticipate and respond to requests for assistance from the program. <i>Sponsors</i> may include both individuals and organizations.	Consistently strong	Usually strong	Occasionally strong	Seldom strong
2	Program management structures. This factor covers how information is shared among the program's stakeholders. It includes consideration of the number and variety of reporting formats, the clarity of reporting lines, and the number of independent entities involved. <i>Independence</i> requires a separate senior executive.	Mostly simple	A few complex	Some complex	Many complex

3	Decision-making processes within the program. This factor covers both who makes decisions and how those decisions are made. For example, if most decisions are made by the program manager, the decision-making processes would have “little to no variability.”	Little to no variability	Variability in some areas	Variability in many areas	Variability in most areas
4	Program manager's authority. This factor covers the extent to which the program manager can implement decisions without approval from a sponsoring organization.	Total to almost total	Extensive	Moderate	Limited

Table 2-11: Program Management Complexity Factors & Program Manager Role (GAPPS 2011, p. 6)

Program Management Complexity Factors		Criteria for Rating			
Stakeholder Relationship Complexity		1	2	3	4
5	Stakeholder stability over time. This factor covers changes in key stakeholders' level of interest or commitment, changes in assignments (e.g., a new sponsor), and identification or discovery of new or additional stakeholders during the program.	Very high	High	Moderate	Low or very low
6	Degree of public interest in program. This factor covers the potential for media or governmental actions that may affect the program.	Very low	Low	Moderate	High or very high
7	Degree of cultural diversity. This factor covers the potential for conflict and misunderstanding created when there are significant cultural differences among the people involved in the program. In particular, it includes consideration of differences in	Very low	Low	Moderate	High or very high

	ethical standards and practices.				
8	Percent of staff able to converse fluently in program's primary language. This factor covers the issues that can be caused by weak language skills. <i>Conversing fluently</i> requires the ability to express oneself clearly and to understand others during both business and social discourse.	90-100%	50-89%	20-49%	Less than 20%
9	Number of languages used in conducting program activities. This factor covers the issues that may arise from the need to translate intra-program documents into different languages.	One	2-3	4-5	More than 5
10	Number of active locations requiring overnight stay for meetings. This factor covers the logistical challenges that are created when program staff are not collocated. Generally, a one-way, 2 hour trip would involve an overnight stay. <i>Active</i> means that these locations host frequent meetings.	1-3	4-5	6-7	More than 7
11	Range of time zones with active stakeholders. This factor covers the logistical challenges that are created when active stakeholder are in different time zones. <i>Active</i> means that these stakeholders are frequently participating in meetings, teleconferences, and videoconferences.	1-3 hours	4-6 hours	7-9 hours	More than 9 hours

Table 2-12: Program Management Complexity Factors & Program Manager Role (GAPPS 2011, p. 8)

Program Management Complexity Factors		Criteria for Rating			
Program Definition Complexity		1	2	3	4
12	Agreement regarding the desired future state. This factor covers the extent to which stakeholders are in agreement about the characteristics of the desired future state.	High or very high	Moderate	Low	Very low
13	Level of fluidity in desired future state. This factor covers how much the description of the desired future state changed during the program.	Very low	Low	Moderate	High or very high
14	Clarity of expected benefits. This factor covers how well-defined the program's expected benefits were.	High or very high	Moderate	Low	Very low
15	Stakeholder expectations regarding benefits. This factor covers the challenges involved in delivering benefits when stakeholder expectations about those benefits are not stated.	Most clearly stated	Many clearly stated	Some clearly stated	Few clearly stated
16	Interdependency of benefits. This factor covers the need for coordination within the program, as well as with external programs and projects, in order to realize program benefits.	Very low	Low	Moderate	High to very high
17	Degree of competing stakeholder interests. This factor covers the challenges involved in dealing with competing stakeholder interests. <i>Interests</i> may be related to the desired future state, to expected benefits, or to how the activities of the program are conducted.	Very low	Low	Moderate	High to very high

Table 2-13: Program Management Complexity Factors & Program Manager Role (GAPPS 2011, p. 8)

Program Management Complexity Factors		Criteria for Rating			
Benefits Delivery Complexity		1	2	3	4
18	<p>Assessment of benefits delivered. This factor covers the challenges associated with agreeing on what to measure, how to measure, and when to measure. Quantifiable benefits are generally simpler to measure.</p>	Simple for most	Simple for many	Simple for some	Simple for a few
19	<p>Amount of cultural and behavioral change required within the sponsoring organization. This factor covers the degree of organizational change required to obtain the expected benefits. The development of individual skills in support of new tools or systems would not normally be considered behavioral change.</p>	Very low to low	Moderate	High	Very high
20	<p>Impact on other work of the sponsoring organization. This factor covers the degree to which program activities interfere with or affect other work within the sponsoring organization. <i>Other work</i> may include other programs and projects or ongoing operations.</p>	Very low	Low	Moderate	High to very high
21	<p>Demand for innovation in constituent projects. This factor covers the degree of technical or product-oriented creativity required to deliver the results expected from constituent projects.</p>	Very low	Low	Moderate	High to very high
22	<p>Management complexity of constituent projects. This factor covers the difficulty of managing constituent projects. <i>Management complexity</i> is independent of technical complexity.</p>	Very low	Low	Moderate	High to very high
23	<p>Stability of methods and approaches used in constituent projects. This factor covers the degree to which technical and management methods, methodologies, and systems are known.</p>	All or most are known	Many are known	Some are known	Only a few are known

24	Magnitude of overall program risk. This factor covers the extent to which program benefits may not be delivered as a result of risk events. It involves consideration of impacts, probabilities, the ease of response, and the need for a timely response.	Very low	Low	Moderate	High to very high
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Table 2-14: Program Management Complexity Factors & Program Manager Role (GAPPS 2011, p. 9)

Program Management Complexity Factors		Criteria for Rating			
Resource Complexity		1	2	3	4
25	Availability of capable people. This factor covers the program's ability to get individuals with the requisite skills assigned to and working on the program in a timely fashion. <i>Availability</i> includes both quantity and quality at all levels of the program.	Mostly assured	Usually assured	Occasionally assured	Seldom assured
26	Availability of adequate funding. This factor covers the program's ability to get monetary resources allocated to the program in a timely fashion. <i>Monetary resources</i> may be cash or spendable budgets.	Mostly assured	Usually assured	Occasionally assured	Seldom assured
27	Availability of suitable equipment. This factor covers the program's ability to get needed equipment allocated to the program in a timely fashion.	Mostly assured	Usually assured	Occasionally assured	Seldom assured
29	Availability of suitable supplies and materials. This factor covers the program's ability to get disposable items allocated to the program in a timely fashion.	Mostly assured	Usually assured	Occasionally assured	Seldom assured
29	Number of independent funding sources. This factor covers the challenges involved with reporting and coordinating the timing and amounts of funding from independent sources. <i>Independence</i> requires a separate senior executive.	1	2-5	6-10	More than 10

Table 2-15: Program Management Complexity Factors & Program Manager Role (GAPPS 2011, p. 9)

2.11 Competencies, Roles and Responsibilities of Portfolio Manager

Portfolio manager role evolved when project portfolio management emerged. The main competency is the ability to effectively and efficiently plan and control complex project landscapes towards achieving organization's strategy (Jonas, 2010). Based on PMI (2008) the main role of portfolio manager is the management of the high-level governance of a collection of projects or programs. Portfolio manager is defined as "Senior executive who manages to optimize the R&D and marketing investments, to define the right new product strategy for the firm, select the winning new product projects, and achieve the ideal balance of projects" (Cooper, Edgett, & Kleinschmidt 1999, p. 334).

Jonas (2010) reported that portfolio manager needs to have competencies that support the mediation role between senior management and project and program managers to overcome conflict that may occur because of the difference in the level of power as senior management decisions are not the only consideration in portfolio reviews. Also, portfolio manager needs to demonstrate effective portfolio management skill along its four phases which are portfolio structuring, resource management, portfolio steering, and organizational learning and portfolio exploitation (Jonas, 2010). Portfolio structuring is the first phase, which includes portfolio planning, projects evaluation and selection. Second phase is resource management, which includes efficient resource allocation with consideration of resource limitation through resource planning. Third phase is portfolio steering, which includes assuring the successful portfolio implementation towards organization's strategy, this is done through continuous monitoring of the portfolio and its activities and implementing corrective actions accordingly. Organizational learning and portfolio exploitation is the fourth phase of portfolio management, it includes continuous monitoring of projects even after closure to evaluate project success and define lessons learnt across projects. Adding to above, Jonas (2010) indicated that portfolio manager needs to have knowledge and skills in portfolio management. Portfolio manager needs to demonstrate knowledge in portfolio practices and supports the decision making by senior and project managers. Being able to execute project portfolio management tasks is one of the competencies of the portfolio manager. The portfolio manager needs to have extensive skills in comparison to project and program managers as the role requires extensive management of complex and integrated elements.

PMI (2008) reported two knowledge areas of portfolio management, which are portfolio governance and portfolio risk management. Portfolio governance includes selecting and funding the portfolio investment, monitoring and controlling investments, communicate investment decisions and ensure investment is aligned with strategic objectives. Furthermore, risk management's main aim is to increase the probability and impact of events that positively affect the portfolio, it consists of portfolio risk identification, risk analysis including probability and impact, define risk response plan and finally monitor and control risks.

The review of PMI (2008) has revealed that the role of portfolio manager can be occupied by a senior manager or senior person, whose main responsibilities are establishing, managing and monitoring the portfolio, which includes: establishing and maintaining portfolio management framework/structure in the organization, establishing and maintaining portfolio management processes such as risk management, directing the selection prioritization and balancing of the portfolio and its components to assure alignment with strategic goals and organization's priorities, establishing systems and infrastructure to support effective portfolio management, reviewing the portfolio and assuring its compliance with organizational goals, providing timely assessment of portfolio's components selection, prioritization and performance to key stakeholders and supporting management decisions, measuring and monitoring the value to the organization through specific key performance indicators such as return on investment (ROI), net present value (NPV) and payback period (PP), participating in projects and programs reviews, realizing financial and non-financial benefits and risks of the organization.

It is strongly emphasized by PMI (2008) that the portfolio manager must be capable of strategic alignment, implementing portfolio management methods and techniques using qualitative and quantitative measures for selection methods and prioritization algorithms, having experience in project and program management to efficiently and effectively evaluate the progress of portfolio's components, having knowledge in process development and quality principles and methodologies, having knowledge on the market, trends standards, legal environments and regulations, having analytical skills in analyzing financial information and evaluating business cases in the selection process. Furthermore, portfolio manager is to have leadership and general management skills, effective communication skills, stakeholder management skills, ability to manage risks and opportunities, employee development skills including coaching, motivating,

monitoring and training, understand organization's culture and individual cultural differences, planning, negotiation, conflict management and decision making skills are a must in the portfolio manager competency (PMI, 2008). Moreover, it is reported by PMI (2008) that portfolio manager does not create the strategy, but participates in the creation process and provides input. It is reported by Melton and Iles-Smith (2009) that the role of the portfolio manager requires extensive engagement with the business, to effectively take decisions regarding portfolio progress and the use of organizational resources. The role of portfolio manager includes resource and prioritization steering (Melton & Iles-Smith, 2009). Resource steering is the process of allocation and reallocation of resources to the projects, while prioritization steering involves the adjustment of the project's implementation sequence as per the business drivers.

2.12 The Path to Chapter 3

Chapter 3 presents the conceptual framework of the research that is based on the findings of the literature review. The overall relationship between the project, program and portfolio managers' roles in regards to the career progression is demonstrated. Also, the list of required competencies and main responsibilities of each of the three roles are illustrated.

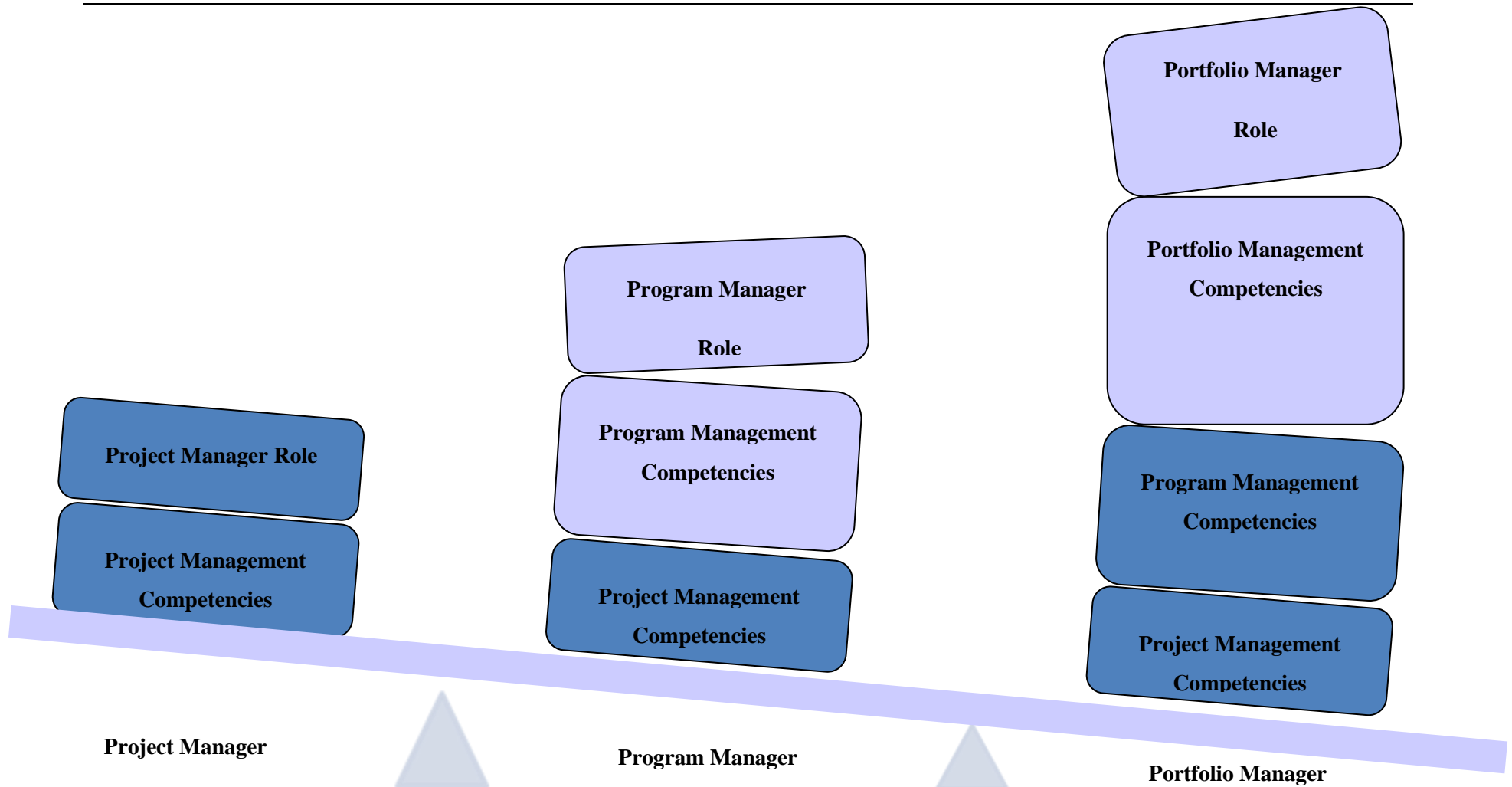
Chapter 3 - Conceptual Framework

3.1 Introduction

The focus of the chapter is on the conceptual framework, which is a summarized view of the literature findings that is developed by the researcher to address the research questions. The chapter demonstrates three different conceptual frameworks that are aligned with the research objectives, including the career path relationship between the three roles (project, program and portfolio managers), and tabular representations including the main responsibilities of each of the roles and the required competencies of the same. The conceptual framework was the base on which interview questions were developed in order to examine the relationship between literature findings and empirical research findings which can be viewed in Chapter 5.

3.2 Conceptual Framework of Career Path Progression

Career path progression conceptual framework is presented in Figure 3-1, which indicates the progression from the role of project manager to program manager and then portfolio manager. It presumes a chronological career progression in the field of project management that leads to a formation of a candidate who is fully competent and equipped to handle complexity in senior positions throughout project management field. The conceptual framework supports the school of thought that it is a natural career advancement between the three roles and that the prerequisite to be portfolio manager is to have experience in program management and the precondition to be program manager is to have experience in project management. It indicates that the candidate is to demonstrate the capability to satisfy the needs and demands of the lower level of project management role in order to move to the next senior level as demonstrated when moving from project, to program, to portfolio manager roles. Moreover, the conceptualized model indicates that the focus differs between the roles, from detailed view of the project and its activities in project manager role, to a holistic strategic view towards achieving organizational objectives when moving to portfolio manager role.



Career Progression from project manager to program manager to portfolio manager from detailed view of a project to a holistic view of the enterprise

Figure 3 - 1: Conceptual Framework of Project Management Career Path Progression

3.3 Conceptual Framework of Main Responsibilities

The main responsibilities that are part of each of the three roles (project, program and portfolio managers) are illustrated in Table 3-1. The list is prepared based on the literature findings and similar responsibilities are aligned next to each other. This is to support the visualization of the relationship between the responsibilities under each role that supports recognition of differences between the roles. It can be clearly noticed that time management is not mentioned as portfolio manager responsibilities. Surprisingly, quality management is explicitly defined under project manager role only. Adding to that, stakeholder management is not considered as part of project manager role and it includes the term human resource management, which is related to resource management and not stakeholder management, especially as project manager deals with various stakeholders involved in the project. When it comes to financial aspect of the project, it is indicated that project manager manages project cost, while program manager manages program financials as it controls the budget flow between its projects. On the other hand, the portfolio manager manages organizational investment as the portfolio manager monitors and governs the enterprise landscape of projects that deliver benefits to organizations, especially in achieving return on investment by the running projects and programs.

Project Manager Role (Main Responsibilities)	Program Manager Role (Main Responsibilities)	Portfolio Manager Role (Main Responsibilities)
Achieve project objectives/benefits.	Achieve program objectives/benefits.	Achieve strategic organizational objectives.
Manage project scope.	Manage program scope.	Participate in Strategy formation.
Manage project time.	Manage program time.	Portfolio governance: <ul style="list-style-type: none"> • Structuring: Includes portfolio planning, projects evaluation and selection. • Resource management: Includes efficient resource allocation with

		<p>consideration of resource limitation through resource planning.</p> <ul style="list-style-type: none"> • Steering: Includes assuring the successful portfolio implementation towards organizational strategy by continuous monitoring of portfolio and its activities and actions execution. • Organizational learning and portfolio exploitation: Includes continuous monitoring of projects even post closure to evaluate project success and define lessons learnt across projects.
Manage project cost.	Manage program financials.	Manage organizational investment.
Manage project quality.	Manage program integration.	
Manage project human resource.	Manage program stakeholder.	Manage organizational stakeholder.
Manage project communications.	Manage program communications.	
Manage project risks.	Manage program risks.	Manage portfolio risks.
Manage project procurement.	Manage program procurement.	
	Manage program governance.	
Manage Activities.	Manage dependencies.	
Focus mainly on managing cost, time and scope.	Focus mainly on Managing people and politics, managing culture change & managing strategic change.	Focus mainly on managing projects landscape and managing project pipeline.
Deliver stage gate requirements and influence stage gate decisions.	Manage stage gate reviews and influence stage gate decisions.	Manage stage gate reviews and deliver stage gate decisions.

Table 3 - 1: Conceptual Framework of Main Responsibilities of Project, Program & Portfolio Managers Roles

3.4 Conceptual Framework of Required Competencies

The list of required competencies across the roles (project, program and portfolio managers) is demonstrated in Table 3-2. It focuses on identifying similar and different set of required competencies between the roles, by having check marks to aid the smooth visual understanding of the similarities and differences that are identified as per findings from the literature reviews. Description of each of the defined competencies is clarified, to support the understanding of the competency. This is because having the competency alone, does not aid the reader to understand the meaning and the boundaries of each of the competencies. It can be clearly noticed that there are shared list of required competencies across the three roles and there are others that are shared by project and program managers. It can be clearly recognized that the portfolio manager has the largest list of required competencies in contrast to project and program managers.

Required Competency	Description	Project Manager	Program Manager	Portfolio Manager
Entrepreneurial competency	The ability to provide correct judgment, detect opportunities.	✓	✓	✓
	Support senior management and project and program managers in decision making on portfolio level decisions.			✓
Coping competency	<ul style="list-style-type: none"> • The ability to cope with problems, risks, resource and time constraints. • The ability to manage crises, uncertainty, suspense and diversity of information, situations, people that are outside his/her control. • The ability to deal with complexity. • Demonstrate Optimism competency, which includes being optimistic in challenging work environments (poor communication, isolation, delays, unclear goals, lack of resources, un-appreciation, changing 	✓	✓	✓

	priorities, unstructured environment).			
	High ability to manage complex and integrated elements		✓	
	Extensive ability to manage complex and integrated elements within complex project landscape.			✓
Conceptual skills	Being able to view the enterprise as a whole.	✓	✓	✓
Administrative and Management competency	Time management, organizing, planning, operating, supporting, facilitating prioritizing, setting goals and processes, controlling, risk management, planning and scheduling and resource management.	✓	✓	✓
Social competency	<ul style="list-style-type: none"> Includes team cooperation, assertiveness, negotiation, communication skills and intercultural competency. Effective communication includes writing, oral and listening. Communicating team's achievements, providing clear information and unbiased interpretation. Negotiation includes the ability negotiate and overcome issues and changes of scope, cost, schedule, objectives, contract terms, resource availability & utilization. 	✓	✓	✓
	<ul style="list-style-type: none"> High communication competency that includes the ability to effectively communicate throughout the program as time spent with team members across projects is shorter than single project management. Ability to communicate effectively (verbal & written) and it is to be highly demonstrated when managing global programs. 		✓	
	<ul style="list-style-type: none"> Advanced communication skills, that includes the ability to demonstrate effective communication between senior management, project and program managers. 			✓

	<ul style="list-style-type: none"> Advanced negotiation skills. 			
Supervisory competency	Training, delegating, coaching, counseling and appraising team performance.	✓	✓	✓
Cognitive competency	Problems identification and resolution, decision making, risk weighting and clear analytical thinking.	✓	✓	✓
Leadership competency	<ul style="list-style-type: none"> Motivating, training, guiding developing, communicating effectively and injecting his/her personality into the management process. Being energetic & initiative. Provides input into organizational policies and procedures. 	✓	✓	✓
Business and strategic understanding	Includes understanding business benefits, customer concern, strategic thinking and realization of profit and cost.	✓	✓	✓
Management of people	<ul style="list-style-type: none"> Promote honesty, trust, open communications, commitment between team members and promote positive “can do” attitude, manage conflict, has authentizotic behavior (show concern of others), leading, influencing. Having appropriate temperament, that includes being calm, realistic, generous, stable, quick thinker and persistent. Emotional intelligence competency, which is about the ability to control emotions and understand the other parties’ emotions and react accordingly. 	✓	✓	✓
Interpersonal and intrapersonal competency	Problem solving, conflict management, flexibility to change, responsibility, commitment, proactively, self-controlled and being organized.	✓	✓	✓
Organizational experience & cultural awareness	<ul style="list-style-type: none"> Understanding organization’s culture and ability to build relationship within the organization. Understanding individual cultural differences 	✓	✓	✓
Risk management	Ability to manage risks and act against risk.	✓	✓	✓
Change management	Resolve scope, cost, schedule, quality changes issues.	✓	✓	✓

Contextual behavior	Job dedication, job knowledge (includes administrative and technical knowledge), certification in the field, task performance (includes monitoring and problem solving), task proficiency.	✓	✓	✓
	Being able to implement specific project management tools. Having project management experience	✓		
	Being able to demonstrate high capability related to soft competencies (leadership & communication). Having program management experience.		✓	
	Having line management skills and experience			✓
Time management	Ability to manage time effectively within the project and during activities' execution & sequencing.	✓		
	High time management competency, which includes the ability to manage time effectively across projects and it is to be highly demonstrated when managing global programs.		✓	
	Advance time management competency, which includes the ability to manage time effectively across enterprise landscape.			✓
Understanding political climate	Having political awareness to be able to maintain positive atmosphere among projects' team members and stakeholders.	✓	✓	✓
Planning	Ability to plan project activities.	✓		
	Ability to plan program interdependencies.		✓	
	Ability to demonstrate strategic visioning capability and planning skills			✓
Facilitate Stakeholder Engagement	Demonstrate competency in working with stakeholders to achieve desired benefits.	✓	✓	✓
Ability to be a Mediator	Ability to support the mediation role between project team members and stakeholders.	✓		
	Ability to support the mediation role between project managers, program stakeholders and team members.		✓	

	Ability to support the mediation role between senior management and project and program managers.			✓
Understanding portfolio & project interrelations	Being able to understand how projects are mapped into the portfolio to serve organizational benefits and how projects are related in a program.	✓	✓	
Understanding project management knowledge areas	Project scope management, time management, cost management, quality management, human resource management, communications management, risk management & procurement management.	✓		
Technical competency	Includes having the knowledge of technology and trends, having the skills of tools and techniques implementation and being able to solve technical problems.	✓		
Multiple projects management	<ul style="list-style-type: none"> • Ability to manage individual projects & to coordinate multiple projects concurrently. • Simultaneous team management. • Multi projects' processes management. • Interdependency management that includes understanding the impact of projects on each other leading to effective problems solving. • Interface management that includes the management of touch points between the projects in the program. Input in one is an output in the other. • Ability to align the program to the organizational objectives. • Coordinate the work and activities between projects in a program. • Conflict management which includes resolving conflicts across projects. • Resource management. 		✓	
Multitasking	Ability to maintain balance between cost, performance and time across projects.		✓	
Understanding program management	<ul style="list-style-type: none"> • Understanding program vision. 		✓	

	<ul style="list-style-type: none"> • Having knowledge and skills of program design & management, which is demonstrated through the ability to plan, monitor and control programs. • Effective sequencing of project execution that is demonstrated by showing the ability to build and execute the work breakdown structure. 			
Understanding program management knowledge areas	<p><u>Being aware of program knowledge areas which are:</u> Program integration management- program scope management- program time management- program communication management- program risk management- program procurement management- program financial management- program stakeholder management- program governance management</p>		✓	
Extensive ability to manage complex and integrated elements				✓
Understanding Portfolio Knowledge Areas	<p><u>Portfolio governance and portfolio risk management.</u></p> <ul style="list-style-type: none"> • Portfolio governance: Includes selecting and funding the portfolio investment, monitoring and controlling investments, communicate investment decisions and ensure investment is aligned with strategic objectives. • Portfolio risk management: Includes risk identification, analysis that covers probability and impact of risks, response planning, monitoring & controlling. 			✓
Ability to establish, manage and monitor the portfolio	<ul style="list-style-type: none"> • Establishing & maintaining portfolio management framework/structure in the organization. • Establishing & maintaining portfolio management processes mentioned above under portfolio governance and portfolio risk management. • Establishing systems & infrastructure to support effective portfolio management. • Reviewing the portfolio and assuring its compliance 			✓

	<p>with organizational goals.</p> <ul style="list-style-type: none"> • Providing timely assessment of portfolio's components selection, prioritization and performance to key stakeholders and supporting management decisions. • Measuring and monitoring value to the organization through specific key performance indicators such as return on investment, payback period and net present value. • Participating in projects and programs reviews. • Realizing financial and non-financial benefits and risks of the organization. 			
Able to implement portfolio management methods	Ability to implement the methods and techniques using qualitative and quantitative measures for selection methods and prioritization algorithms.			✓
Participation in organization's strategy creation process	The portfolio manager does not create the strategy, but participates in its creation through providing inputs from portfolio point of view.			✓
Experience in project & program management	Having experience in both fields enables the portfolio manager to efficiently and effectively evaluate the progress of portfolio's components.			✓
knowledge in process development & quality principles & methodologies				✓
knowledge on market trends, standards, legal environments and regulations				✓
Analytical Financial skills	The ability to analyze financial information and evaluate business cases in the selection process.			✓
Extensive business engagement	Ability to interact flexibly and smoothly with the business to be able to take effective decisions related to portfolio progress and the best utilization or organizational resources.			✓

Table 3 - 2: Conceptual Framework of Required Competencies of Project, Program & Portfolio Managers

3.5 The Path to Chapter 4

Chapter 4 reports the research design and methods that were followed. Moreover, it includes detailed description of how did the researcher approach the initiation, progression and finalization of the research and explains the different sources of data that were used.

Chapter 4 - Research Methodology

4.1 Introduction

This chapter presents the research methodology, which explains the overall research design with a detailed description of the data collection method that includes the use of case study and semi-structured interview, the selection of research sample and the use of materials obtained from AB Organization. Then data analysis method is presented in detail, and the chapter closes by a discussion on the research validity and reliability.

4.2 Research Design

The research design is concerned with fulfilling the research questions and objectives, through transforming them into research project presented in this research study with a focus on the methodology followed throughout the research, selecting appropriate methods that serve research aims and objectives and defining the specific timing in which the research was conducted.

The research was conducted from March 2011 to December 2011. It was designed with a focus on using a combination of both case study and semi-structured interviews methods of data collection, along with the use of relevant selective documents from AB organization. The aim of using and describing a combination of methods was to increase the level of validity and reliability.

It is presented by Flick (2009) that the main key when selecting the research design and its implementation is its ability to address essential elements of the research questions. Furthermore, it is pointed out by Flick (2009) that methods guiding qualitative research differ from those in quantitative research. Qualitative research depends on the correct choice of appropriate methods and theories, the analysis and understanding of different perspectives, the researcher's reflection on his/her research as an element of knowledge production and the use of various techniques. In this research, the selection of qualitative research approach was done as the aim of the research study was to find complex patterns that are not limited to direct short answers followed in quantitative approach, but are related to open-ended questions followed in qualitative approach

which supports adding to the knowledge area through allowing interviewees as part of the empirical research to present their experiences.

4.3 Research Method

The research is mainly based on an empirical research conducted in AB organization which is one of the government organizations in Dubai in the United Arab Emirates. It is developed following the line of case study based qualitative research method adopting the strategy presented by Yin (2003) that started with the development of research questions and building the theoretical understanding, then collecting and analyzing data gathered and finally verifying the theory and drawing conclusions that add to the knowledge in the field.

Data were collected from primary and secondary sources at different points of time during the research duration. The main source of primary data was the semi-structured interviews conducted on the selected cases. On the other hand, the secondary sources of data were books and existing documents provided by the HR Department of AB Organization, which were job descriptions related to the research scope, project manager competency framework and career path plan.

4.3.1 Data Collection

4.3.1.1 Case Study and Semi-Structured Interview:

It is pointed out by Easton (2010) that a case presents a single instance of the selected sample that needs to stand by its own and that is to be deeply investigated, this point is followed by an emphasis that case research is mostly equated with semi-structured interviews, which will support deep investigation of the case through set of open-ended questions and open discussions that are encouraged while conducting semi-structured interviews. Furthermore, Flick (2009) indicated that semi-structured interview is a verbal data collection method that allows reconstructing of subjective theories as elaboration is expected during interviews, it is elaborated by Grindsted (2005) that semi-structured interview demonstrates relational alignment between the interviewee and the interviewer in constructing the interview. According to Yin (2003), the use of multiple case studies proved its robustness, as when data are gathered from various

sources discrepancies and similarities can be identified that add to the existing knowledge in the field of study.

Accordingly, it was decided as part of this research to use in depth semi-structured interviews as a tool of the qualitative research method that was conducted on multiple selected cases, in order to collect detailed information that addressed the research questions. The interviews were conducted by a single interviewer who was the researcher of the study, and they were conducted with the selected sample from AB organization. The focus was to test the conceptual framework that was developed based on the literature review, by comparing the findings with real cases' scenarios. The interviewees were from different nationalities working in AB organization that matched the selection criteria defined prior to commencing the interviews. The criteria of selecting candidate cases were similar to the eligibility criteria to apply for PMP certification from PMI which is a known and reliable institute in project management field. The criteria were that the candidate is to have a four year bachelor's or global equivalent degree and at least three years of project management experience. The reason behind selecting such a criteria was to increase the reliability of interviewed candidates and the validity of findings post interview completion and analysis. It is important to note that the terms interviewees or respondents are used interchangeably in the research to present the selected cases.

Then candidates that satisfied the selection criteria were selected by the researcher and email communications along with telephonic conversations were made, explaining the purpose of the research. Furthermore, the researcher conducted an anonymous interview to maintain confidentiality, to build an atmosphere of trust and to encourage easy and smooth disclosing of real case experience. The methodology followed by the researcher matches the input provided by Flick (2009), as he highlighted the need to build atmosphere of trust in order to enable the interviewee to freely and comfortably disclose information.

On completion of initial communications with candidates, the preparation of interview questions was carried out that was dependent on the finalization of the conceptual framework. The questions were addressed to test the defined conceptual framework. Furthermore, the questions were designed per role being project, program or portfolio manager. The aim of having this categorization was to support the findings and to have separate focused questions for each

category which saves time and efforts consumed during the interviews. Also, this approach increased the validity and reliability of the gathered information, as questions are answered by personnel who are actually performing the role or used to perform the role. It is critical to note that the process of freezing the questions passed through different rounds, the researcher went through several modifications to finally fix the set of interview questions. Samples of interview questions can be seen in Appendix F and G.

Once interview questions were finalized, electronic meeting invitations were sent to reserve candidate cases' calendars ahead of time based on their availability and interview questions per defined category were shared in order to set their expectations and to prepare required materials for the interview, which will ease the interview flow and will prevent waste of time that may be caused due to interviewees' non readiness or information unavailability. For example, when a question related to naming the certification acquired in project management, the candidate may need to get the exact correct certification name, which may not be answered directly if the record of such certificate was not available in the workplace, which was the location in which the interview was undertaken.

After that different ways of conducting an effective interview and obtaining information efficiently were looked at. The audio recording was purchased and would only be used after obtaining permission from the interviewee. In addition to audio recording, discussions were captured by taking notes. Furthermore, the conceptual framework was presented during the interview to drive the discussion smoothly and facilitate interviewees follow up on questions raised by the researcher in regards to the conceptual framework. An important point to be highlighted is that the definitions used by the researcher were shared with the interviewees to set their expectations and to understand if whether the candidates have similar or different understanding of the used terms. After completing each of the planned interviews, the process of preparing the transcripts on all the notes and audio records was done on the same day post conducting each of the interviews.

4.3.1.2 Pilot Test:

Interviewees with cases 1, 2 and 3 were considered part of the pilot test, which supported in recognizing that there were set of repeated questions that needed to be eliminated as they were

addressed previously throughout the interview. Also, it was noticed that 2 hours interview is considered too long. Accordingly, the interview duration was reduced to 1:30 hours considering external interruptions such as phone calls or ad-hoc visitors to the interview location. Moreover, it was recommended by the interviewees to change the answering mechanism to check marks or yes/no and then elaborate more, this was in regards to the question related to verifying the list of defined required competencies as per literature. The interviewees were satisfied with the overall interview style and flow and appreciated going over definitions before moving to the questions directly in order to set their expectations and agree on similar definitions for all to be in the same page. It was indicated by case 1 that considering past experience of the selected cases in project management field along with the experience in AB organization adds a great value to the research and was considered an advantage, he elaborated that the interview should not restrict the interviewee to the boundaries of AB organization experience, but to allow elaboration and comparison between current experience in AB and previous experiences, which can lead to further information findings similarly to the approach followed by the researcher. From the pilot test the researcher understood the need to be flexible and not to stick to the exact written questions, but the way and sequence of introducing the question can differ depending on the previously asked question and the overall flow of the discussion. Additionally, elaboration can be provided by the interviewee. Moreover, the pilot test confirmed that it is a useful methodology to use different means of data recording. The audio recording which was accepted by some of the interviewees on the basis that no names to be mentioned helped in tracking the full conversation and examples provided. Also, using computer as a soft mean to record the answers helped in speed typing and recording. Furthermore, having the note book was also an added value to quickly capture information that cannot be recorded easily on the computer such as a diagram or graphical representation that reflects interviewer understanding of the answers provided by the interviewee. The pilot test proved the effectiveness of allowing negotiation and providing clarification on questions throughout the interview in making it less asymmetrical than normal methods found in semi-structured interviews.

4.3.1.3 Candidate Cases Selection (Sample Selection)

The decision on sampling techniques was taken following the process described by Flick (2009, p. 115), which included case sampling, groups sampling, material sampling and presentational

sampling. Case sampling included selecting the personnel to be interviewed as per the defined criteria. Followed by group sampling from which personnel were selected and grouped under certain category being project, program and portfolio managers. After that came the decision of material sampling in which the cases were further treated and analyzed. Finally, presentational sampling was done that included the selection of the parts and cases that can best illustrate the researcher's findings.

The interviews were first conducted with 11 employees, but case 6 was dropped because the person did not satisfy the selection criteria of more than 3 years experience in managing projects, he used to be a member of project team and not a manager. Accordingly the number of remaining valid cases was 10. The semi-structured interviews were conducted with 10 employees who formed the selected sample within AB organization. A total of 9 out of the 10 were interviewed to address project manager related questions, while 8 out of the 10 were interviewed to address program manager related questions and 1 candidate was eligible to address portfolio manager related questions as he had experience in portfolio management before joining AB Organization and he was the only holder of a position that is related to portfolio management field in AB Organization. He was partially performing portfolio manager responsibilities, but his designation was not portfolio manager as this role was not yet occupied in AB Organization.

The overall population of employees within AB was around 5000 employees. The target respondents in the company were the selected cases that satisfied the selection criteria defined by the researcher that were similar to eligibility criteria to apply for PMP certification from PMI which is a known and reliable institute in project management field. The criteria were that the candidate was to have a four year bachelor's or global equivalent degree and at least three years of project management experience.

4.3.1.4 Documents Obtained from AB Organization

The use of documents as a method of data collection has its importance which is highly emphasized by Flick (2009) as it is not just a technical step of the research process, but it also influences the quality of data produced through interpretations. Documents are defined as "standardized artifacts" which can be in various formats such as reports, contracts statistics,

annual reports and certificates Flick (2009, p. 255). Additionally, he reported that the selection of documents as data is beyond the purpose of analyzing texts, rather it involves documents quality assessment, documents authentication and clear origin, documents credibility and free of errors, documents representativeness and clarity. The researcher contacted HR Department of AB Organization and provided information about research aim and objectives and found a full support from respective HR personnel and management. The reason for approaching HR Department was to obtain all existing job descriptions of project, program and portfolio managers available in AB organization, in order to be reviewed and verified with findings from interviews and literature to finally propose a modification to the existing job descriptions and support in proposing list of required competencies and main responsibilities that can be incorporated to the job descriptions of program and portfolio managers once created, as it was noticed that there were no job descriptions for such roles in the organization yet. The total job descriptions received after meeting HR department was 12, out of which 10 were related to project manager role from different business units and 2 were related to portfolio management field and 1 of them was occupied which was the portfolio specialist designation. Moreover, existing project manager career path plan was shared along with the competency framework that included list of competencies related to the project manager role. Both documents were analyzed and verified throughout the research during the conducted interviews to support the final conclusions and proposed recommendations of the research.

Samples of shared job descriptions by HR Department are in Appendix C and D. The project manager competency list defined in the competency framework developed by HR Department is in Appendix E. And the career path of project manager defined by HR Department can be seen in Chapter 5, Section 5.3, Figure 5-2.

4.3.2 Data Analysis

The data analysis method consisted of various steps. It started with detailed analysis of all the 10 cases individually, which was done after finalization of the transcripts. Each individual case presented an introduction and description about the background and experience the individual had. Then data collected from the interviewee during the discussion to test the conceptual framework and answer research questions were reported. Moreover, suggestions provided by

respondents were also captured. This was then followed by cross case analysis that focused on critical analysis of similarities and differences between interviews' findings. Also, it presented the comparison of the findings with the literature review and documents shared by the HR Department. It then moved to present the input received from all the 9 respondents that indicated required competencies of project manager role. Then 4 different tables were presented depending on the number of respondents that agreed on the remaining list of required competencies. Table 5-2 illustrated the list of required competencies that were selected as required by all the 9 cases, while Tables 5-3 to 5-5 presented the remaining list of required competencies each depending on the number of respondents. Then the researcher presented the data collected from all the 8 respondents that indicated required competencies of program manager role in Table 5-7. Followed by presenting 3 tables, that demonstrated the remaining list of required competencies according to the received number of respondents. Finally the data collected from the only eligible person in AB organization to verify list of required competencies of portfolio manager role was demonstrated in Table 5-11. After that, the researcher decided to incorporate the list of required competencies across the three roles that got the highest number of respondents as the research main outcome. Accordingly, the final table was developed to illustrate the required list of competencies across the three roles, with a highlight on the similar competencies across the roles.

The analysis was concluded with a detailed description and explanation of the changes incorporated to the initial list of required competencies and main responsibilities across project, program and portfolio managers' roles that were part of the conceptual framework.

4.4 Research Reliability and Validity

4.4.1 Reliability

It is reported by Long and Johnson (2000) that there is little disagreement among most researchers when it comes to defining reliability, which is concerned with confidence in data collection through having consistency across collected data. It is also emphasized that reliability can be tested by stability which is concerned with obtaining consistent answer when asking similar questions across various time period. It can be also tested by consistency when comparing response of different interviewees. This is followed by an indication that in

qualitative research reliability is also presented by the word dependability. Adding to that Yin (2003) indicated the robustness of using multiple cases, which was the approach followed by the researcher in which consistency was identified in the similarities and differences across the responses received from respondents during the study and while testing the conceptual framework and answering research questions.

In the research there may have been threat to reliability caused by participants' bias as interviewees may not feel free to state their actual perspective because of the job security threat. This was overcome through the confidentiality and non-disclosure of the named transcripts of each interviewee and using the word case instead of the actual name of the interviewee.

There may have been threat to reliability caused by observer error and miss-interpretation of interviewee's perspective. This is overcome by introducing a mixture of structured and non-structured interview questions that allows the interviewee and the interviewer to extend and elaborate more on the questions.

As part of assuring information reliability, the interviews were conducted only with selected individuals who had experience and knowledge in project, program and portfolio management fields in AB Organization, which was essential to assure that the information they provide is reliable. The selected respondents satisfied the defined criteria adopted by the researcher from PMI which are similar to the criteria of eligibility to apply for PMP certification that are pointed out in Chapter 4, Section 4.3.1.3 Candidate Cases Selection (Sample Selection).

4.4.2 Validity

According to Saunders, Lewis and Thornhill (2007), validity is concerned with verification if whether the findings trends address research questions and if findings are trusted to influence conclusions. Extensive literature review in the field of study was conducted and testing was done on the selected sample of the empirical research carried out in the AB Organization through semi-structured interviews to test and validate the collected data and to build a theory based on consideration of reality. This is supported by Grindsted (2005) in which it is indicated that conducting several interviews expands the interactivity between the interviewee and the interviewer, which in return enables more symmetrical format of data collection and the generation of valid response that maximizes information validity.

Considering the input of Yin (2003), construct validity was maintained in the research by following case study approach using semi-structured interviews tool as the main source of data collection. Interviews were conducted with selected respondents as part of the research sample that involved individuals from different business units in AB organization and from different fields such as IT, construction, strategy and others, which supported in addressing evidences related to the same topic from different sources. Moreover, internal validity was maintained by following a technique that aimed at identifying similarities and discrepancies of data gathered from interviewees and data derived from literature.

There may have been threat to validity caused by drop in the number of interviewees that were part of the selected case samples. This was overcome through modifying the original plan from only interviewing 7 candidates to include more than 7 candidates, who were from different business areas of the organization that had experience in managing projects. Adding to this, there might have been threat to validity caused by the eligibility of interviewees who participated in the research and the maturity of interviewees in the field of project management playing the role as project manager, program manager or portfolio manager. This was overcome through defining specific criteria to select candidates that were based on selection criteria adopted from a known project management standard which is defined by PMI. The criteria were to have a four year bachelor's or global equivalent degree and at least three years of project management experience.

4.5 The Path to Chapter 5

Chapter 5 provides extensive details of analysis, findings and results as per input received from the selected sample cases from AB Organization during the conducted semi-structured interviews. Moreover, individual cases are presented and then cross case analysis is performed. Chapter 5 sheds a focused light on the analysis of the cases, interesting findings, results and major research outcomes that supports research objectives.

Chapter 5 – Analysis, Findings and Results

5.1 Introduction

Chapter 5 presents the detailed discussion and analysis of findings based on the semi-structured interviews that were conducted with the selected cases from AB organization. First each individual case is presented and analyzed. This is followed by cross case analysis that compares the findings between the cases focusing on major and significant findings. Moreover, the similarities and differences of the analysis findings in comparison to the literature review are demonstrated with consideration of the documents taken from AB organization, such as the project manager career path, respective job descriptions and competency framework. At the end the final results are reported.

5.2 Individual Cases Analysis

This section presents findings from each of the cases that include the selected sample of the research. It is based on the data collected from the conducted semi-structured interviews.

5.2.1 Case 1

The study on Case 1 included an interview that was conducted with ST, who is a male holding Canadian nationality. He is PMP certified since 2004 and a holder of Master degree with project management experience for more than 10 years in the fields of information systems and telecommunications. He managed more than 10 complex projects ranged from medium to enterprise level. He used to manage individual projects and simultaneous projects that serve similar objectives, accordingly his input was related to both project and program managers' roles. He was in the age group of 36 to 46 years and his designation in AB organization was Head of Software Quality and IT Governance. He used to manage projects in 5 different countries in different regions. He had been working in AB since July 2008.

ST stated that his journey in the field of project management was not based on the acquirement of project related professional certification, but the job he was holding in an organization in

which the core business was applications development, operating systems management and technology platforms support, when he first joined the workforce encouraged him to enter the field of project management. He started his project management journey by managing complex projects directly and not simple ones, as he was working with multi functional teams and dealing with such teams enforced complexity, uncertainty and dealing with variety of resources. He found the job interesting and decided to extend his knowledge in the field of project management, so he joined a training program related to advanced project management and later decided to acquire PMP certification that supported and enhanced the understanding of global standards and terminologies related to the field of project management specially as PMI is providing framework and tools that aid the management of any project or program.

When ST was asked about the relationship between the three roles (project, program and portfolio managers) in regards to career path progression he answered “It does not happen automatically in all organizations”. He elaborated that it depends on the organization, as in most organizations especially in Middle East companies do not have defined career path for program and portfolio management fields. However, he explained that being a project manager emphasizes little interaction with higher management in oppose to being program manager in which you will need to deal with advanced level of complexity and to clearly communicate with different stakeholders including business users, senior management, vendors and team members. In general he described that the boundaries in which the program manager works is much bigger than the boundaries of the project manager. This sheds a light on the interviewee’s point of view which was a result of his practical experience in the field of project management that there are lots of similar activities between project and program managers, but the level of required efforts changes, as more efforts and experience are demanded while managing programs.

Based on the experience of ST in different countries across various regions, it is interesting to know that portfolio is not commonly found in organizations specially government sector organizations, but most if not all financial and private sector organizations will have a defined portfolio as those organizations are based on profitability and portfolio monitors the organizational investment. He added that government sector focus is not on cost benefit analysis, but more towards services providing to customers in oppose to private sector corporations.

It is highly stressed by the interviewee that the selection of the project or program manager is to be done with high caution, the reason was explained as the biggest risk in a project or program is assigning incapable project or program manager which in return will drive the project towards failure as quality and customer satisfaction can be affected, inability to respond to risks and issues may exist, delays may be caused in the project due to scope change (scope creep), leading to delay in execution and causing cost overruns.

ST confidently disclosed most critical competencies a project or a program manager is to have, which are effective communication and management of people. This is because the project or program manager will mainly deal with people being stakeholders, team members, vendors and others and being able to understand stakeholders' requirements, interpret their needs and requirements can lead to stakeholders' satisfaction and recognition of value that is added, which in return would result into getting people's support and understanding to overcome risks, scope constraints, time constraints, cost constraints and quality constraints. Similarly to the literature findings, the interviewee reported that communication competency includes different aspects being verbal communication, cultural understanding, sensibility and empathy.

When the interviewee was asked about the conceptual framework that indicates the relationship between project and program manager roles in regards to required competencies. He agree with the demonstrated conceptual framework that in reality program manager needs to have project manager competencies in addition to program manager competencies in order to effectively perform his/her role. Furthermore, he noted that even if the individual is not playing the role of program manager, he/she still needs the set of competencies to be able to manage complex projects. The interviewee agreed with the conceptual framework that the career path progression towards portfolio management role following project management career advancement increases the success of the portfolio versus a person who did not undergo similar career progression trend.

It is strongly highlighted by ST that experience is the key that supports advancement in competencies, he stated that "The more experience you have in the field of project management, the more competent you will become", this is because the individual will acquire advanced skills due to the higher level of exposure while progressing in the career path. For example, leadership and communication skills demanded in managing a program and complex projects are of higher level than individual simple projects.

From the literature it is noted that the more you progress in your career from project to program to portfolio management roles, the more human and conceptual skills are required and the lower technical skills are demanded, the interviewee agreed and reported that being in program and portfolio management roles emphasize holistic view on the components of each in oppose to project manager role, in which the understanding of project details and its activities is highly demanded.

It is described by the interviewee that the project manager needs to be a subject matter expert in the field of the project and he elaborated that otherwise, the project manager can engage subject matter experts to learn from them and at the same time take the appropriate decisions based on their knowledge and experience in the field, which will support the project manager to overcome the lack of technical competency. The interview shared the benefits of having technical competency in the area of the managed project, which supports in proper time and cost estimations, that can result into being over or under budget, not delivering the project on time affecting customer satisfaction and as a result non realization of achieved benefits.

In terms of the main role of project, program and portfolio managers illustrated in the conceptual framework, ST indicated that in project scope management, scope creep is the nightmare of all project managers, which can be overcome by having extensive sessions of requirements gathering that involves all respective stakeholders of the project. He also stressed on the need to obtain sign off on the agreed scope of work to avoid scope creep. He elaborated that in reality the project manager cannot say “I cannot add to the scope or change it”, but the change needs to be studied with impact analysis on cost, schedule and quality. Furthermore, he noted that accepting a change in the early stages of the project is better than ignoring it and then it appears before Go-Live preventing the whole project from closure. Then he moved to program scope management, in which he indicated that the program manager looks at the scope of the overall program, and the project managers of each project that is part of the program need to do the detailed scope definition that would support the achievement of the program scope. Moving to project time management, he clearly stated the importance of this responsibility, which is one of the project constraints that has an impact on project cost, scope implementation and can result into project success or failure, while program time management responsibility can result into program success or failure. The interesting finding from this interview was that management of time

differs between sectors, depending on who is requesting the change. In the Middle East region the individual need to be more open to changes over time in oppose to European region as hierarchical power of authority can impose a change. The conceptual framework defines quality management as one of the main responsibilities of project managers, whereas the interviewee highly emphasized on the need to add it to the program manager role. He explained that this is because quality exists in different aspects of projects, such as quality of people being project team members or stakeholders who are providing the project requirements and quality of the end service or product delivered. Whereas the program manager focus will be on the quality of the resources across projects, but the project manager focuses on the capabilities of the resources on project level such as the ability to accomplish assigned tasks and the quality of produced documentations. When the discussion was about integration management responsibility, the interviewee agreed with the researcher and added that this responsibility is a highly demanded from program managers. The management of program scope, quality, cost and schedule all are part of the integration management as the program manager need to manage integration of all projects' scope, cost, schedule and quality to assure achieving program's overall scope, quality, cost and schedule. He added that at the program level the communication is wider to the level of senior management and various stakeholders even outside the boundaries of the program manager's organization, leading to consider political behavior and cultural differences. He concluded that to be able to cope with the high responsibilities and demand of program manager role, the person needs to have enough experience to be able to cope with complexity. The interesting part was his input that a person, who worked in senior position, can play the role of program manager which matches the literature finding that compared the progression in project management field and the normal management career. The interviewee extensively stressed on the need of project or program manager to conduct post implementation review in order to evaluation actual project success post project closure when it moves to operations, he stated "This is very very important practice". He expressed that through this practice the organization will recognize if the value and benefits are delivered. In many cases return on investment is not justified in AB organization as project closes successfully, but business benefits are not delivered or customers are not utilizing the system to deliver the expected pay-backs.

The findings were shared with the interviewee that all job descriptions received from HR Department included a constraint to project manager decision making responsibility as it stated

that the project manager is to be closely overseen by his/her supervisor, the researcher proposed to rephrase the sentence to be moderately overseen by his/her supervisor as the project manager role requires the ability to take decisions to certain limits. The interviewee agreed with the researcher, but indicated that AB organization structure being government and non project based organization emphasizes this layout of job description as in AB the project manager is not expected to only manage projects, but also to perform other assigned tasks by the supervisor. The significant finding is that the interviewee indicated that there is no defined career path for project manager yet in AB organization in the field of project management, but in normal management progression career.

5.2.2 Case 2

Case 2 presents a case of MS, who is a Saudi male holding the position of PMO manager in AB organization and had the experience in both project and program management that ranges between 7 to 10 years before joining AB organization. He is a holder of Master degree, Prince 2 and PMP project management related certifications. He managed a mixture of simple and complex projects simultaneously in the field of information systems. The existing role of the interviewee was related to defining overall IT Department's strategies and managing the PMO in the IT Department and ensuring IT applications governance. He was in the age group of 25 to 35 years and he had been working in AB since May 2011. The interviewee reported that the definition of program is not clearly implemented in AB organization and the existing portfolio does not perform the full defined role of portfolio including resource allocation and utilization.

When MS was asked about the reliable person to hold the position of project manager, he stated that any person who has the basic skills and knowledge to manage a project can start searching for an opportunity to enter the project management field and then develop the skills further. The interesting statement was that he believes life is a project that has a start and end and every person is living following certain style and so are projects when managed by different personnel each with his/her own style.

The interviewee stressed that the most critical competencies a project manager is to have are transparency in communicating respective information to the right stakeholders in the

appropriate time and the management of people that includes delegation, task assignment and managing their expectations which can be achieved through effective communication.

Furthermore, he highly emphasized that the ability to organize is a crucial competency of a project manager and successful project managers are those who are able to organize their work supporting his answer by the fact that organizing will assure proper tracking and monitoring of the project and its activities that leaves a window to look into finding opportunities, overcoming challenges and anticipating risks.

When MS was asked as a manager about the availability of defined list of competencies in the selection process of project or program managers, he noted that there is no defined list that he utilizes during the selection process except the 5 to 6 competencies defined in the job description. He indicated that he always uses his own ways based on experience to test further capabilities of the candidates and does not depend only on the list in the job description. Also, he added that he did not come across any job description related to program manager, but he tests such capabilities in the project managers.

It is pointed out by the interviewee that what makes the difference between project managers and program managers is always the combination of experience, skills and knowledge depending on the organization and project type, which matches literature finding that the selection process of the project manager differs according to the project demand. He provided an example, if the project is new in nature to AB organization, then he as manager would look for a candidate who has experience to deal with this type of projects and who is able to interact smoothly with new stakeholders.

Moving to verification of the conceptual framework describing the career path progression across the three roles, it was agreed by MS that it is a natural flow to move from project, to program to portfolio management role, but it is not necessarily always the case. Also, he noted that the competencies are mostly the same across project and program management roles, but it evolves and advances.

He commented on the impact of assigning project managers who are inexperienced and lack basic project management skills, which can lead to project failure. He elaborated that this person will try to do things his/her way despite best practices and tested solutions that can be

implemented if the person is certified or experienced. Also, if the person is a time driven person then he will focus on accomplishing the project according to the defined time, but may not maintain a balance in project scope, cost and quality leading to project failure. Based on his own experience he admitted that acquiring the certification opened his eyes on certain techniques and actions as it introduces “what if...?” questions and scenarios.

One of the interesting topics that were raised during the interview was the performance measurement of normal employees and project managers. As a manager the interviewee indicated that the evaluation of normal employees holding non project related positions differs from project managers, he explained that the project manager is evaluated according to the achieved objectives of the project only without any subjectivity as there is no gray area is it done or not done.

Critical input was taken from the interviewee during the verification process of main responsibilities under each of the three roles that is part of the defined conceptual framework. It is elaborated that managing project cost exists in all the three roles, but the focus of project manager is on managing procurement, while the focus of program manager is on managing and relocating budget across projects and the focus of portfolio manager is on managing overall organizational investment through the management. According to his knowledge, he added that the funding of portfolio is taken from the balance sheet or from specific revenue generating arm. For example if program X is generating revenue on which portfolio can depend on, then the portfolio focus is on this program and assuring that it is running as planned. Furthermore, the interviewee agreed with the literature that the responsibility of project manager is to manage stage gate requirements and decisions such as managing project closure reviews and project deliverables and the stage gate represents milestones. While for the program manager the stage gate represents each project delivery as milestones. While portfolio manager responsibility focuses on each of its elements delivery being sub portfolio, program or project.

According to MS, the nature of AB organization emphasizes the content of the existing job descriptions, he agreed with the researcher that existing project managers’ job descriptions need to be revisited specially as in normal scenarios the project manager needs to be self independent and should not be closely overseen by the supervisor, however if obstacles occur he/she can approach the supervisor. Then he showed a clear understanding of the AB organization climate

in which lack of resources and the need to enhance individuals' capabilities in various areas through assigning additional responsibilities to their main responsibilities led to having non project related responsibilities as part of the job description of project managers. As a manager he indicated that at the end of the day the supervisor who is the manager in AB will be accountable for any failure of projects and to prevent the failure, HR added the clause "project manager is to be closely overseen by the supervisor", which can be rephrased as to be moderately overseen by the supervisor.

Being PMO manager, the interviewee was asked to validating the level of awareness of existing project managers in IT department about the relationship between projects, programs and portfolio, he responded that the pleasant fact is that existing project managers understand the direct alignment of their project to organization's strategic objectives. However, the missing element is the actual definition of program and the benefit of running projects under a single program from resource alignments and benefits achievements perspectives. He elaborated that the sad facts is that there is no realization of program management benefits between project managers. Furthermore, he indicated that the PMO in AB represents project management office and not program management office. Before concluding the interview, the interviewee suggested to have a software that manages projects, programs and feed into portfolio within the whole AB organization, which can support the governance of projects and can reflect the up to date status of projects, programs and portfolio at any period of time and on the spot whenever requested.

5.2.3 Case 3

Case 3 is related to AM, who was a chief internal auditor involved in governance processes and policies setup projects within AB Organization. He is a male from Kenya who was in the age group of 25 to 35 years. He was a holder of Master degree and had 7 to 10 years experience in project management field of information systems projects. He acquired PMP certification in 2010 and Prince 2 in 2007, which are project management related professional certifications. He had experience in managing complex individual and simultaneous projects as well as programs. He had been working in AB since Feb 2008.

It is pointed out by AM that he started his journey in project management field through practical experience and not based on academic or professional certifications. He used to work in an organization in which he was assigned a project to setup the information systems infrastructure after observing his technical capabilities in the field while working in the organization. The nature of this organization was similar to AB in which most of the projects were outsourced leading to creating program management setup to manage different vendors of individual projects that serve similar objective which is building the organization's infrastructure. However, in AB the term program management is not defined and not clearly understood by project managers and higher management. It is pointed out by the interviewee as he worked in various organizations during his career that portfolio, program and projects are not yet mature in this region.

When the interviewee was asked about his input in regards to the conceptual framework that indicates the advancement in the career path from being project manager, to program manager to portfolio manager, he argued that it is not a stepping stone that the portfolio manager needs to be in project manager or program manager roles before becoming a portfolio manager. However, the progression in project management role over time supports the individual to become program or portfolio manager. The interesting point of view as per his experience that it is not necessarily that competency of program and portfolio managers are higher than project manager, he justified that it all depends on the organization and the project type and size. For example a person in a huge organization may manage a single strategic project and require to demonstrate higher competencies than a person in another startup organization holding the role of portfolio. Using his knowledge in portfolio management field, the interviewee touched on the portfolio manager role as it is a snapshot of all elements being projects, programs or sub portfolios. However according to the level of authority within an organization the portfolio manager may not have the luxury to own the decision making process it may be done by higher management or by project managers and program managers who know the full details of their projects and programs that makes them indirectly influencing and controlling the decision making on which portfolio depends.

Moving to the career path plan in AB organization, AM stated that the progression in the career path within the project management field is not fully defined from project manager role onwards,

as what is next after project manager role is it program, portfolio or other project related roles, this is not yet defined. Moreover, it was agreed by the interviewee that there are no defined list other than HR Department competencies that are used during the selection process of project managers, which are not enough to evaluate the candidates and have the go and no go decisions if whether to accept or reject a candidate.

5.2.4 Case 4

Case 4 presents a case of MT, who was a chief specialist. He is an Egyptian male with more than 10 years experience in construction project management field and a holder of Master degree and PMP certification. Moreover, He was a PMP course instructor in AB organization and a member of PMI Arabian Gulf Chapter. Furthermore, he was a speaker in more than 4 conferences related to project management. He was in the age group of 36 to 46 years. In AB he was a member of the EPMO that monitors the overall performance of projects within the organization and he had been assigned certain enterprise projects such as applications governance project that aims at defining governance model for operational and financial systems within the organization. Also, he was responsible for updating and creating project management policies within the organization. He worked in project management field in Egypt, Qatar and UAE. He managed complex individual and simultaneous projects that serves similar and different objectives and had been working in AB since June 2006.

When MT was asked about his entry point to the world of project management, he reported that he joined project management when he started his career after graduating from the university in Egypt. This is because he worked in project controls department. He elaborated that his Master certification was not the reason behind selecting him to manage governance project in AB organization, although his main role was not to manage projects or programs, but due to the professional project management certification he acquired and experience he had in the field and based on his demonstrated ability to deliver assigned projects successfully.

The interviewee indicated that the role of EPMO is supposed to be similar to program management office, but its current role is limited to monitoring projects' performance through reporting that is done on monthly basis by projects coordinators within the different business

units of AB organization. He indicated that the realization of program management has just been initiated and its implementation will not be identical to the program management implementation in private sector or project based organizations as the government climate influences certain differences and AB is based on outsourcing that leads to having project managers and team from vendor to manage projects in addition to project managers from AB and introducing a new role with certain authority requires gradual introduction to avoid any resistance. The interviewee shared that recently AB initiated a job description related to program management field that was shared with HR Department for approval, but the designation was not program manager designation.

When MT was asked about his perspective of the conceptual framework which illustrates that project manager role supports career progression into program and portfolio managers roles, he indicated that yes this true, but is not a must have career progression as there are people he met in the market that are managing portfolio and never managed projects or programs. Moreover, he elaborated that yes the natural evolvement is from project to program manager roles as the individual advances in project management field. He confidently clarified that the holder of portfolio manager role can be a person who is in a senior line management position similarly to the finding of the literature.

He agreed with the literature that the more individuals progress in their career from project to program to portfolio management roles the more human skills are required. Also he stressed that the role of project manager is not to demonstrate technical competencies, but to manage the project. He added having a project manager with technical competencies is a value added, but not a demand as the project manager can use subject matter experts who have technical background to execute the project successfully. He shared a real life example that during his life he was not convinced with the idea of most researchers and practitioners that having technical skills is not a required competency for a project manager, but after acquiring the PMP certification, he was assigned a project in AB to create a model of information systems governance although he is a person from construction field and not information systems, but he managed the project successfully on time and according to the allocated budget. He managed to achieve that by making use of subject matter experts in information systems and quality and

involve them as team members to support in decision making related to these aspects of the project.

MT indicated that the competencies required for project or program managers depend on the demand. For example for simple projects a just started project manager who is lacking experience can be assigned, but he would act as coordinator and will be able to manage functional projects such as projects in his business functional area. On the other hand, if the organization is having an enterprise strategic project, it would demand an experienced project manager to run the project and overcome challenges faster as he has the knowhow and would have faced it within his project management experience. Additionally, he indicated that project management professional certification is an added value and shows that the individual has the knowledge and knows the techniques to be applied and can take decisions in various scenarios especially as the test to acquire the certification is based on real life scenarios. The interesting finding that was shared by the interviewee pointing to a survey conducted by PMI (2011) that reported that high performing organizations are the ones that support PMP acquirement and has the higher number of certified employees in the field of project management.

The observation related to existing project managers' job descriptions taken from HR Department was shared, which sheds a light on the finding that the job description sets boundaries for the project manager in regards to decision making as it indicates that the project manager is to be closely overseen by his/her manager which contradict with all the visited literature that project manager role is to have certain authority to take decisions. MT agreed on the same, but explained that this is due to the nature of AB organization especially as it is not project based organization, if any issue occurred the higher management of the organization would hold the supervisor accountable as he is managing the section in which the project manager is part of.

5.2.5 Case 5

Case 5 presents a case of MH, who is a Lebanese male holding the role of project manager in AB organization. He was in the age group of 25 to 35 years with 3 to 6 years experience in the field of Information Systems project management in which he managed complex projects individually and simultaneously, but he did not manage programs according to the program definition used by

the researcher in this research study. He was a holder of Master degree and acquired PMP certification in May 2011. He indicated that he managed minimum of 4 enterprise projects that took the duration of around 8 to 12 months within AB organization. He had been working in AB since June 2006.

It is noted by MH that he entered the field of project management within AB organization based on management selection as they noticed the capabilities he has in managing enterprise complex projects within the organization. He stressed that the more he got involved in managing complex projects, the more mature he became in project management and the better decision maker he became when it comes to overcoming challenges faced. Furthermore, after practical experience in the field, he decided to acquire PMP certification to effectively execute projects especially as the certification acquirement process includes practical scenarios based examination.

When the interviewee was asked to verify the conceptual framework which illustrates career path progression from project, to program to portfolio managers roles, he expressed his full agreement with the conceptual framework and indicated that he met people during his work experience that went through similar project management career path progression. Furthermore, he pointed out that this is not necessarily the case for any person playing project or program manager role as there are individuals who shift to different career path that is not related to project management in certain stage of their work experience. The interviewee noted that he is aware of the project management career path in AB organization in regards to the management progression, but the progression in the career path in the chain of project management such as moving to program and portfolio management is not yet injected in AB. He indicated that AB setup emphasizes the involvement of individuals in various roles in addition to their main role, which is part of the position they are holding such as holding the designation of project manager and being a committee coordinator and a team member at the same time.

Should a project manager have technical competency to be able to hold the role of project manager, this question was raised and the interviewee highlighted that the role of project manager is mainly to manage the project and should not get involved in technicalities unless if issues occurred that demanded technical intervention, this is because the main role of the project manager is to manage risks, issues, overall project objectives that are achieved by managing project scope, time, cost and quality and leave the execution for the team members. He stressed

that this is also applicable to information systems projects because if the project manager got involved in technicalities, he may be dragged from the actual role of project management and will wear the hat of technical person or consultant. Similarly to other interviewees, the interviewee reported that having technical competency is a value added to the project manager as he can utilize the team of subject matter experts in certain field.

In terms of the main responsibilities a project manager is to perform, MH strongly mentioned the project manager is to be an integrator between team members, stakeholders and vendors and communicator. Following this a question related to verifying the conceptual framework of the main responsibilities of each of the three roles was asked, the interviewee commented that time management is a demand for any employee in any role and not only limited to project managers, the difference is that the project manager in most cases will not be directly responsible for creating the scheduling and planning, but will be accountable to deliver such artifacts that are created by subject matter experts in the field of planning such as the scheduling manager. Moreover, he agreed with the defined responsibility that project manager needs to manage cost, while program manager has a wider scope which is to manage financials that is mainly about assuring the financing is available for all projects within the program. It is pointed out by the interviewee that the reason of not having the quality as part of program manager role is that it is indirectly managed by the project managers of each individual project. Also, he argued that stakeholder management is not limited to program manager role, but is to be part of project manager role. Moreover, he clarified that managing scope, cost, time and quality is part of program manager role, but it is not stated by the literature as main responsibility of program manager because it is mainly the focus of project managers within the program, that is why the focus of program manager role goes towards people, politics, cultural change and strategic change management. The interviewee highly agreed with the need of the project manager to conduct post implementation review and indicated that it must be done before project closure in which the project is kept until monitoring to assure the expected benefits and values are delivered.

It is recognized by the researcher that the existing project managers job descriptions include a decision making boundary that limits the decision making authority of the project manager and the researcher suggested to rephrase the text from closely overseen by the supervisor to

moderately overseen by the supervisor. This was strongly agreed by the interviewee and he justified the reason of having this boundary in the job description is due to the matrix organization that is based on hierarchical power of authority in which the supervisor or higher manager is accountable for any of its business units' success or failure as the project managers will continue reporting to the supervisor. Being a project manager he stressed that project manager needs to have certain level of authority especially if there is no financial impact. Furthermore, he indicated the reason of having non project related responsibilities as part of the existing project managers' job descriptions, which is due to the nature of the organization and the aim to enhance individuals' capabilities by getting involved in different activities rather than getting used to certain similar activities.

5.2.6 Case 7

Case 7 is related to AQ, who is an Emirati male. He was in the age group of 36 to 46 years. He was a holder of Bachelor degree and he did not acquire project management certification, but had 7 to 10 years experience in project management, as he managed simple and complex projects in the field of information systems and telecommunications. In AB organization he was the Geographic Information Systems (GIS) Section Manager which was the responsible section for GIS related projects following the project lifecycle being initiation, planning, monitoring and controlling and closure and then handing the project to operations. In addition to his role as a manager, he has been assigned enterprise projects due to lack of resources within the IT Department. He indicated that he used to manage projects individually and simultaneously as well as programs during his work experience in project management field before joining AB organization, accordingly he stressed that it is not recommended to have a project manager who is assigned more than 1 enterprise project at the same time, this is because it will include huge level of complexity and dependencies that require high attention from the project manager, which will be difficult to achieve if he/she is managing more than 1 enterprise project. He had been working in AB since Sep 2006 and when he joined he was holding the designation of Solutions Implementation Section Manager of a section that was mainly responsible for managing information systems related projects within the IT Department.

It is reported by AQ that he entered the field of project management as per the planned career path within the organization he used to work for. He started as a developer, who was responsible for the detailed technical tasks, then he moved to a senior position which was system administrator and later started to be assigned individual projects and once he proved his capability to manage the assigned projects successfully, he was assigned more and more complex and enterprise projects.

When the conceptual framework of the career path progression between the three roles was shared with the interviewee, he indicated that he strongly agrees with the illustration of the researcher especially as it applies to his case, this is because when he joined project management field, he found himself gradually joining the program management field as he was advancing in managing projects. Furthermore, he added that based on real life examples met the career progression is a natural advancement from project manager role to program manager role, but it is not always leading to portfolio manager role. Additionally, he explained that being from project management background will support the role of portfolio manager to have better understanding of the reports and data received from projects and programs, resulting into taking effective and efficient decisions on the portfolio level. Similarly to other interviewees, it is shared by the interviewee that the terms portfolio and program do not exist as a function in AB organization. While the project and its related policies and processes exist in AB and is solid in the IT Department specifically, which is a recognized observation overall AB organization.

According to the literature, the project manager needs to have detailed view of the project. However, the interviewee pointed an opposite perspective based on his experience in the field that the actual role of the project manager is to manage and not to go into depth of details, but should be aware of what is going on and clarified that the project manager is required to understand the details when slippages occur in any of the project phases, to overcome the faced challenge. He noted that having technical knowledge in the field is a requirement and a must, to support his argument he shared an example that if a project manager from information systems field was assigned a project to build parking slots, he/she would not know how to start and would not do proper scoping, scheduling leading to cost overruns and lack of quality that matches customers' expectations. The interesting point raised by the interviewee was that the smaller the project, the less involvement is required from the project manager. However, the more complex

the project, the more involvement the project manager need to demonstrate in order to effectively control the project and assure that all check points are delivered along with dependencies if any.

When AQ was asked as a manager if there are existing competencies list used in the selection process of project managers apply for a position in his section in AB, he indicated that there is basic list defined by HR Department as part of the job description, which he uses during the selection process of candidates in addition to asking questions related to real scenarios as per his experience in project and program management fields specially as validating the existence of the 5 to 6 competencies defined by HR is not sufficient to base the selection on as further competency testing needs to be done to explore the capabilities of candidates. An interesting evaluation criteria used by the interviewee is the ability of the candidate to live within AB organization and culture. For example in AB a person with high technical skills and knowledge may not complete the project effectively as people management is a high demand within the organization due to its culture and negotiation is a must to overcome challenges faced. As a section manger the interviewee faced similar scenario with one of the project managers in his section, to overcome the lack of people management competency the manager shadowed the project manager in certain cases that require interaction with stakeholders.

In regards to the question related to the job boundaries of the existing project managers' job descriptions, he agreed with the researcher that the project manager needs to have certain level of decision making authority and to be moderately overseen by his/her supervisor and not closely as it is stated in the job descriptions. However, looking from management point of view, he indicated that the nature of AB organization emphasizes the culture that at the end the supervisor or the manager is the accountable person and the restriction is a way to assure that the supervisor monitors the employees. He clarified that as a manager he will closely monitor and supervise project managers who lack experience in oppose to experienced project managers in which supervisor get involved if there are hiccups mostly. Furthermore, the interviewee elaborated that there are responsibilities assigned to the project manager which are not related to project management as part of the job description, but this is really beneficial to expose the project manager to other areas than project management so that he/she expands the knowledge and capabilities that leads to career progression in project management field or other.

It is strongly emphasized by the interviewee that it would be great to have post implementation review as part of project manager responsibility after project closure although existing literature in project management indicate that the work of project manager ends in the project closure stage. He added that this review is critical so that cost benefit analysis is performed and business benefits are realized. Also, he suggested that AB is to have the business analyst leading the review process and assuring the engagement of the respective project manager, especially as the analyst managed the initial business case and requirements identification.

AQ provided his input in regards to the conceptual framework of the main role and responsibilities of project, program and portfolio managers. He noted that dependency management is part of the responsibilities of program and portfolio managers and not only program manager. This is because the program manager manages dependencies and interfaces between the individual projects that are part of the program, while the portfolio manager manages dependencies and relations between projects in order to prioritize projects and decide which projects are to be managed individually, and which ones are to be grouped under a program as they are serving similar objectives. Moreover, quality is to be part of program manager role as well and not only project manager role. When the discussion moved to resource management, he clarified that program differs from project in that in the program the program manager looks over shared resources across projects and not focused on each individual project separately which is part of the project manager role. It is emphasized that stakeholder management is a main responsibility of all the three roles and not limited to program and portfolio managers. He moved to procurement management and noted that there are cases in which the program manager manages the procurement of the program, and in another cases it is part of the responsibility of each individual project manager especially if the procurement requirements is project specific. It is argued that in oppose to the literature, time, cost, scope and quality are to be clearly stated under the program manager role, he clarified that the program manager is t focus on the touch points between projects and monitor the cost, time and scope of each project as a whole as well as the quality. He requested to add more specific description on the stage gate delivery being activities on project level, each project as a deliverable on program level and each project, program and sub portfolio on the level of portfolio.

5.2.7 Case 8

Case 8 presents a case of MS, who was the only person in AB organization holding a role related to portfolio management since Sep 2008. He was from India and in the age group of 25 to 35 years, who acquired a Master degree and did not acquire any project management related certification. His designation was Senior Portfolio Specialist and he indicated that the designation of portfolio manager does not exist in AB Organization. Before joining AB and during his work experience he was holding different roles related to project management filed. He reported that he has more than 10 years experience in project management and 7 years in portfolio management in information systems and transportation fields in which he used to manage more than 15 simple and complex projects as well as programs with a duration ranged from 2 months to 2 years. He indicated that during his career he managed projects and programs, but his designation was not program manager similarly to the situation in AB organization as confirmed by all other interviewees that even if the project manager was assigned programs, he/she will not hold the designation of program manager as the role is not yet defined in AB.

According to the interviewee describing the situation in AB organization, he indicated that in the hierarchy of projects the upper most element of the pyramid includes strategic goals of AB from which comes the portfolio from which come programs and projects. Within the portfolio the focus is on high level strategic goals that are shared with different business units within AB and then each business unit comes with list of projects that are shared with the portfolio team in the Strategy Department. After that the portfolio team evaluates each project and defines the rating in regards to different strategic goals such as strategic fit, financial fit, economic fit, social fit (community related), project risks and project constraints. Then prioritization is done and projects that support similar objectives are grouped under a program and final list of projects and programs are delivered as part of the portfolio team responsibilities. Then the list is shared with the board of higher management including the Chairman, respective CEOs, subject matter experts in the field of project, program and portfolio management and EPMO (Enterprise Project Management Office) team whose main responsibility is to govern the overall PMOs exist across some of the business units within AB. The board is the authorized entity in AB that manages the portfolio related final decisions and approve the list of projects/programs to be executed based on the report received from portfolio team. The overall portfolio decisions are made by the

committee that includes the board of higher management, which is dependent on input received from its sub committees, which are described above as portfolio team, that are managed by the interviewee being projects, operational, capital and revenue sub committees. The sub committees raise reports considering projects and programs evaluation and prioritization in regards to organizational goals, operational expenditure, capital expenditure and revenue generation which are then entered into the portfolio existing tool that does the calculation as per the prioritization and budget availability and provides final results to the board of higher management for final decision making.

Adding to the above, it is stated by MS that the portfolio's main responsibility is to aid the organization to forecast its investment through preparing and reviewing an enterprise landscape of projects and programs that are to be undertaken on yearly basis. Also the portfolio aims at optimization to get maximum return on investment (ROI) for the organization. For example in 2011 the review activity in AB was done for the year 2012 about which projects and programs to be executed in the year 2012 as per the approved final budget received from the financial controller in Dubai Government. It is noted by the interviewee that the portfolio governs programs and projects that are part of it and each program governs the projects that are part of it through setting the alignment between the portfolio and organizational strategy and between the projects and the relevant programs.

In oppose to the literature finding that the portfolio also manages organization's operations, MS reported that portfolio does not manage the operation, this is because operations come after project or program ends and portfolio is based on forecasting based on consideration of the as is situation, external and internal factors and organizational strategy. This was followed by an extensive explanation of the overall structure within AB that is related to project management field that touches on projects, programs and portfolio. He reported that EPMO is building its policies and processes to govern PMOs across business units in AB as currently it is only managing the reporting of projects and programs. Furthermore, the portfolio planned structure in AB is as follows and the only existing role of the below is portfolio specialist that is hold by the interviewee:

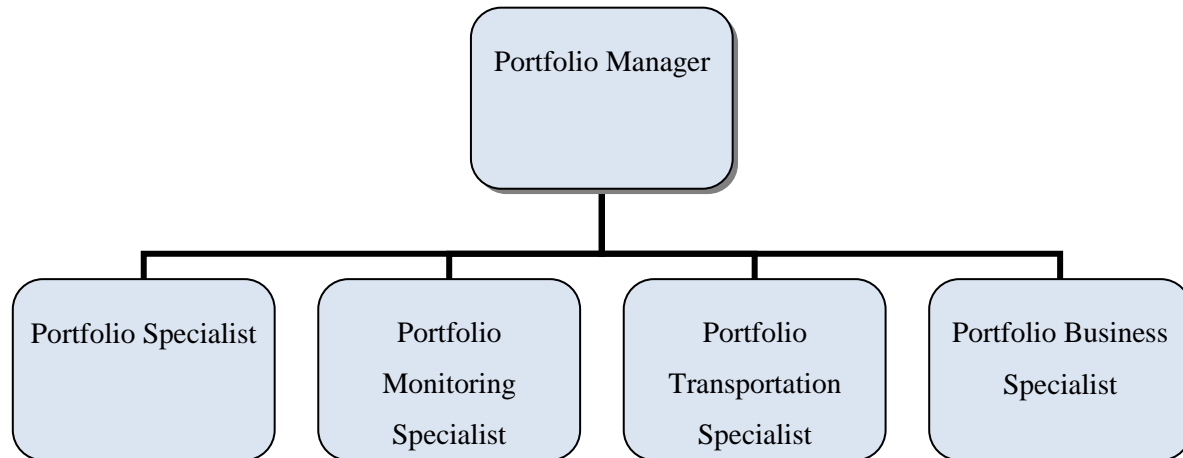


Figure 5- 1: Portfolio Planned Structure in AB Organization

The original portfolio planned structure within AB organization as per the above Figure 5-1 was to have the portfolio manager who manages a team of portfolio specialist, portfolio monitoring specialist, portfolio transportation specialist and portfolio business specialist. The portfolio specialist provides input regarding projects and programs management processes and portfolio role. Portfolio monitoring specialist is responsible for monitoring portfolio related activities, the demand of portfolio transportation specialist emerged as AB's main business area is related to transportation solutions and finally business specialist that takes care of elements related to business concerns.

MS shared that his journey started by being systems development which demands extensive technical knowledge, then he moved to information systems consultancy, followed by project and program management related roles and ended by portfolio management related role. He used to work in Australia in project, program and portfolio management roles and then moved to work in portfolio management role in the United Arab Emirates. He stressed that his career path progression from project, to program, to portfolio fields matches the conceptual framework defined by the researcher as per the visited literature reviews. Also, he emphasized that being from project management background supports better understanding of portfolio components, which are projects and programs as it is the case of AB organization and also supports the effective decision making when it comes to go-no-go decisions and prioritization process within the portfolio activities. Furthermore being in program manager role supports the ability of the portfolio manager to prioritize and interrelate projects and programs especially as the focus of

program manager is to manage interfaces between projects. On the other hand he indicated that in reality he met portfolio managers that form exceptional cases as they did not have project management related background. However, he stated that they faced difficulties to survive and to effectively lead the portfolio. It was explained by the interviewee that in projects the project manager has micro view on the projects' activities, while in programs the program manager has macro view of the related projects and the impact of each project on the other.

As part of defined responsibilities per three roles project, program and portfolio managers within the illustrated conceptual framework, the interviewee extensively agreed with the defined responsibilities and commented mainly on portfolio manager role and indicated that in AB they are doing portfolio structuring including portfolio planning, projects evaluation and selection, but resource management is not being performed, as it is not under the authority of the portfolio team, but it is under the authority of each business unit and HR Department. The budget allocation and financial decisions are mainly controlled by Finance Department as relevant employees are members of the portfolio sub committees explained above. Moreover, he explained that portfolio steering and organization learning and portfolio exploitation are planned to be done by the portfolio team and not yet implemented. AB is working on acquiring a full-fledged system that manages portfolio governance processes from portfolio structuring to organizational learning. Moving to risk management responsibility, it is not performed in AB organization as portfolio related risks are not been defined. However this responsibility is considered a major element in other organizations and industries such as financial industries. In regards to stakeholder management, he reported that it is not performed by the portfolio team due to the organization's setup, as the power and authority is not given to portfolio team, but it is based on hierarchical power of authority. While when the interviewee was in a private sector in Australia the portfolio used to have decision making authority and the strategic focus in the selection of projects and programs was based on financial fit and strategic fit mainly, as it is a profitable organization in oppose to AB, which is a service providing government entity that does not mainly focus on return on investment.

The interesting finding was based on a suggestion from MS that it would be beneficial if AB is to set the expectations of the new candidates who apply for certain position and to assure to describe the organizational culture within AB that is related to performing the assigned

responsibilities, this is because the job description related to the role he is holding demonstrated less and some different responsibilities than the actual efforts done, thus it was recommended that AB is to reevaluate the existing job descriptions.

5.2.8 Case 9

Case 9 is related to SA, who was the IT Team Manager. He was from Iraq and in the age group of 36 to 46 years. He was a holder of Master degree and acquired PMP certification in 2008. He had 7 to 10 years experience in managing individual and simultaneous projects and programs in the field of information systems. The interviewee had extensive work experience as he worked in the UAE, Jordan and Iraq. He managed 7 projects in AB and more than 20 projects ranging in complexity. The role of the interviewee in AB was to oversee IT projects and programs that were part of the responsibilities of the IT team and specific to the business unit the IT team is reporting to. SA had been working in AB since Oct 2006.

SA started his journey in engineering field and applications development. He used to participate in projects as a team member. In one of the projects he was involved in as application programmer, he was enthusiastic to work along with his team members to deliver the project which was to create a game. The project took more time than the scheduled closure date, with lack of quality, lots of cost overruns and funding issues, which led to project failure. This encouraged the interviewee to search more within project management literature to address his concern which was “Why did we fail to deliver the project on time, as per the scope and budget and why team members were leaving the project?”. The interesting finding was that although the project involved excellent technical members, it failed due to lack of project management knowledge. He elaborated that within this project the resource allocation was not appropriate, change management and quality management were not taken into considerations. The main trigger that encouraged reading extensively in project management field was that the interviewee faced similar failure in other projects as well and in different organizations. Then he progressed in his career to manage individual but complex projects after he demonstrated the capabilities of project management.

When the interviewee was asked about the conceptual framework that indicates that being project manager supports career progression into program manager and portfolio manager, he strongly agreed that there is direct relation between project and program managers roles and a person must have project management experience and knowledge to become program manager, while it is not necessarily to have experience in project and program management to hold the role of portfolio, but it would be value added if was the case. Also, he elaborated that having knowledge in project and program fields is a demand.

The interviewee explained the current setup in AB as he indicated that in most projects that were under his management or managed by his colleagues, the real project manager was the vendor project manager and not AB project manager, he stressed that AB project managers are performing the role of program managers in most scenarios as they need to manage different projects and vendors to achieve similar objective. This is the experience the interviewee has when managing projects in AB organization. He added that the main difference between project and program managers' roles is the strategic alignment and visioning demanded from the program manager. The interviewee agreed with the literature that when an individual progresses from project to program to portfolio the more human skills are required to be demonstrated and the less technical skills are demanded, but he added that having an individual who is technically aware in the roles of program or portfolio managers is a value added as he/she will take certain decisions more effectively and efficiently than a person who is lacking the technical background and knowledge. Also, he added that the more the person progresses in project management career, the more demonstration of the ability to convince people through negotiation and communication is demanded. He stressed that the most difficult part is explaining technical terms and situations to business users who are not of technical background which is an art. On the other hand, he strongly emphasized that having technical knowledge is a requirement for the project manager in oppose to program and portfolio managers. The interesting part of the interview was when the interviewee shared the fact that the question stating that is it necessarily for a project manager or program manager to have knowledge in the field of the project or program he/she is managing? He clearly stated that this question is debatable. However, he shared a statement from a Greek professional individual he used to work with, who has been in project management field for 30 years that it is always good to have subject matter expert in the team to support the project or program manager lacking knowledge in certain field. Also, he indicated that the Greek person

stated that it is a successful opportunity to have a subject matter expert or a person from industry converting to the role of project or program manager. This is because they have the knowhow and they practiced certain aspects of the role and would be able to react against various scenarios or challenges effectively.

According to the literature it is indicated that in information systems projects the project manager is required to have detailed view of the project, oppositely SA indicated that the role of project manager is to manage the project and should not be involved in every detail of it as it is part of the tasks of the team members, however when it comes to the level of decision making and conflict resolution or challenges overcoming, then yes knowing the details would play a critical role in taking the appropriate decision.

Moving to the comparison between certification and experience, the interviewee indicated that it all depends on the individual competencies, project type, size and demand. However, generally speaking experience always gives an advantage because there are certain elements in project or program management cannot be really understood unless they are being practiced in real working environment. For example escalating issues to management depends on the impact and the time in which it is raised. If the person raised it late while it should be raised early then it can lead to project delays, cost overruns and scope changes as well. He elaborated that if there are not enough licenses for users to access the application, then this was only raised a week before the go live of the project for sure not all users will access the system which can lead to delay in go live and project closure.

Touching upon the project management definition in AB organization, the interviewee noted that in IT Department yes there are strong foundations of project management following PMI methodologies, having PMO and following project management practices as per PMI. On the other hand, when it comes to other business units in AB this is not the case there are still some not that does not have the initial understanding of project management standards, but they are monitoring their projects following their own ways such as using Microsoft Excel sheets or having periodic meetings to monitor the updates. The major finding from the interview was that currently the IT department is lacking experienced employees in the field of project management in comparison to the past 2 years, which means that there is a need to have a process to train junior project managers and encourage mentoring by the senior level project managers.

The findings from the existing job descriptions of project manager role were shared, which indicate that the project manager is to be closely overseen by the supervisor which contradicts with the project management literature that illustrates the decision making authority a project manager need to have as part of the role to be able to execute certain actions efficiently. SA stressed that this authority level is available in project based organizations, but AB is a government organization with the organization culture that if any issue occurred in the department or any of the business units, the supervisor would be the main accountable person, that is why HR Department stated the statement of to be closely overseen, to protect the supervisor and to assure that subordinates including individuals holding the project manager role are progressing in their project successfully. It is explained by the interviewee that the solution that supported him to overcome the lack of authority he had as project manager in one of the assigned projects was to form a committee headed by the CEO and the project manager is a member of the committee who can raise any achievements, delays or obstacles faced to the committee so that decisions made by the project manager are imposed by higher management, this led to overcome delays in the project. In further discussion about researcher's observations of the existing project managers job descriptions, the interviewee stated that having non project management related responsibilities as part of the project manager job description, which is an observation of the researcher, is a value added as project managers would experience non project related tasks which can support their career progression not only in project management role, but also in other advancement roles such as being specialist or consultant or senior manager. Similarly to case 8, the interview clarified that the existing job descriptions of project manager role are to be reexamined especially as they do not reflect the actual responsibilities of the project manager. Also, he indicated that there are project managers playing the role of program manager, but their job description is limited to project management role.

When SA was asked about the importance of having post implementation review as part of project manager responsibilities, he agreed that the review is critical and he added that this needs to be part of the operations post project closure in which the project manager is engaged with and not leading it, in order to improve the product design and provide suggestions and feedback based on the knowledge gained of the product upon project implementation. Also, lessons learnt can be shared with operations team.

The interviewee was asked to verify the conceptual framework related to the main role of project, program and portfolio managers and he commented on project and program managers' roles. He agreed with most of the responsibilities defined by the researcher as per the literature review, but he indicated that resource management and time management exist in all the three roles, but the focus of each role differs. The project manager will focus on the resource and time management of activities and tasks within the project that are assigned to the project team. While the program manager focus would be on the overall scope of the program and the time and dependency of deliverables across projects that form the program. The interviewee provided a real example from his experience in which once he was a program manager and he noticed that the main risk on one of the projects was the unreliable resources that lack technical knowledge about performing certain tasks, the program manager did not inform the project manager about the exact problem, but he indicated that there may be issue with the resources and left the decision and discovery of the actual issue to the project manager as it is his/her responsibility to oversee his team members and manage the resources within the project. The interviewee indicated if the project manager did not notice the actual issue then he as program manager will be involved and will address the issue directly. Adding to that, the program manager would be involved if resources are shared across projects under the program and not specific to certain project. Moreover, using the knowledge he has in portfolio management, the interviewee indicated that risk management on portfolio level is higher due to its higher impact as it is directly related to the organization strategy, but project and program risks are specific to the project and the program.

5.2.9 Case 10

Case 10 presents a case of AS, who was a Senior Engineer in AB organization managing roads related projects with 22 years experience in project management in the construction field. He was from Egypt and in the age group of 36 to 46 years. He was a Bachelor degree holder, who was not yet certified, but was attending preparation courses for the PMP certification. He managed more than 10 complex projects in Egypt, Dubai and other emirates and is used to manage projects simultaneously and individually. He joined AB organization since Oct 2006, in

which he was managing roads infrastructure related projects that cost more than 2 billion AED, which were located in major areas and roads in Dubai.

It is reported by AS that he started his career in civil engineering and then worked as contractor after that as a consultant, and then 12 years later he joined the project management field. He indicated that his career progression is a natural progression as he did not step directly to manage projects specially as managing construction projects is critical, that is why he gained extensive knowledge through academic study and practical experience through working as civil engineer, contractor and consultant which aided him with all tools that enabled the management of projects without extensive supervision. The first project assigned in AB was to fix and widen existing major roads in Dubai. He added that to empower himself, he used to extensively read about project management in order to manage projects effectively and efficiently. Also, he is planning to apply for PMP certification. This is because he believes in the positive impact the professional certification has on individuals, this is because he noticed the extreme improvements of his colleagues in managing projects after acquiring the professional certification. Moreover, he clarified that non certified project managers will lack the sense of importance of risk management and its impact, stakeholder management and most importantly value management which is equivalent to benefit over cost ratio.

The interviewee commented on the conceptual framework prepared by the researcher related to the career path progression from project, to program to portfolio manager roles, he strongly agreed with it and indicated that this is a natural dramatic progression and he emphasized that an individual cannot go directly to program manager role because he would be lacking mainly the experience to manage and behave in various scenarios throughout the management process of the program. Furthermore, he agreed with other interviewees input that an individual can hold the role of portfolio manager if he demonstrated required capabilities and had experience in line management and not necessarily having project or program management background, which if exist will add value to the portfolio manager and support him/her in understanding issues within projects or programs. Also, he indicated that having the technical knowledge in the field is a must for project or program managers to be able to manage projects or programs successfully and he supported his debate using examples from reality that can an IT project manager manage construction project, and can roads engineer manage software development project. They will

not be able to start and the construction estimation will be used in information systems projects that lead to over estimating time and cost of project as an example.

When the interviewee was asked about the main role of project, program and portfolio managers that were defined as part of the conceptual framework, he stated that project cost management is really critical specially in the recent years post the financial crunch, now there is more focus on value engineering, cost reduction and functional cost analysis, which is about acquiring functionality of application or hardware with least cost. He agreed with the researcher on most of the responsibilities, but elaborated that resource management required continuous monitoring of project progress and the resource allocation plan to determine if additional resources are needed or resource relocation is required. Also, he pointed out that quality management is to be one of the main responsibilities of program manager and not only project manager.

It is expressed by AS that most of the project managers he interacted with in AB did not have the understanding of the relationship and difference between project, program and portfolio. Also, he noted that there was no clear program or portfolio management definition in AB, while there were PMOs across some of the business units and the level of advancement differs between the units. He added that the selection process of project managers in AB was based on demonstrated capabilities of individuals through the ability to answer the interviewer's questions without validating the actual ability to perform. He suggested having real life scenarios to be the basis for selecting the candidate similarly to PMP sample exam questions.

5.2.10 Case 11

Case 11 presents a case of AD, who was managing information systems related projects in AB organization and assigned the role of Project Supervisor within the organization. He indicated that as per his designation, his role was supposed to be to support the project manager within the section he was part of in coordinating each assigned project activities, monitoring and controlling projects and he was to be overseen by the project manager. However, he has been assigned projects without any involvement or supervision of other project managers, so he was performing the role of project manager, but his designation was not reflecting his actual role. The interviewee was from the United Arab Emirates and in the age group of 25 to 35 years. He was a

holder of Bachelor degree, who did not acquire project management related certification yet. He had project management experience of 7 to 10 years and managed 6 projects individually and simultaneously that range from simple to complex projects. He had been working in AB since April 2009 and managed enterprise technical infrastructure projects such as data center expansion project in which servers and network related configurations were to be fully setup. He used to manage programs, but he was never called program manager.

AD noted that when he first entered project management field he was assigned individual simple projects and when he proved his ability to manage projects successfully, he was assigned projects of more complexity simultaneously. In addition to that he agreed with the literature that the more individual advances in project management, the less technical skills are required and the more human skills are demanded, he elaborated that this is normal due to the focus of the roles as being program and portfolio managers emphasize holistic strategic views in oppose to project manager who focuses on the project scope and is limited to the project boundaries.

The interviewee strongly agreed with the conceptual framework, which was based on the literature indicating that being project manager supports career progression to program manager as this was the case the interviewee went through despite the designation used in the organization. However, he did not comment on the relation it has with portfolio manager role as he does not have experience to comment on this part. Moreover, he added that a person cannot be program manager, without going through the role of project manager first. Similarly to other interviewees, the interviewee reported that having technical capabilities and background in the field in which the project is managed is an element that adds value to the project or program manager as it would support reliability in decision making instead of awaiting input from subject matter experts. Also, it would support the project or program manager to negotiate and challenge vendors who are members of the team when they indicate that a solution is not difficult to be implemented, and if the project or program manager had the technical background then he/she can challenge and prove that this can be implemented.

The interesting finding was that the interviewee had similar input to other interviewees in regards to the definition of program and portfolio in AB organization. He indicated that the program and portfolio definitions are not yet established in AB organization and project managers who the interviewee interacted with are not fully aware of those concepts. Moreover, it was noticed by

the interviewee that in certain cases the experienced project manager was not progressing in his/her career as professional certification such as PMP was a demand to move forward in the career path. He indicated that the certification should not be the only criteria or competency for the selection process especially as there are certified project managers, but not successful project managers as some of the individuals he met during his career proved the argument raised by the interviewee.

When it comes to the importance of post implementation review, AD pointed out that it is critical and important to have the project manager involved in this activity even post project closure because the actual project success is measured post implementation and value realization can be noticed later and not directly. He backed his argument with real examples from AB, there were 2 enterprise projects that were completed as per scope, schedule, cost and from the traditional school of thought of project management point of view they are successful projects, but after few months when business users were asked about the systems which were the outcome of the projects, most of them were not using the systems as one of them was not user friendly and the other one was implemented but trained users left the organizations and there was no process to guarantee knowledge sharing between users.

Moving to the researcher's observation of the existing job descriptions of project manager role in AB, the interviewee indicated that the project manager should not be closely overseen by his/her supervisor because the role emphasizes certain aspects of authority and decision making and agreed with the researcher to rephrase the decision boundary section of the job description to be moderately overseen and not closely overseen by the supervisor. Following that a verification of the existence of the career path plan within AB and employees awareness of it was done by asking the interviewee, he indicated that he is aware of the career path progression towards management role such as director or CEO, but there is no defined career path in the project management field as the path stops in the project manager role

According to the input received from AD in regards to the conceptual framework that illustrates the main responsibilities of project, program and portfolio managers, he clearly stated that when moving from project to program management the responsibility advances and more efforts are required to be demonstrated. Also, he accepted that cost management is part of the project manager role, but he also emphasized that it is mostly required in program manager role as it is

related to strategic alignment and cost impact is more critical and has higher impact than the project especially as a failure in a program will lead to failure in each of the subsequent projects. Furthermore, similarly to other interviewees he reported that quality should also be part of the program manager role even if it is impeded within each responsibility, but it is to be stated clearly as it is a critical pillar. Moreover, he was surprised about not stating stakeholder management as one of the main responsibilities of project manager and he indicated that this is one of the main responsibilities. Similarly to other interviewees, he indicated that the stage gate management is to be rephrased for each of the three roles as the checking point for project are the activities and milestones, while for program are the individual projects and their deliverables and for portfolio the whole program or project or sub portfolio and their deliverables.

Before moving to the competencies conceptual framework, it was highly emphasized by AD that communication and management of people are the most critical competencies a project or program manager need to have interchangeably. This was because if the project or program manager was aware about individuals who were being involved in the project, he/she would know their way of thinking and will deliver the required message in a way that the other party would accept and understand to avoid any conflicts or miss understanding that would affect the end results and decisions.

One of the interesting statements received from the interviewee was that project management extensively affected his personal life and not only professional career. He elaborated that after playing the role of project manager, his family related decisions differ as he started to think about options, alternatives, deliverables and consequences of each option and manage effective communication to avoid conflicts within his personal life.

5.3 Cross Case Analysis

This section of the chapter includes cross analysis between the interviewed cases. It focuses on findings that include similarities and differences along with comparison between the case analysis findings, the findings from the literature review and the findings from the shared documents from the HR Department in AB Organization, such as project manager competency framework, career path and respective job descriptions.

Through the analysis of each of the individual cases, it was noticed that all the interviewees started their journey in project management field through practical experience and not through academic or professional certification. Moreover, they have started their career in a role that demands high technical knowledge in the field being information systems or construction and then gradually held advanced responsibilities and entered project management field, then moved to program management field and the portfolio specialist presenting case 8 went further to hold portfolio management related role post being program manager. Furthermore, cases 5, 2 and 3 indicated that there are portfolio managers who came from non project management related background. This was also agreed by case 8 who was the portfolio specialist in AB Organization, he clarified that there are always exceptional cases in which a portfolio manager does not have the knowledge in project neither program, but he indicated that being from project or program management fields, can extensively support the portfolio manager to successfully perform his/her role and understand the status reported from project and program managers. Supporting the above, cases 5 and 8 reported that they met coworkers who moved gradually from project, to program to portfolio manager roles which indicates that the conceptual framework defined by the researcher on the basis of the literature review exists in real life, but cannot be noticed directly in AB Organization because the roles of program and portfolio managers do not exist. Another interesting finding was that all the interviewees agreed that in order for an individual to hold the role of program manager, being project manager is a prerequisite as program manager role is the advanced form of project manager that has further demands and responsibilities, while portfolio manager role can be assigned to a person experienced in senior management position, this was stated by cases 3, 7 and 10 and confirmed by case 8 who is the portfolio specialist who was performing partial responsibilities of portfolio manager role in AB organization. This finding matches the statement presented in PMI (2008) indicating that portfolio manager can be a person who used to hold a senior management position.

It is important to note that 2 out of 9 interviewees were performing the role of project and program managers and section managers in AB Organization, accordingly they were eligible to be asked about the way of selecting candidates applying for project management position available in the sections they were heading in the department. The striking result was that both had the exact similar answer stating the starting point is the HR shared list of competencies that includes project manager's competencies which are result oriented, planning and organizing,

initiative, teamwork, conflict management and negotiation, industry and global perspective. Interestingly, both reported that the selection process cannot be only dependant on the defined list of competencies shared by HR Department, especially as it was related to project manager and not program manager. Moreover When an interview is conducted with a project manager, both of managers used to evaluate his/her ability to manage programs, this was because in AB there was no clear definition of program, thus programs were been called projects and a project manager would be expected to manage programs according to the organizational demand. Another response received from cases 1, 2, 7 and 11 indicated that the most two critical required competencies are communication and management of people this indication was given before knowing that the researcher identified the two competencies as part of the required competencies found in the visited literature reviews.

It is important to highlight that in reality as per the selected sample cases, not all successful project and program managers are holders of project related certifications, as per the interviewed cases all of them thought of the certification post entering the project management field and there were some who did not acquire it yet. This encouraged the researcher to indicate that in oppose to the findings of Whitty and Maylor (2009) and Stevenson and Starkweather (2010) that supported certification in the field as part of the contextual competency, which was defined as required competency across the three roles (project, program and portfolio managers), in reality certification is not a must, but it is an added value. This is because all respondents who acquired the certification reported that their way of management got improved as well as their colleagues, who acquired the same when comparing their performance before and after certification.

When examining the overall understanding of project manager, program manager and portfolio manager roles within AB organization, it was agreed by all cases that the definition of program and portfolio was not clearly and fully established in AB organization and the understanding of project manager role differs between the business units as there were units that had a more solid project management basis than others. Furthermore, all respondents shared the similar input that the relationship between the three roles or there interfaces was not clear to all project managers. For example, every 2 months the project managers were asked to provide progress report that was shared with Strategy Department, but why it was going to be used and how it was aligned with AB's strategic plan, this ring of the chain still not clear. Another example was that project

managers were submitting monthly report to EPMO, but what positive effect the report had on overall AB's project management status, this was not clearly understood by project managers. Moving to the portfolio status in AB Organization, cases 1, 2, 3 and 4, who had knowledge in portfolio management explained that the portfolio in AB was not completely defined and structured as per their theoretical understanding of the term portfolio. They indicated that portfolio in other financial or private sector organizational setup is different, as it focuses on return on investment, in oppose to AB being government service organization with a focus on providing transportation services and solutions to achieve customer satisfaction as the major goal. The interesting finding was that case 8 presenting the portfolio specialist provided similar explanation of cases 1, 2, 3 and 4 which reflects the actual status in AB and the differences with other organizations' portfolios.

It was agreeable by the majority of the interviewees, which were 6 out of 9 that the project manager role is to manage the project and having technical competency in the field of the managed project is a value added and not a must, specially as subject matter experts can be selected to be part of the project team who can provide input in their area of specialty. However, the researcher was convinced with the argument of the minority of the cases, that matched the findings of Patanakul and Milosevic (2008) and Thamhain (1991) indicating that the project manager should have technical competency in the field of project he/she is managing. For example if an information systems project manager who does not have knowledge in roads or construction was asked to build a parking slot, he would not be able to do it and even if he accepted the project, he will not be the real project manager, but his subject matter experts would be. Adding to that, at the end if the decision was inappropriate the project manager will be blamed as he is the façade of the project team.

The researcher was surprised with the input received from all the interviewees as the researcher expected that the response would be yes job description should not include non project related responsibilities such as managing DGEP (Dubai Government Excellence Program) evidences collection, while all interviewees agreed that this may be the case in project based organizations, but due to the organization culture of AB and mainly due to lack of resources and according to the financial situation the whole world is going through, AB was working on the best utilization of its existing resources. The interviewees believed that this had pros and cons and they indicated

that it would help them to acquire additional skills and experiences so that they can fit in different positions later if they decided to move to non project related career path. Moreover, the portfolio specialist had a similar response, but added a suggestion that the job descriptions are to be reexamined to reflect the exact responsibilities assigned to the individuals even if they were not related to the portfolio management role, similarly all interviewed project managers accepted the suggestion and requested the same exercise of reevaluating project managers' job descriptions. Adding to that, it is noticed that the job description included decision making boundary in all of the project managers' job descriptions obtained from the HR Department, it stated that the project manager is to be closely overseen by the supervisor, which was contradicting with the power of authority given to the project manager that was supported by Edum-Fotwe and McCaffer (2000) and PMI (2008). Moreover they reported that the project manager should always act and take decisions unless if higher decision making was required that is not under his/her control. The response of the respondents was "yes this should be the case, but the reason maybe that the organization culture of AB was different than project based organizations". Respondents elaborated that in AB the supervisor was accountable for the success or failure of its subordinates and if a project manager failed to deliver, the first question would be raised to the supervisor. They indicated that HR Department may have imposed the statement to protect the supervisor and assure that project manager interacts with the supervisor frequently.

Then moving to the shared project management career path from the HR Department as presented in Figure 5-2, the researcher observation indicated that the career path was defined in non project management field, and what follows the project manager role within the project management career path was not defined in AB Organization. Accordingly the researcher understood why all interviewees did not know what is after project manager role in AB, if they decided to complete in project management field.



Figure 5- 2: Career Path Plan of Project Manager (HR Department, 2011)

The final modified list of required competencies across the three roles (project, program and portfolio managers) in Table 5-15, that was based on the conceptual framework was used to capture input from all the interviewed cases. Table 5-1 illustrates interviewees' feedback on whether the competency is required for project manager role as per their practical experience in the field. The results demonstrated in Table 5-1, revealed that the list of required competencies can be divided into groups depending on the number of respondents, which are presented in tables 5-2, 5-3, 5-4 and 5-5.

Required Competency	Case 1	Case 2	Case 3	Case 4	Case 5	Case 7	Case 9	Case 10	Case 11
Entrepreneurial competency			✓		✓				
Coping competency	✓	✓	✓	✓	✓		✓	✓	✓
Conceptualization competency	✓	✓	✓		✓				✓
Administrative and Management competency	✓	✓	✓	✓	✓	✓	✓	✓	✓
Social competency	✓	✓	✓	✓	✓	✓	✓	✓	✓
Supervisory competency	✓		✓	✓	✓	✓	✓		✓
Cognitive competency	✓	✓	✓	✓	✓	✓	✓	✓	✓
Leadership competency	✓		✓	✓	✓		✓	✓	✓
Business understanding			✓	✓			✓		
Management of people	✓	✓	✓	✓	✓	✓	✓	✓	✓
Risk management	✓	✓	✓	✓	✓	✓	✓	✓	✓
Change management		✓	✓	✓	✓	✓	✓	✓	✓
Contextual behavior	✓	✓	✓	✓	✓	✓	✓	✓	✓
Time management	✓	✓	✓	✓	✓	✓	✓	✓	✓
Understanding organizational culture and politics	✓		✓	✓	✓	✓	✓	✓	
Planning competency	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stakeholders management	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mediation competency	✓		✓	✓	✓		✓	✓	
Understanding portfolio, program & project interrelations	✓	✓	✓	✓	✓		✓	✓	
Having Technical Knowledge in the field						✓	✓	✓	
Multitasking competency	✓	✓	✓	✓	✓	✓	✓	✓	✓
Having knowledge in project management	✓	✓	✓	✓	✓	✓	✓	✓	✓
Understanding project management knowledge areas and having hands on such areas	✓	✓	✓	✓	✓	✓	✓	✓	✓
Having knowledge in program		✓							

management									
Understanding program management knowledge areas and having hands on such areas									
Having knowledge in portfolio management									
Understanding Portfolio Knowledge Areas and having hands on such areas									
Ability to establish, manage and monitor the portfolio									
Having experience in project & program management									
Having knowledge in process development & methodologies		✓	✓	✓		✓	✓	✓	✓
Having knowledge in market trends, standards, legal environments and regulations			✓	✓	✓				

5 - 1: Interviewees Input on Required Competencies of Project Manager Role

9 out of 9 interviewees selected the competencies in Table 5-2 as required competencies a project manager is to have according to their practical experience in the field. The order does not reflect the importance of the competency.

Required Competency
Administrative and Management competency
Social competency
Cognitive competency
Management of people
Risk management
Contextual behavior
Time management
Planning competency
Stakeholders management
Multitasking competency
Having knowledge in project management
Understanding project management knowledge areas and having hands on such areas

5 - 2: Required Competencies of Project Manager Role Agreed by 9 respondents

8 out of 9 interviewees selected the competencies in Table 5-3 as required competencies a project manager is to have according to their practical experience in the field. The order does not reflect the importance of the competency.

Required Competency
Coping competency
Change management

5 - 3: Required Competencies of Project Manager Role Agreed by 8 Respondents

7 out of 9 interviewees selected the competencies in Table 5-4 as required competencies a project manager is to have according to their practical experience in the field. The order does not reflect the importance of the competency.

Required Competency
Supervisory competency
Leadership competency
Understanding organizational culture and politics
Understanding portfolio, program & project interrelations
Having knowledge in process development & methodologies

5 - 4: Required Competencies of Project Manager Role Agreed by 7 Respondents

Minority of respondents selected the competencies in Table 5-5 as required competencies a project manager is to have according to their practical experience in the field. The order does not reflect the importance of the competency.

Required Competency
Conceptualization competency
Business understanding
Mediation competency
Having Technical Knowledge in the field
Having knowledge in market trends, standards, legal environments and regulations
Having knowledge in program management

5 - 5: Required Competencies of Project Manager Role Agreed by Minority of Respondents

Table 5-6 demonstrates interviewees' feedback on whether the competency is required for program manager role as per their practical experience in the field. The results demonstrated in Table 5-6, revealed that the list of required competencies can be divided into groups depending on the number of respondents, which are presented in tables 5-7, 5-8, 5-9 and 5-10.

Required Competency	Case 1	Case 2	Case 3	Case 4	Case 7	Case 9	Case 10	Case 11
Entrepreneurial competency			✓				✓	✓
Coping competency	✓	✓	✓	✓		✓	✓	✓
Conceptualization competency	✓	✓	✓			✓	✓	✓
Administrative and Management competency	✓	✓	✓	✓	✓	✓	✓	✓
Social competency	✓	✓	✓	✓	✓	✓	✓	✓
Supervisory competency	✓		✓	✓	✓			
Cognitive competency	✓	✓	✓	✓	✓	✓	✓	
Leadership competency	✓		✓	✓	✓	✓	✓	✓
Business understanding	✓	✓	✓	✓		✓	✓	✓
Management of people	✓	✓	✓	✓	✓	✓	✓	✓
Risk management	✓	✓	✓	✓	✓	✓	✓	✓
Change management	✓	✓	✓	✓	✓	✓	✓	✓
Contextual behavior	✓	✓	✓	✓	✓	✓	✓	✓
Time management	✓	✓	✓	✓	✓	✓	✓	✓
Understanding organizational culture and politics	✓		✓	✓	✓	✓	✓	
Planning competency	✓	✓	✓	✓	✓	✓	✓	✓
Stakeholders management	✓	✓	✓	✓	✓	✓	✓	✓
Mediation competency	✓		✓	✓	✓		✓	✓
Understanding portfolio, program & project interrelations	✓	✓	✓	✓	✓	✓	✓	
Having Technical Knowledge in the field					✓			
Multitasking competency	✓	✓	✓	✓	✓	✓	✓	✓
Having knowledge in project management	✓	✓	✓	✓	✓		✓	✓
Understanding project management knowledge areas and having hands on such areas			✓	✓	✓		✓	✓
Having knowledge in program management	✓	✓	✓	✓	✓	✓	✓	✓
Understanding program management	✓	✓	✓	✓	✓	✓	✓	✓

knowledge areas and having hands on such areas								
Having knowledge in portfolio management		✓						
Understanding Portfolio Knowledge Areas and having hands on such areas								
Ability to establish, manage and monitor the portfolio								
Having experience in project & program management	✓	✓	✓	✓			✓	✓
Having knowledge in process development & methodologies	✓	✓	✓	✓	✓	✓	✓	✓
Having knowledge in market trends, standards, legal environments and regulations	✓		✓	✓			✓	✓

5 - 6: Interviewees Input on Required Competencies of Program Manager Role

8 out of 8 interviewees selected the competencies in Table 5-7 as required competencies a program manager is to have according to their practical experience in the field. The order does not reflect the importance of the competency.

Required Competency
Administrative and Management competency
Social competency
Management of people
Risk management
Change management
Contextual behavior
Time management
Planning competency
Stakeholders management
Multitasking competency
Having knowledge in project management
Having knowledge in program management
Understanding program management knowledge areas and having hands on such areas
Having knowledge in process development & methodologies

5 - 7: Required Competencies of Program Manager Role Agreed by 8 Respondents

7 out of 8 interviewees selected the competencies in Table 5-8 as required competencies a program manager is to have according to their practical experience in the field. The order does not reflect the importance of the competency.

Required Competency
Coping competency
Cognitive competency
Leadership competency
Business understanding
Understanding portfolio, program & project interrelations

5 - 8: Required Competencies of Program Manager Role Agreed by 7 Respondents

6 out of 8 interviewees selected the competencies in Table 5-9 as required competencies a program manager is to have according to their practical experience in the field. The order does not reflect the importance of the competency.

Required Competency
Conceptualization competency
Understanding organizational culture and politics
Mediation competency
Having experience in project & program management

5 - 9: Required Competencies of Program Manager Role Agreed by 6 Respondents

Minority of respondents selected the competencies in Table 5-10 as required competencies a program manager is to have according to their practical experience in the field. The order does not reflect the importance of the competency.

Required Competency
Entrepreneurial competency
Supervisory competency
Having Technical Knowledge in the field
Understanding project management knowledge areas and having hands on such areas
Having knowledge in portfolio management
Having knowledge in market trends, standards, legal environments and regulations

5 - 10: Required Competencies of Program Manager Role Agreed by Minority of Respondents

The verification of required competencies a portfolio manager is to have was done with the portfolio specialist who was the only individual holding portfolio management related role in AB organization and performing part of the responsibilities of the portfolio manager making him the eligible and reliable case to be selected in AB to respond on portfolio related questions as he practiced the role even before joining AB. Table 5-11 illustrates the list of competencies defined as required competencies by the respondent based on his practical experience in the field in Dubai and Australia. The order in the table does not reflect the importance of the competencies. The interviewee agreed with the defined list of required competencies by the researcher as per literature review except mediation competency, understanding project management knowledge areas and having hands on such areas, understanding program management knowledge areas and having hands on such areas, and having technical knowledge in the field. He indicated that mediation role normally emerges in conflicts between different parties and he clarified that

having the mediation competency is not a demand to accept a candidate to hold the role of portfolio manager as mediator exist more in legal issues and stakeholder management takes care of the main demand to interact with different stakeholders and effectively communicate to overcome any miscommunication or misunderstanding occur across the portfolio. Moreover, he reported that having knowledge in program and project management is a must, but understanding the knowledge areas of each is not a demand as the knowledge area is specific to each role holder to be able to perform the role effectively. For example, the portfolio manager role is not to manage procurement within the project as it is a must to be managed by the project manager, and requesting portfolio manager to have the knowledge area of project management is irrelevant to his/her role and responsibilities. Finally the role of portfolio manager is more strategic and having technical knowledge is not mandatory to perform the role because the focus of portfolio is not on the exact task or activity level, but on the overall enterprise landscape of projects, programs and sub portfolios with strategic holistic organizational view.

Required Competency
Entrepreneurial competency
Coping competency
Conceptualization competency
Administrative and Management competency
Social competency
Supervisory competency
Cognitive competency
Leadership competency
Business understanding
Management of people
Risk management
Change management
Contextual behavior
Time management
Understanding organizational culture and politics
Planning competency
Stakeholders management
Understanding portfolio, program & project interrelations
Multitasking competency
Having knowledge in project management
Having knowledge in program management
Having knowledge in portfolio management
Understanding Portfolio Knowledge Areas and having hands on such areas
Ability to establish, manage and monitor the portfolio
Having experience in project & program management
Having knowledge in process development & methodologies
Having knowledge in market trends, standards, legal environments and regulations

5 - 11: Required Competencies of Portfolio Manager Role Agreed by Portfolio Specialist from AB Organization

Table 5-12 presents the major outcome of the research study which is the final list of required competencies that got the highest number of respondents being 9 out of 9 interviewed project managers, 8 out of 8 interviewed program managers and the input from the only individual holding a role in the portfolio management field within AB who was the portfolio specialist and used to hold the portfolio manager role during his career before joining AB. The portfolio specialist performs part of the responsibilities of the portfolio manager within AB. The table illustrates the result of the research study that shows the similarities and differences of required competencies between the three roles. The shaded rows indicate the list of similar required

competencies across the roles. It is important to note that as individuals progress from project, to program to portfolio management roles the efforts needed to be demonstrated as part of each of the competencies increase, this is the major statement emphasized by all interviewees and supported by Patanakul and Milosevic (2008), except case 8 who was interviewed and introduced an argument that in certain organizations the efforts demanded in program is much more than in portfolio. However, the researcher supported the literature findings and the school of thought that project manager role got advanced to program manager role and program manager role to portfolio manager role which was also agreed by majority of respondents. Description of each of the competencies in Table 5-12 is presented in Table 5-13.

Required Competency	Project Manager	Program Manager	Portfolio Manager
Entrepreneurial competency			✓
Coping competency			✓
Conceptualization competency			✓
Administrative and Management competency	✓	✓	✓
Social competency	✓	✓	✓
Supervisory competency			✓
Cognitive competency	✓		✓
Leadership competency			✓
Business understanding			✓
Management of people	✓	✓	✓
Risk management	✓	✓	✓
Change management		✓	✓
Contextual behavior	✓	✓	✓
Time management	✓	✓	✓
Understanding organizational culture and politics			✓
Planning competency	✓	✓	✓
Stakeholders management	✓	✓	✓
Understanding portfolio, program & project interrelations			✓
Multitasking competency	✓	✓	✓
Having knowledge in project management	✓	✓	✓
Understanding project management knowledge areas and having hands on such areas	✓		
Having knowledge in program management		✓	✓
Understanding program management knowledge areas and having hands on such areas		✓	
Having knowledge in portfolio management			✓
Understanding Portfolio Knowledge Areas and having hands on such areas			✓
Having experience in project & program management			✓
Having knowledge in process development & methodologies		✓	✓
Having knowledge in market trends, standards, legal environments and regulations			✓

5 - 12: Research Result - Final List of Required Competencies of Project, Program and Portfolio Managers

Required Competency	Description
Entrepreneurial competency	The ability to detect opportunities.
Coping competency	<ul style="list-style-type: none"> • The ability to cope with problems, risks, resource, time constraints and different challenges faced. • The ability to manage crises, uncertainty, suspense and diversity of information, situations, people that are outside his/her control. • The ability to deal with complexity.
Conceptualization competency	Being able to view the enterprise as a whole and not limited to narrow view.
Administrative and Management competency	Time management, organizing, planning, operating, supporting, facilitating prioritizing, setting goals and processes, controlling, planning and scheduling and resource management.
Social competency	<ul style="list-style-type: none"> • Includes team cooperation, assertiveness, negotiation, communication skills and intercultural competency. • Effective communication includes writing, oral and listening. Communicating team's achievements, providing clear information and unbiased interpretation. • Negotiation includes the ability negotiate and overcome issues and changes of scope, cost, schedule, objectives, contract terms, resource availability & utilization.
Supervisory competency	Delegating, coaching, counseling and appraising team performance.
Cognitive competency	Decision making, risk weighting and clear analytical thinking.
Leadership competency	Motivating, training, guiding developing, communicating effectively and injecting his/her personality into the management process. Being energetic & initiative.
Business understanding	understanding business benefits
Management of people	<ul style="list-style-type: none"> • Promote honesty, trust, open communications, commitment between team members and promote positive "can do" attitude, manage conflict, has authentic behavior (show concern of others), leading, influencing. • Having appropriate temperament, that includes being calm, realistic, generous, stable, quick thinker

	<p>and persistent.</p> <ul style="list-style-type: none"> Emotional intelligence competency, which is about the ability to control emotions and understand the other parties' emotions and react accordingly.
Risk management competency	Ability to manage risks.
Change management competency	Resolve scope, cost, schedule, quality changes issues.
Contextual behavior	Job dedication, job knowledge, task performance, task proficiency.
Time management competency	<u>Project Manager:</u> Ability to manage time effectively within the project and during activities' execution & sequencing.
	<u>Program Manager:</u> Ability to manage time effectively across projects.
	<u>Portfolio Manager:</u> Ability to manage time effectively across enterprise landscape (projects, programs and sub portfolios that are part of the portfolio).
Understanding organizational culture and politics	Having cultural and political awareness to maintain positive atmosphere among team members and stakeholders.
Planning competency	<u>Project Manager:</u> Ability to plan project activities.
	<u>Program Manager:</u> Ability to plan program interdependencies.
	<u>Portfolio Manager:</u> Ability to demonstrate strategic visioning capability and planning.
Stakeholders management	Demonstrate competency in working with stakeholders to achieve desired benefits.
Understanding portfolio, program & project interrelations	Being able to understand how projects and programs are mapped into the portfolio to serve organizational benefits and how projects are related to the program.
Multitasking competency	Ability to perform multiple tasks and responsibilities related to project, program or portfolio without affecting the balance between cost, performance and time across project, program or portfolio.
Having knowledge in project management	Having an overall understanding of project management and its definition.

Understanding project management knowledge areas and having hands on such areas	Project scope management, time management, cost management, quality management, human resource management, communications management, risk management & procurement management.
Having knowledge in program management	Having an overall understanding of program management and its definition.
Understanding program management knowledge areas and having hands on such areas	Program integration management- program scope management- program time management- program communication management- program risk management- program procurement management- program financial management- program stakeholder management- program governance management
Having knowledge in portfolio management	Having an overall understanding of portfolio management and its definition.
Understanding Portfolio Knowledge Areas and having hands on such areas	<p><u>Portfolio governance and portfolio risk management.</u></p> <ul style="list-style-type: none"> • Portfolio governance: Includes selecting and funding the portfolio investment, monitoring and controlling investments, communicate investment decisions and ensure investment is aligned with strategic objectives. • Portfolio risk management: Includes risk identification, analysis that covers probability and impact of risks, response planning, monitoring & controlling.
Having experience in project & program management	Having experience in both fields enables the portfolio manager to efficiently and effectively evaluate the progress of portfolio's components and supports decisions making.
Having knowledge in process development & methodologies	Being able to develop and improve processes related to the field being project, program or portfolio.
Having knowledge in market trends, standards, legal environments and regulations	Having knowledge about external factors such as changes in market trends, standards, legal constraints and regulations.

5 - 13: Description of Final List of Required Competencies

5.4 Modification of Conceptual Framework

As per the input received from interviewees after conducting semi-structured interviews with each of the individual cases selected as part of the sample from AB Organization, the conceptual framework related to the main role of project, program and portfolio managers was modified along with the conceptual framework of the required competencies across the three roles and the final lists of main roles and required competencies were produced as a result of the undertaken research study.

Table 5-14 below includes the final list of main responsibilities defined by the researcher across the three roles as per findings post analyzing each of the individual selected cases. There is a dramatic modification from the original literature finding that was illustrated in Chapter 3 that presented the conceptual framework of the research. There is no change from the conceptual framework in row 1 in Table 5-14, as all interviewees agreed on the same. Moving to row 2, business benefit realization was not part of the responsibilities as per the literature, but it was part of the competencies conceptual framework. The researcher found it beneficial and more meaningful to be stated as part of responsibilities especially after receiving comments from interviewees suggesting this modification. Managing project scope differs from managing program scope, this was reported by PMI (2008) and supported by all interviewees. Moreover it was elaborated that program scope focuses on the boundaries of all the projects within the program, but the project scope focuses on the boundaries of the project itself. While the nature of portfolio does not require the management of portfolio scope because that is done through portfolio governance and management responsibilities of portfolio manager were indicated in the literature. According to the literature it is noted that one of the roles of portfolio manager is to participate in strategy formation through providing status on the projects landscape, this finding was examined throughout the interviews and the researcher came to a conclusion that there is indirect input of project and program managers towards strategy formation as well, thus row 4 was added which was supported by majority of respondents. Looking at row 5, the interesting finding from the interviews was that in real life scenarios time management should be stated as part of the portfolio manager role and should not be only stated under project and program managers' roles. Row 6 includes additional elaboration done by the researcher, as per input

received from interviewees especially adding more clarity to program manager role in managing financial distribution across the projects under the program and the overall cost of each project to avoid having cost overruns on the program level. There was huge emphasis from the majority of the interviewees to elaborate more on the quality management responsibility and add it to program and portfolio managers' roles which was done in row 7, the respondents reported that quality is an aspect of program and portfolio as well and not limited to projects specially as if quality is not maintained on portfolio level, it would cascade to programs and projects and the same applies to programs. Moving to row 8 in which the human resource management responsibility defined in literature reviews was modified to include a more elaborative term being stakeholder management which was also accepted by all interviewees. The interesting finding was that communication management was not mentioned in the literature as part of the main role of portfolio manager, while such competency is highly demanded in strategic senior levels as indicated by the portfolio specialist presenting case 8, that is why row 9 was modified to illustrate the elaboration on communication management. Managing risks in row 10 was a responsibility under the project and program managers roles, while the portfolio specialist stressed on having it under portfolio manager role as well, because there are risks on strategic level and if not managed appropriately, will affect organizational strategy negatively. Row 11 highlights the management of procurement, which is not relevant to the portfolio especially as the portfolio is based on overall investment management through forecasting projects execution for the upcoming year as indicated by case 8. Further explanation was added to program procurement management by majority of interviewees that program procurement concerns on procurement of resources on the program level that are shared across projects within the program and not focusing on each project's procurement because that is done by the project manager. There is a dramatic change in row 12 as it was briefly defined in the conceptual framework and did not indicate specific responsibility per role. Moving to row 13, in which resource management was mentioned in the literature as part of the responsibilities of the project manager, but interviewees indicated that this is also part of the program manager role according to their experience, but the focus of program manager is more on the resources management across projects forming the program and not the resources related to each individual project. For example if the program manager is having a pool of resources that can be utilized across all the projects he/she is managing, then he/she can set the resource allocation plan across projects and

if any project lacks certain resources post doing the impact analysis, the program manager can relocate resources. Moreover, according to input received from interviewees that time, cost and scope management are also part of program manager role, but with a focus across all projects and not specific to each individual project, this was reflected in the modification done in row 14. The striking finding was in the responsibility related to stage gate reviews across the three roles within the conceptual framework, which did not show the differences in responsibilities across the roles in the initial conceptual framework, causing confusion to all interviewees and a demand for the researcher to elaborate and explain the meaning of each of the responsibilities during the interview, as a result row 15 was modified based on received input across interviewed cases. Finally rows 16 to 18 were part of the required competencies list defined as per the literature, and the researcher recognized that they can better present responsibilities than competencies, thus they were embedded to the responsibilities list and removed from competencies list. Adding to that, the researcher added financial analysis responsibility as part of the role of project and program managers in row 16, while it was only defined as part of portfolio manager role as per literature. This was done because interviewees described their experience in AB as project managers they do financial analysis, for example when supporting Contracts Department in setting criteria for financial evaluation that is placed as part of RFP (Request for Proposal) sent to vendors who if interested can buy the document and apply as a candidate to win the project/program and be involved in project management along with AB's project manager, also it is reported by interviewees that project managers later get involved if requested by Contracts Department in financial evaluations post bidders proposals submission. General feedback from all interviewees on the initial conceptual framework in Chapter 3 was that if they read it without having explanation from the interviewer during the interview, they will not understand what most of responsibilities mean, that is why the researcher was asked to provide more specific text and elaboration to each of the responsibilities. Also, general comment received was that the researcher is to align similar responsibilities across the three roles next to each other rather than having similar responsibilities scattered in different areas, which if not done, will not support the research reader to recognize similarities and differences across the roles directly. In response to this observation, the layout of responsibilities was modified. Furthermore, a critical criticism was given to the researcher to have the list of responsibilities in the form of actions rather than generic terms such as program financial management so that later once the research is

completed, the list can be directly used without the need to rephrase or rethink of what does each responsibility mean when it comes into action.

	Project Manager Role (Main Responsibilities)	Program Manager Role (Main Responsibilities)	Portfolio Manager Role (Main Responsibilities)
1	Achieve project objectives/benefits	Achieve program objectives/benefits	Achieve strategic organizational objectives
2	Realize business benefits a project would achieve	Realize business benefits a program would achieve.	Realize financial and non financial business benefits a portfolio would achieve.
3	Manage project scope	Manage program scope	
4	Participate in Strategy formation by providing input of project status to the portfolio.	Participate in Strategy formation by providing input of program status to the portfolio.	Participate in Strategy formation by providing decisions based on updates received from projects, programs and sub portfolios.
5	Manage the time of project activities execution and planning.	Manage the time of program execution through managing and planning the execution between projects.	Manage the time in performing portfolio governance activities.
6	Manage project cost and assure project delivery as per the defined cost.	Manage program financials and cost management across projects.	Manage organizational investment.
7	Manage project quality across the three constraints (scope, time, cost).	Manage program quality across the three constraints (scope, time, cost) through a focus on projects alignments and interfaces.	Manage portfolio quality through maintaining portfolio governance.
8	Manage stakeholders within the boundary of the project.	Manage stakeholders within the boundary of the program being the program and the projects that are part of the program.	Manage stakeholders on the organizational level and across organizations.
9	Manage communications across the project.	Manage communications across the program.	Manage communications across the portfolio to support effective portfolio governance.
10	Manage risks on project level.	Manage risks on program level.	Manage risks on portfolio level including realization of financial and non-financial risks of the organization.

11	Manage project related procurement.	Manage program related procurement that is shared across projects within the program.	
12	Manage project activities and milestones deliverable.	Manage program governance with a focus on managing dependency across projects within a program and assure dependent and non dependant milestones are achieved.	Manage portfolio governance: <ul style="list-style-type: none"> • Structuring: Includes portfolio planning, projects evaluation and selection.
13	Manage resources on project level.	Manage resources allocation on program level across projects.	<ul style="list-style-type: none"> • Resource management: Includes efficient resource allocation with consideration of resource limitation through resource planning. • Steering: Includes assuring the successful portfolio implementation towards organizational strategy by continuous monitoring of portfolio and its activities and actions execution. • Organizational learning and portfolio exploitation: Includes continuous monitoring of projects even post closure to evaluate project success and define lessons learnt across projects.
14	Focus on managing cost, time and scope within a project.	Focus on managing people and politics, managing culture change, managing strategic change & focus on managing cost, time and scope within a program across projects.	Focus on managing projects landscape (consisting of projects, programs and sub portfolios) and managing projects pipeline that is all based on setting a plan for projects execution.
15	Deliver stage gate decisions (go-no-go) as per achieved milestones.	Deliver stage gate decisions (go-no-go) as per delivered service/product of	Deliver a plan of project execution on the organizational strategic level as per reported status

		each individual project and achieved interdependencies across projects.	of its components (projects, programs, sub portfolios).
16	Analyze financial information, evaluate and select the appropriate options within project financial constraints & boundaries.	Analyze financial information, evaluate and select the appropriate options within program financial constraints & boundaries.	Analyze financial information, evaluate and select projects and programs with consideration to financial constraints.
17	Participate in project management processes development	Participate in project management and program management processes development	Participate in project management, program management and portfolio management processes development
18			<p>Establish and manage portfolio:</p> <ul style="list-style-type: none"> • Establish & maintain portfolio management framework/structure in the organization, • Establish systems & infrastructure to support effective portfolio management. • Review the portfolio and assure its compliance with organizational goals. • Providing timely assessment of portfolio's components selection, prioritization and performance to key stakeholders and supporting management decisions. • Measure and monitor value to the organization through specific key performance indicators such as return on investment, payback period and net present value. • Participate in projects and programs reviews.

5 - 14: Research Result - Final List of Main Responsibilities of Project, Program and Portfolio Managers

The researcher modified the initial conceptual framework that demonstrated the list of required competencies across the three roles as per literature findings. The modification was done according to the feedback received from the interviewees when they were asked about each of the competencies within the framework as the researcher aimed at verifying the list of required competencies based on practical experience of the interviewees. Table 5-15 presents the final modified list of required competencies and its description based on findings from empirical research and kept the corresponding checkmarks as per findings from literature review. The main differences between the final list and the conceptual framework includes modification in the description column to include elaborated and more specific text that can be understood by any reader without the need for the researcher to provide explanation, this was done post receiving comments from interviewees that indicated non clarity of most of the descriptions within the framework. Furthermore, the number of competencies was reduced, this is because some competencies categorized by the researcher represent responsibilities of each role rather than competencies such as participating in strategy creation process. Moreover, some competencies were repeatable and others were part of other existing competencies such as having training as part of supervisory competency, while it exists also under leadership as per the literature finding. Some competencies were rephrased and combined, for example the initial defined competencies which were understanding political climate and organizational experience & cultural awareness are combined under a single competency which is understanding organizational culture and politics, this was done to avoid confusion as the majority of interviewees thought the competency is related to external political factors, while the researcher was talking about internal politics that are influenced by the organization culture. The researcher also modified existing competencies to be more presentable and descriptive such as changing the competency of knowledge in process development & quality principles & methodologies to having knowledge in process development & methodologies instead. The comment received from the majority of interviewees was that it is expected that the project, program and portfolio managers are to have the capability to develop processes in their field, while quality principles understanding and identification is a career by itself and should not be expected that project, program or portfolio are to be aware of quality principles. That is why the knowledge in quality principles was eliminated from the initial conceptual framework. After modifying the list of required competencies categorized post analyzing literature findings, taking into consideration input

received from interviewees, the researcher used the list in Table 5-14 as the base for the final analysis of the research as it presents the modified conceptual framework.

Required Competency	Description	Project Manager	Program Manager	Portfolio Manager
Entrepreneurial competency	The ability to detect opportunities.	✓	✓	✓
Coping competency	<ul style="list-style-type: none"> • The ability to cope with problems, risks, resource, time constraints and different challenges faced. • The ability to manage crises, uncertainty, suspense and diversity of information, situations, people that are outside his/her control. • The ability to deal with complexity. 	✓	✓	✓
Conceptualization competency	Being able to view the enterprise as a whole and not limited to narrow view.	✓	✓	✓
Administrative and Management competency	Time management, organizing, planning, operating, supporting, facilitating prioritizing, setting goals and processes, controlling, planning and scheduling and resource management.	✓	✓	✓
Social competency	<ul style="list-style-type: none"> • Includes team cooperation, assertiveness, negotiation, communication skills and intercultural competency. • Effective communication includes writing, oral and listening. Communicating team's achievements, providing clear information and unbiased interpretation. • Negotiation includes the ability negotiate and overcome issues and changes of scope, cost, schedule, objectives, contract 	✓	✓	✓

	terms, resource availability & utilization.			
Supervisory competency	Delegating, coaching, counseling and appraising team performance.	✓	✓	✓
Cognitive competency	Decision making, risk weighting and clear analytical thinking.	✓	✓	✓
Leadership competency	Motivating, training, guiding developing, communicating effectively and injecting his/her personality into the management process. Being energetic & initiative.	✓	✓	✓
Business understanding	understanding business benefits	✓	✓	✓
Management of people	<ul style="list-style-type: none"> • Promote honesty, trust, open communications, commitment between team members and promote positive “can do” attitude, manage conflict, has authentizotic behavior (show concern of others), leading, influencing. • Having appropriate temperament, that includes being calm, realistic, generous, stable, quick thinker and persistent. • Emotional intelligence competency, which is about the ability to control emotions and understand the other parties’ emotions and react accordingly. 	✓	✓	✓
Risk management competency	Ability to manage risks.	✓	✓	✓
Change management competency	Resolve scope, cost, schedule, quality changes issues.	✓	✓	✓
Contextual behavior	Job dedication, job knowledge, task performance, task proficiency.	✓	✓	✓
Time management competency	Ability to manage time effectively within the project and during activities’ execution & sequencing.	✓		
	Ability to manage time		✓	

	effectively across projects.			
	Ability to manage time effectively across enterprise landscape (projects, programs and sub portfolios that are part of the portfolio).			✓
Understanding organizational culture and politics	Having cultural and political awareness to maintain positive atmosphere among team members and stakeholders.	✓	✓	✓
Planning competency	Ability to plan project activities.	✓		
	Ability to plan program interdependencies.		✓	
	Ability to demonstrate strategic visioning capability and planning.			✓
Stakeholders management	Demonstrate competency in working with stakeholders to achieve desired benefits.	✓	✓	✓
Mediation competency	Ability to support the mediation role between project team members and stakeholders.	✓		
	Ability to support the mediation role between project managers, program stakeholders and team members.		✓	
	Ability to support the mediation role between senior management and project and program managers.			✓
Understanding portfolio, program & project interrelations	Being able to understand how projects and programs are mapped into the portfolio to serve organizational benefits and how projects are related to the program.	✓	✓	
Having Technical Knowledge in the field	Includes having the knowledge of technology and trends, having the skills, tools and techniques implementation and being able to solve technical problems.	✓		
Multitasking competency	Ability to maintain balance between cost, performance and time across projects.		✓	
Having knowledge in project management	Having an overall understanding of project management and its definition.	✓		

Understanding project management knowledge areas and having hands on such areas	Project scope management, time management, cost management, quality management, human resource management, communications management, risk management & procurement management.	✓		
Having knowledge in program management	Having an overall understanding of program management and its definition.		✓	
Understanding program management knowledge areas and having hands on such areas	Program integration management- program scope management- program time management- program communication management- program risk management- program procurement management- program financial management- program stakeholder management- program governance management		✓	
Having knowledge in portfolio management	Having an overall understanding of portfolio management and its definition.			✓
Understanding Portfolio Knowledge Areas and having hands on such areas	<p><u>Portfolio governance and portfolio risk management.</u></p> <ul style="list-style-type: none"> • Portfolio governance: Includes selecting and funding the portfolio investment, monitoring and controlling investments, communicate investment decisions and ensure investment is aligned with strategic objectives. • Portfolio risk management: Includes risk identification, analysis that covers probability and impact of risks, response planning, monitoring & controlling. 			✓
Having experience in project & program management	Having experience in both fields enables the portfolio manager to efficiently and effectively evaluate the progress of			✓

	portfolio's components and supports decisions making.			
Having knowledge in process development & methodologies	Being able to develop and improve processes related to the field being project, program or portfolio.			✓
Having knowledge in market trends, standards, legal environments and regulations	Having knowledge about external factors being changes in market trends, standards, legal constraints and regulations.			✓

5 - 15: Modified List of Required Competencies of Project, Program and Portfolio Managers

5.5 The Path to Chapter 6

Reaching the end of Chapter 5, you can flip the page to the following chapter which presents the conclusions and recommendations. Chapter 6 includes a rap up of the research and overall conclusions made verifying the research questions through presenting final study results. Moreover, list of recommendations that were defined based on the outcomes of the research are illustrated along with research limitations and recommendations for further studies.

Chapter 6 – Conclusions and Recommendations

6.1 Conclusions

The research explored the required competencies of project, program and portfolio managers, the main responsibilities of each and the relationship between the three with a focus on the career progression across the roles. This was done based on extensive literature review in the field of study that led to the generation of the conceptual frameworks presenting the career path progression in project management field (Figure 3-1), the list of main responsibilities (Table 3-1) and the list of required competencies (Table 3-2) across the three roles. Then the conceptual frameworks were examined based on conducting an empirical research through following qualitative research method based on case studies and semi-structured interviews conducted with each of the 10 cases that were part of the selected sample from AB Organization, which is one of the government organizations responsible for transportation infrastructure located in Dubai, in the United Arab Emirates. Following that, analysis of each of the cases was done along with cross case analysis including comparison with literature findings and utilizing the findings from shared documents by HR Department in AB organization, which were existing job descriptions that support achieving research objectives, project manager competency framework and project manager career path plan.

Finally, the concluded list of required competencies across the three roles being project, program and portfolio managers was generated as demonstrated in Table 5-12 and the concluded list of main responsibilities of each of the roles was developed as presented in Table 5-13, both indicate extensive discrepancy from the required list of competencies and main responsibilities defined as per the literature findings that were presented in Chapter 3 which covers the conceptual framework of the research. Adding to that, the research revealed that progressing from project to program to portfolio manager role is a natural career path progression in the project management field. However, every rule will have exceptions and if any then a prerequisite for being program manager is having project management experience. On the other hand, being program manager is not necessarily a prerequisite to become portfolio manager as the most important factor is having experience in line management role, but coming from program management background will be

an advantage to the portfolio manager, as it will support the role performance of the portfolio. The final outcomes can support the project management framework in the organization especially as the program and portfolio management definitions are not yet clearly defined within the organization and the program and portfolio managers roles do not exist yet in the organization.

6.2 Recommendations

The research analysis and findings derived the following recommendations that are proposed to support the project, program and portfolio managers' selection process through a focus on required competencies and main responsibilities and to support future plans if the organization decided to have program and portfolio managers' roles. Moreover, issues identified throughout the research in regards to project, program and portfolio managers' roles can be overcome if respective management considered the proposed recommendations, which are as follows:

1. It is recommended that the project manager competency framework generated by HR Department is to be revisited considering the required list of competencies that was developed as an outcome of the research. This is because the list was examined based on practical experience and real life scenarios faced by selected cases who shared their experience in the field of project, program and portfolio management. Moreover, the research revealed a list of competencies that were not defined as required in the competency framework existing in the organization. Also, some of the competencies within the existing competency framework in the organization are suggested to be rephrased, especially as they were not descriptive such as the use of terms initiative and teamwork.
2. It is advisable to use the final defined list of required competencies resulted from the research to support the creation of competency framework for program and portfolio manager roles.
3. The results of this research support the idea that respective management within the organization are to increase project, program and portfolio management interrelationship awareness within the organization along with clarifications on similarities and differences

and a focus on the interface between the three. This can support project, program and portfolio managers to better understand their roles and interact with each others, in order to be aligned with organizational objectives.

4. Another implication is the possibility of the organization to support junior project managers who are not experienced in the field, by initiating a program that supports mentoring to be done by senior level project managers to junior project managers, which can enhance the learning curve by sharing lessons learnt through practical experience.
5. In general, it seems that having defined expanded list of required competencies further to the shared list by the HR Department mentioned in the job description is recommended, especially as the existing situation in the organization indicated the unavailability of a full defined list of required competencies used during the selection process of project manager role. Furthermore, it is proposed to have the outcome of the research as the basis to build real life scenarios to test candidate's capabilities in reacting against each scenario similarly to some of the known project management examinations such as PMP exam, rather than depending on normal interview sessions in which questions are raised and candidates provide an excellent answer. However, when it comes to practical implementation, some of the candidates fail to fulfill the requirements. This argument was raised by some of the interviewees.
6. It is suggested that the HR Department is to reevaluate the existing project managers' job descriptions. Also, it is advisable if HR Department reviews the decision boundary section of the job descriptions to state that the project manager is to be moderately overseen by the supervisor rather than closely overseen, especially as the role imposes certain seniority and authority in decision making. Also, the responsibilities defined in the job description can be reexamined considering the main responsibilities list generated as an outcome of the research. Furthermore, HR Department can utilize the list of required competencies and main responsibilities to prepare program and portfolio managers' job descriptions when a demand arises for the mentioned roles.
7. One of the critical observations based on the existing project management career path is that the career progression in the project management field is not yet defined within the

organization. Accordingly the research proposes that the organization is to start looking at project management related roles such as program and portfolio managers and to have project manager, then program manager and finally portfolio manager as the sequence of career progression which can support effective management of projects in the organization. Additionally, it is proposed to have a full-fledged application for the overall management of projects, programs and portfolios to maintain effective monitoring and controlling of each.

8. Taken together, the results suggests that project managers are to be part of the post implementation review team after project closure, which is to be led by the system analyst who develops business cases and sets the value realization measures. The main aim of having the project manager involved at this stage is to support the value realization, reasons identification if value was not achieved and to share lessons learnt with other project managers.

6.3 Limitations of the Research Study

The selected number of candidate case studies on which semi-structured interviews were conducted, limits the possibility to generalize the findings as the sample does not represent the whole population of project, program and portfolio managers and it is conducted in one of the organizations in Dubai. Furthermore, there are limited literature reviews in the field of competencies of program and portfolio managers. In addition to the above, limited timeframe and restriction on word limit affected the amount of information gathered and presented from existing literature.

The finding of Saunders, Lewis and Thornhill (2007) is strongly adopted by the researcher as it is agreeable that statistical generalization of the findings is a limitation and a challenging action to be achieved, this is because the sample taken from AB organization which included selected cases that were interviewed does not represent the whole population of all holders of the role of project, program and portfolio managers across the organization. However, this potential limitation to generalization can be minimized by consideration of analytical generalization as the research questions were analytically verified. Claims for generalization is by having a sample of

different personnel each presenting a case, which are used to and are still managing projects with a focus on their profession, certification, years of experience and complexity of projects they have been managing.

According to the literature in the field of project, program and portfolio management, Project and program managers' roles are well-established in oppose to portfolio manager role in literature, academia and practice by professional bodies such as PMI, IPMA, OGC, GAPPS and CCPM (Crawford & Nahmias, 2010, Whitty & Maylor, 2009). However, the competencies differences between the three roles (project, program and portfolio managers) is not yet been extensively explored. Also, there is limited research that shades the light on the relationship between the roles. Patanakul and Milosevic (2008) reported that existing literature tackles competencies in the context of knowledge and skills and rarely discusses the experience aspect of competency.

6.4 Recommendations for Further Research

Further investigation in the relationship shown below (Figure 6-1) between project, program and portfolio that is formed by the researcher as per reviewing existing literature in the fields, can be done along with examination of the structure in project based organizations and non project based organizations.

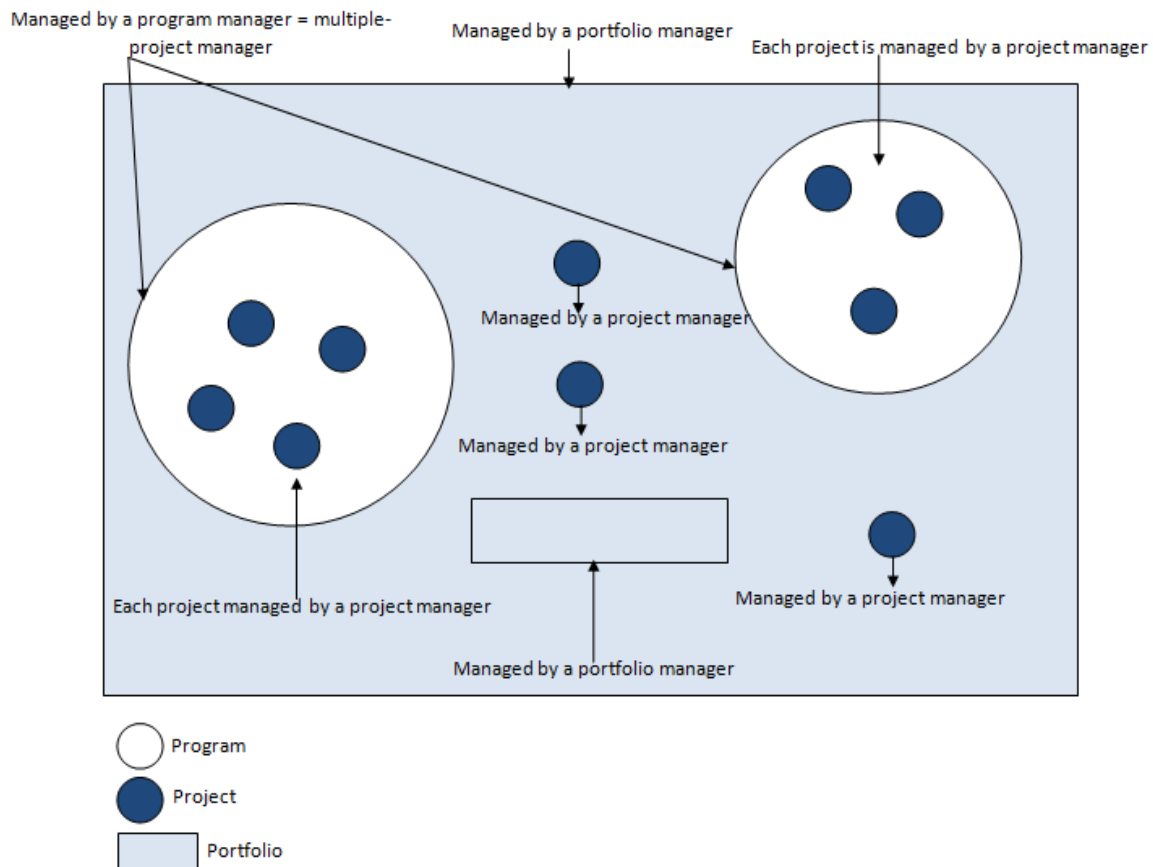


Figure 6 - 1: Project, Program and Portfolio relationship

Another area for further research is to investigate the governance relationship (Figure 6-2) between the three fields, and verify if portfolio governs programs and projects that are part of portfolio and program governs projects that are part of the program.

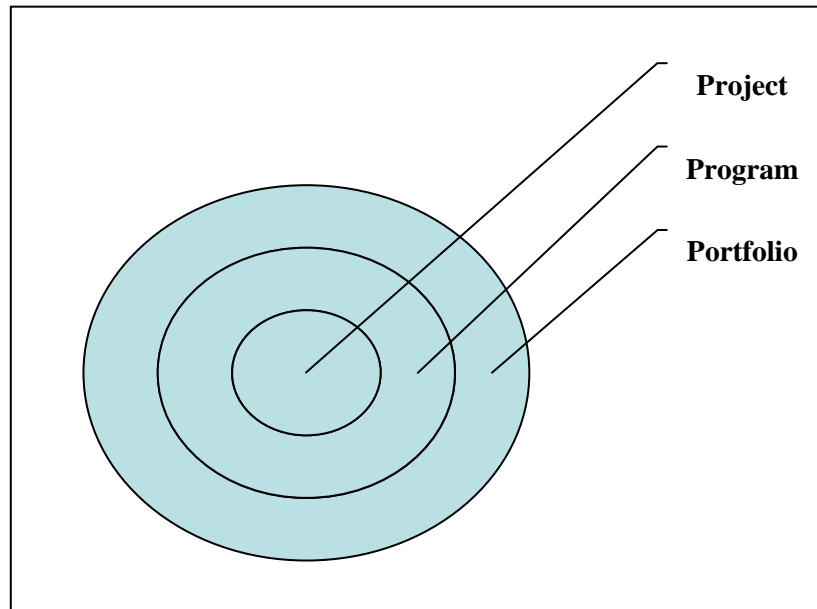


Figure 6 - 2: Project, Program and Portfolio Governance Relationship

It is also suggested by the researcher to explore the hierarchical relationship across the three roles and intersection of the roles during project lifecycle, along with exploration on required competencies and roles to be demonstrated in each of the phases within the project. The below Figure 6-3 was designed by the researcher according to the visited literature review, but as the research focus was on required competencies and main roles of project, program and portfolio managers, the researcher did not take the below further into in-depth exploration.

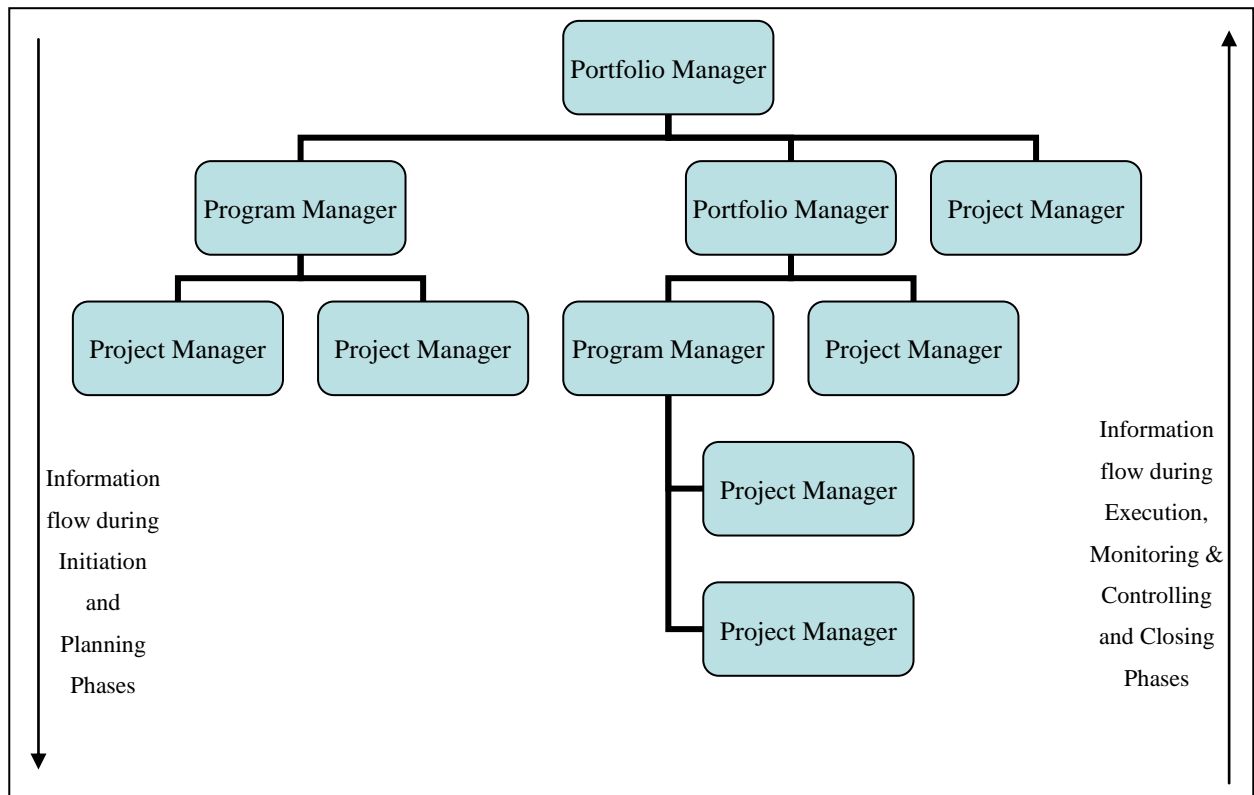


Figure 6 - 3: Project, Program and Portfolio Hierarchical Relationship and Information Flow across Project Lifecycle

The researcher highly recommends further investigation on the GAPPS framework for performance based competency standards for project managers and GAPPS framework for performance based competency standards for program managers and then to add to the research findings taking into consideration the defined competencies as per GAPPS frameworks.

It is highly significant that there is limited research in the field of portfolio management and portfolio manager role and competencies. Accordingly, there is a fertile area for further research in the field considering examination if there are other responsibilities under portfolio manager role, and if there are other roles within portfolio management than the portfolio manager role.

Adding to the above, the research can be taken further to include all of the existing government organizations in Dubai which has an established project management framework and implement the empirical research in each to verify the list of required competencies and main responsibilities produced as an outcome of the research and then compare the results and generate an updated competencies framework that can be used as a baseline within Dubai

Government with a focus on project management field including projects, programs or portfolios.

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Appendices

Appendix A – CIFTER Factors as per GAPPS (2007)

Below is elaboration of the CIFTER Factors as per GAPPS (2007). The overall layout and content are as found and not been changed by the researcher.

1. Stability of the overall project context. The project context includes the project life-cycle, the stakeholders, the degree to which the applicable methods and approaches are known, and the wider socioeconomic environment. When the project context is unstable — phase deliverables are poorly defined, scope changes are frequent and significant, team members are coming and going, applicable laws and regulations are being modified — the project management challenge increases.

Note: some aspects of “technical complexity” such as dealing with unproven concepts would be considered here. Uncertainty in the economic or political environment would be considered here.

2. Number of distinct disciplines, methods, or approaches involved in performing the project. Most projects involve more than one management or technical discipline, some projects involve a large number of different disciplines. For example, a project to develop a new drug could include medical researchers, marketing staff, manufacturing experts, lawyers, and others. Since each discipline tends to approach its part of the project in a different way, more disciplines means a project that is relatively more difficult to manage.

Note: some aspects of “technical complexity” such as dealing with a product with many interacting elements would be considered here.

3. Magnitude of legal, social, or environmental implications from performing the project. This factor addresses the potential *external* impact of the project. For example, the potential for catastrophic failure means that the implications of constructing a nuclear power plant close to a major urban centre will likely be much greater than those of constructing an identical plant in a remote area. The management complexity of the urban project will be higher due to the need to deal with a larger number of stakeholders and a more diverse stakeholder population.

Note: “external impact” refers to the effect on individuals and organizations outside the performing organization. Financial considerations related to actual or potential legal liability for the performing organization would be considered in factor 4.

4. Overall expected financial impact (positive or negative) on the project's stakeholders. This factor accounts for one aspect of the traditional measure of “size,” but does so in relative terms. For example, a project manager in a consumer electronics start-up is subject to more scrutiny than a project manager doing a similarly sized project for a computer manufacturer with operations around the globe, and increased scrutiny generally means more management complexity. A subproject whose output is a *necessary* component of the parent project would generally receive a rating on this factor close to or equal to that of the parent project.

Note: where the impact on different stakeholders is different, this factor should be rated according to the impact on the primary stakeholders. Financial considerations related to actual or potential legal liability incurred by the performing organization would be considered here. October 2007 6 ver 1.7a.

5. Strategic importance of the project to the organization or organizations involved. This factor addresses yet another aspect of “size,” and again deals with it in relative rather than absolute terms. While every project should be aligned with the organization’s strategic direction, not every project can be of equal importance to the organization or organizations involved. A subproject whose output is a *necessary* component of the parent project would generally receive a rating on this factor close to or equal to that of the parent project.

Note: as with financial impact, if the strategic importance for different stakeholders is different, this factor should be rated according to the strategic importance for the primary stakeholders.

6. Stakeholder cohesion regarding the characteristics of the product of the project. When all or most stakeholders are in agreement about the characteristics of the product of the project, they tend to be in agreement about the expected outcomes as well. When they are not in agreement, or when the benefits of a product with a particular set of characteristics are unknown or uncertain, the project management challenge is increased.

7. Number and variety of interfaces between the project and other organizational entities. In the same way that a large number of different disciplines on a project can create a management challenge, a large number of different organizations can as well.

Note: issues of culture and language would be addressed here. A large team could have a relatively small number of interfaces if most team member have the same employer. On the other hand, shift work might increase the rating here even though the additional shifts are technically part of the project.

Appendix B – Samples from Shared Job Descriptions of Project Manager Role from AB Organization

Due to confidentiality reasons, samples of the shared job descriptions are disclosed, but the content was fairly modified to avoid mentioning organization's actual name and entities exact names. The overall layout, content and design are as received and not been changed by the researcher.

Job Description 1

Job Title : Project Manager

Reporting to : Section Manager

Section : Section

Department : IT Department

1. JOB PURPOSE

To ensure successful completion of the assigned IT projects within set time and monetary budgets, within the right level of agreed quality. The Senior Project Manager should ensure that the IT projects achieve the set objectives and should ensure that IT policies and standards are applied within the projects.

2. DIMENSIONS

Span of Control

Value of Transactions AED:

Direct Reports: (1)

Indirect Reports: (0)

Direct Budget:

3. KEY RESULTS ACCOUNTABILITIES

- As a Certified Data center Design Engineer, double up as a Data center Architect for all Data center initiatives at AB.
- Supervise junior project managers within section and the department.
- Ensure that AB IT PMO methodology is followed throughout the life cycle of a project from Business Case to Sustenance.
- Define project scope, goals and deliverables that are in line with AB and IT strategic business goals in collaboration with senior management and stakeholders.

- Prepare a technical RfP based on the business case and project requirements in collaboration with business analyst and procurement department.
- Ensure vendors who are competent are selected in a fair manner through proper evaluation process.
- Develop and document full-scale project plans, work break down structures, stakeholder matrix, risk and issue logs, communication plan and associated documents as per PMO methodology.
- Ensures the execution of projects is done in line with the AB IT Enterprise Architecture and all applicable policies.
- Own the project results and reporting of the project progress, related risks and issues to the IT Management, PMO, project stakeholders and other AB executives in co-ordination with all resources of the project.
- Effectively communicate project expectations to team members and stakeholders in a timely and clear fashion.
- Plan effectively to avoid Change Requests or Variations for Time, Resources and Budget/Costs.
- Determine and assess need for staff and/or consultants and make the appropriate recruitments if necessary during project initiation.
- Ensure project deliverables are implemented, measure the quality and timelines of delivery, control and regulate vendor performance, build excellent relationships through a proper Vendor Management.
- Ensure SLAs (Service Level Agreements) are included in the scope of all projects and these SLAs are signed off by vendors.
- Foresee potential risks associated with project scope time and cost, ensure risk response and mitigation plan are in place, executed and reported.
- Identify issues associated with project and ensure actions are taken to resolve them.
- Identify and resolve conflicts within the project team.
- Coach, mentor, motivate and manage project team members and contractors, and influence them to take positive action and accountability for their assigned work.
- Ensure smooth transition/handover of projects to IT Operations and Service Management at the project closure stage through a formal handover document duly signed-off and ensures a clean project exit within 30 days of project closure.
- Ensure that business benefits are realized for projects via a formal sign-off from key stakeholders and project sponsor.
- Initiate necessary marketing campaign etc. to attain business benefit from the Video Conferencing project.
- Share success of the project and its achievements to all stakeholders with lessons learnt.
- Conduct project post implementation review to create a recommendations report in order to identify successful and unsuccessful project elements.
- Assists in setting relevant standards and procedures and propose recommendations for improvement of methodologies and frameworks.
- Performs other responsibilities associated with this position when appropriate.

4. CRITICAL COMPETENCIES

- Result orientation
- Planning & organizing
- Initiative
- Teamwork
- Conflict management & negotiations
- Industry and global perspective

5. COMMUNICATIONS AND WORKING RELATIONSHIPS

Internal: All business units in AB.

External: Government & Semi-Gov. officials – Consultants - Vendors

6. FRAMEWORK, BOUNDARIES AND DECISION-MAKING

- All job assigned to him/her will be closely oversee by his/her supervisor.
- Has no rights to take decision by his/her own proposal without instruction given by his/her supervision.

7. KNOWLEDGE, SKILLS AND EXPERIENCE

- Bachelors Degree in business administration or Computer Science/IT or equivalent from recognized university.
- Minimum 8 years of experience in a large and active service organization, out of which at least 4 years in a relevant Project Management position.
- Excellent knowledge in IT Infrastructure and IT Solutions, networking, web-based applications, development and project management.
- Infrastructure development initiatives and strategy implementation, practices and theories, programs and management functions, systems, and procedures.
- Maintain awareness of current and emerging technologies, software packages, project management methodologies and tools.
- Excellent communication skills, report writing and group facilitation, presentation and public speaking, excellent skills in high-end computing.
- Fluency in spoken and written English and Arabic is preferred.
- Excellent project management skills to develop and direct Ability to initiate and direct technical projects.
- Analytical thinking, business judgment, business innovation, and forward thinking.

8. OPERATING ENVIORMENT

Office: 95%

Field: 5%

Statements in this Job Description are intended to reflect, in general, the duties and responsibilities of the position, but they are not to be interpreted as totally inclusive.

Prepared by:

Section Manager

Reviewed by:

Department Director

Approved by:

HR Department

Date:**Date:****Date:****Job Description 2****Job Title** : Project Manager**Reporting to** : Section Manager**Section** : Section**Department** : Human Resources Department**1. JOB PURPOSE**

Manage, oversee and administer effective internal communication methodologies throughout AB.

2. DIMENSIONS**Span of Control**

Value of Transactions AED:

Direct Reports: (0)

Direct Budget:

Indirect Reports: (0)

3. KEY RESULTS ACCOUNTABILITIES

- Plan and direct the implementation of AB internal communication.
- Review and approve daily internal communication messages.
- Coordinate with the executing agency and related AB employees regarding financial and required training of the project.
- Monitor and oversee internal communication of events, projects and seminars.
- Plan and Manage Projects follow up and approve implementations
- Organize Internal awareness campaigns
- Perform other related duties and responsibilities associated with the position.

4. CRITICAL COMPETENCIES

- Result Orientation
- Knowledge Sharing
- Analytical Thinking
- Client Orientation

- Champion Change and Innovation
- Industry and Global Perspective

5. COMMUNICATIONS AND WORKING RELATIONSHIPS

Internal: All business units in AB.

External: Government, Semi-Gov officials, Consultants and Contractors.

6. FRAMEWORK, BOUNDARIES AND DECISION-MAKING

- All decisions are overseen by the direct manager.
- Has no rights to take decision by his/her own proposal without instruction given by his/her supervision.
- Provide professional guidance and advice to the manager.

7. KNOWLEDGE, SKILLS AND EXPERIENCE

- Bachelor in Business Administration or equivalent field. Masters is preferred.
- Minimum 8 years of relevant working experience.
- Highly analytical thinking with demonstrated talent for identifying, scrutinizing, improving, and streamlining complex work processes.
- Computer-literate performer with extensive software proficiency covering wide variety of applications.
- Flexible team player who thrives in environments requiring ability to effectively prioritize and juggle multiple concurrent projects.
- Innovative problem-solver who can generate workable solutions and resolve complaints.
- Goal-driven leader who maintains a productive climate and confidently motivates, mobilizes, and coaches employees to meet high performance standards.
- Results-driven achiever with exemplary planning and organizational skills, along with a high degree of detail orientation.

8. OPERATING ENVIRONMENT

Office 60%

Field 40%

Statements in this Job Description are intended to reflect, in general, the duties and responsibilities of the position, but they are not to be interpreted as totally inclusive.

Prepared by:

Section Manager

Reviewed by:

Department Director

Approved by:

HR Department

Date:

Date:

Date:

Job Description 3

Job Title : Project Manager
Reporting to : Section Manager
Section : Section
Department : Transportation Department

1. JOB PURPOSE

To ensure successful completion of Transportation Systems projects within set time and monetary budgets, within the right level of agreed quality and establish best practices, and implement service and technology enhancements.

2. DIMENSIONS

Span of Control

Value of Transactions AED:

Direct Reports: (0)

Direct Budget:

Indirect Reports: (0)

3. KEY RESULTS ACCOUNTABILITIES

- Own the project results and reporting of the project progress to the senior management, PMO and other AB executives.
- Ensure achievement of project timelines, efficient use of resources and productivity to meet the project objectives.
- Document project requirements in a business case and/or project brief and maintain it according to the IT methodology in order to facilitate ongoing support and maintenance.
- Revise and monitor project management standards and procedures and propose recommendations for improvement to ensure projects are managed effectively.
- Ensure smooth transition of projects to IT services at the project completion stage.
- Work closely with Strategy and Policy entity to float the requisite RFPs and select vendors to implement various solutions for AB.
- Ensure the Execution of projects is done in accordance with the AB IT Enterprise Architecture and all applicable policies.
- Manage vendors during the implementation process of the selected solutions.
- Ensure that vendors deliver as per the standards set by the Strategy and Policy section.
- Monitor the vendor performance throughout the implementation and report any issues (if they arise) during the implementation.
- Develop and manage the SLAs (Service Level Agreements) for the various implementations.
- Manage the delivery of these SLAs and ensure that these SLAs are being met by the implementation vendor.

- Plan the activities of the solution implementation team and monitors the solution implementation plan.
- Attend PMO meetings and present project progress and related issues and risks.
- Manage projects team members.
- Assess the project team involved in the projects (including the AB internal team as well as vendor's team) and report performance to IT management and the PMO.
- Ensure smooth transfer of all projects into production and sustenance.

4. CRITICAL COMPETENCIES

- Result Orientation.
- Knowledge sharing
- Analytical thinking
- Client Orientation
- Champion change & innovation
- Industry and global perspective

5. COMMUNICATIONS AND WORKING RELATIONSHIPS

Internal: All business units in AB.

External: Support Vendors – Support related issues for Dispatch Center Application, and Telecommunication Systems

6. FRAMEWORK, BOUNDARIES AND DECISION-MAKING

- All job assigned to him will be closely oversee by his supervisor,
- Has no rights to take decision by his/her own proposal without instruction given by his/her supervision.
- Provide professional guidance and advice to the manager.

7. KNOWLEDGE, SKILLS AND EXPERIENCE

- Bachelor/Masters degree in Computer engineering or equivalent
- Minimum of 10 years relevant experience in a large and active service organization, out of which at least 6 years in relevant Project Management position
- Excellent knowledge of Intelligent transport systems
- Excellent knowledge of personnel management
- Proven process automation skills
- Change management experience
- Analytical and problem solving skills
- Technology deployment experience
- Good project management skills to develop and direct Ability to initiate and direct technical projects
- Good administration and office management skills, public relations ability, and audit reporting
- Follow up and planning abilities, time management, problem solving, business innovation, and customer service orientation

8. OPERATING ENVIORMENT**Office:** 90%**Field:** 10%

Statements in this Job Description are intended to reflect, in general, the duties and responsibilities of the position, but they are not to be interpreted as totally inclusive.

Prepared by:

Section Manager

Reviewed by:

Department Director

Approved by:

HR Department

Date:**Date:****Date:**

Appendix C – Sample from Shared Job Descriptions of Portfolio related Roles from AB Organization

Due to confidentiality reasons, a sample of the shared job descriptions is disclosed, but the content was fairly modified to avoid mentioning organization actual name and entities exact names. The overall layout, content and design are as received and not been changed by the researcher.

Job Description

Job Title : Portfolio Specialist

Reporting to : Section Manager

Department : Strategy Department

Section : Section

1. JOB PURPOSE

Responsible for identifying all the projects needed to be added to AB Portfolio and categorizing them, Performing key activities of evaluation, selection and prioritization of projects in portfolio, Adding and removing projects as part of portfolio balancing process, Liaising with AB EPMO regarding assessment of projects and defining portfolio milestones.

2. DIMENSIONS

Value of Transactions AED: NA

Direct Budget: NA

Span of Control

Direct Reports: (0)

Indirect Reports: (0)

3. KEY RESULTS ACCOUNTABILITIES

- Liaises with relevant departments to collect needed information on project portfolio
- Liaises with Finance to re-allocate budget and resources for inactive and terminated projects
- Liaises with commercial & investment department for their input especially on investment master plan
- Liaise with EPMO regarding assessment of projects
- Performs Enterprise resource planning and capacity analysis and maintains an enterprise resource pool (human resources, financial resources and assets)
- Performs the following activities in different processes of Portfolio Management:
- For Identification & Categorization process:

- Specifying projects that need to be added to Portfolio
 - Comparing identified projects to the categorization criteria
 - Grouping each project into the relevant category
- For Evaluation, Selection & Prioritization process:
 - Evaluating projects with a scoring model
 - Selecting projects based on a selection criteria and producing a list of projects for prioritization
- For Portfolio Balancing process:
 - Perform different analysis such as cost/benefit, probability etc
 - Continue with the current or add new projects that have been selected and prioritized for authorization
 - Removing projects which are no longer authorized
 - Terminating or suspending projects or re-prioritizing/re-align them based on the review process.
- For Authorization process:
 - Liaise with Finance to re-allocate budget and resources
 - Define portfolio milestones
 - Update performance expectations
- For Portfolio Review and Reporting process:
 - Reviewing projects' score
 - Reviewing projects' KPIs and dependencies
 - Reviewing projects' priority and risks
 - Reviewing projects' financial performance against investment criteria
 - Analyzing constraints caused by AB internal policies and either make a recommendation such as re-balancing or re-prioritizing of the project or try to influence those constraints and reduce their impact
- For Strategic Change process:
 - Reflect changes on strategy into Portfolio and re-balancing is required
 - Criteria re-weighting
- Perform other related duties and responsibilities associated with the position.

4. CRITICAL COMPETENCIES (6 maximum)

- Analytical Thinking
- Systems Thinking
- Planning abilities

- Conflict Management

5. COMMUNICATIONS AND WORKING RELATIONSHIPS

Internal: Transportation Studies Manager, Senior and middle management throughout AB, EPMO, PMOs, Finance Department, Program and Project Managers throughout AB and Investment Department.

External: Consultants, vendors and other entities (including Government departments / private entities)

6. FRAMEWORK, BOUNDARIES AND DECISION-MAKING

Make technical decisions in his field as related to the tasks and responsibilities he carries out and refers to Transportation Studies Manager for approvals in certain cases.

7. KNOWLEDGE, SKILLS AND EXPERIENCE

- Bachelor's degree in Engineering/Project or Quality Management (Master's Degree is preferred).
- Minimum 7 years of related experience.
- Planning organizational needs.
- Setting up demonstrations.
- Studying budgets.
- Coaching individuals.
- Administrating and evaluating programs.
- Defining a problem.
- Comparing results.
- Defining performance standards.
- Knowledge of project management concepts and principles.
- Sketching charts or diagrams.
- Envisaging future trends.
- Practical PMO or EPMO experience utilizing PMI frameworks will be an advantage.
- Finding information.
- Handling complaints.
- Negotiating/arbitrating conflicts.
- Overseeing operations.

8. OPERATING ENVIORMENT

Indoor 70%

Outdoor 30%

Statements in this Job Description are intended to reflect, in general, the duties and responsibilities of the position, but they are not to be interpreted as totally inclusive.

Prepared by:

Section Manager

Reviewed by:

Department Director

Approved by:

HR Department

Date:**Date:****Date:**

Appendix D – Project Manager Competency list Extracted from Competency Framework in AB Organization

Job Group	Behavioral Competency Frameworks
Project Managers	<ul style="list-style-type: none">• Result orientation• Planning & organizing• Initiative• Teamwork• Conflict management & negotiations• Industry and global perspective <p><i>(Last two are Leadership Competencies)</i></p>

Appendix E – Sample of Interview Questions Related to Project and Program Manager Roles

General Questions:

1. Gender:

Male [] Female []

2. Nationality:

3. Age:

25-35 [] 36-46 [] above 46 []

4. Level of education:

Higher Diploma [] Bachelor [] Master [] Phd []

5. Are you a holder of project management certification, If Yes, please specify:

Yes [] No []

Certification name:

6. Job Title:

7. Brief Description of the role and its relevance to project, program, portfolio management:

8. Years of experience in project management field

3-6 [] 7-10 [] more than 10 []

9. The field/fields in which project management is practiced, if Others, please specify:

Information Systems [] Construction [] Others []

Field/fields:

10. Number of projects managed:

11. Type of projects managed:

Small & simple [] Global projects [] complex projects []

12. Have you managed projects simultaneously or individually:

Simultaneously [] Individually [] Mix of both []

13. Have you managed projects simultaneously that are relevant to each other and that serves the same goals and objects and which are dependent on each other:

Yes [] No []

Project and Program Questions:

14. How did you enter project management field, was it by chance, or based on experience, education, certification or it is recognized that you are competent?
15. How did you start your project management journey is it with complex projects directly or simple and then complex projects? And where you assigned simultaneous projects or individual ones?
16. Do you agree that being project manager supports career progression into program manager or portfolio manager? Why?
17. Based on your experience is it true that in reality program manager needs to have project management competencies and on top on it program management competencies to play the role of program manager?
18. From the literature it is noted that the more you progress in your career from project to program to portfolio management roles, the more human and conceptual skills are required and the lower technical skills are demanded?
19. While practicing project management do you agree that you need to have detailed view of the project and should be involved in its details especially in IS project?
20. As a project manager/program manager to what extent did you implement the below responsibilities (defined in the conceptual framework Table 3-1)? Did you implement other responsibilities as part of the role?
21. When going over the required list of competencies (defined in the conceptual framework Table 3-2), to what extent do you agree with the defined competencies? Can you provide examples from reality?
- It is pointed out by Fisher (2010) that academic and the community of practice recognized that the management of people plays an effective role in project management, do you rate such competency as an important and required competency? Can you support by examples from real life (your experience)?
 - Do you agree that working in an environment that of increased level of complexity and uncertainly supports your career and project management progression and leads to comprehensive managerial and leadership knowledge?
 - According to Li, Yang, Klein and Chen (2010), problem solving competency focuses on the ability to cope with uncertainty, do you agree and why?

- d. Do you believe that cultural awareness and sensitivity is required competency in all projects or you rate it as un-required competency? What about global projects which has various personnel from different cultures?
 - e. Patanakul and Milosevic (2008) stated that multitasking is a crucial competency which doesn't mean doing many things simultaneously, but it is about maintaining a balance between cost, performance and time across projects. What do you think?
 - f. As a project/program manager did you really implemented the knowledge areas that are defined as project/program knowledge areas?
 - g. A study conducted by Muller & Turner (2007) indicated that there is no difference between certified and non-certified project managers, but in highly performing projects, certified project managers got higher score in terms of project success and matching stakeholder's requirements and expectations, do you agree? Did it make a difference pre and post certification acquirement?
 - h. Does understanding political climate affect project/program success? Can you support by examples? Which role demands more focus on political climate and why do you think that?
22. Based on existing job descriptions in AB Organization related to project management:
- a. Are the defined competencies covering the required competencies?
 - b. Do you agree with the decision making boundaries, aren't it setting constraint to the project manager in decision making? Also, do you agree that project/program manager is to be closely overseen by his/her supervisor or moderately?
 - c. One of the responsibilities in one of the job descriptions stated about improving internal processes related to business function and not to the project/program, such as improving processing to support DGEP and follow on DGEP requirements. Do you agree that this responsibility is part of project/program managers' role? Why?
 - d. Do you think that project/program manager needs to conduct post implementation review to evaluate actual project success?

Appendix F – Sample of Interview Questions Related to Portfolio Manager Role

General Questions:

1. Gender:

Male [] Female []

2. Nationality:

3. Age:

25-35 [] 36-46 [] above 46 []

4. Level of education:

Higher Diploma [] Bachelor [] Master [] Phd []

5. Are you a holder of project management certification, If Yes, please specify:

Yes [] No []

Certification name:

6. Job Title:

7. Brief Description of the role and its relevance to project, program, portfolio management:

8. Years of experience in project management field

3-6 [] 7-10 [] more than 10 []

9. The field/fields in which project management is practiced, if Others, please specify:

Information Systems [] Construction [] Others []

Field/fields:

10. Number of projects managed:

11. Type of projects managed:

Small & simple [] Global projects [] complex projects []

12. Have you managed projects simultaneously or individually:

Simultaneously [] Individually [] Mix of both []

13. Have you managed projects simultaneously that are relevant to each other and that serves the same goals and objects and which are dependent on each other:

Yes [] No []

Portfolio Questions:

14. How did you become portfolio manager? Did you work in project management field first and did it play a role in getting your current position in portfolio management?
15. Based on your experience, do you agree that project manager is equivalent to senior employee and program manager to section manager or department manager and portfolio manager is equivalent to director, CEO or higher management when comparing role complexity?
16. Do you agree that being project manager supports career progression into program manager and portfolio manager? Why?
17. Based on your experience is it true that in reality portfolio manager needs to have project management competencies, program management competencies and on top on it portfolio management competencies to play the role of program manager?
18. From the literature it is noted that the more you progress in your career from project to program to portfolio management roles, the more human and conceptual skills are required and the lower technical skills are demanded?
19. While managing the portfolio do you agree that to do so, you need to have holistic view and not focus on details of the different portfolio elements (projects/programs...etc)?
20. As a portfolio manager to what extent did you implement the below responsibilities (defined in the conceptual framework Table 3-1)? Did you implement other responsibilities as part of the role?
21. When going over the required list of competencies (defined in the conceptual framework Table 3-2), to what extent do you agree with the defined competency? Can you provide examples from reality?
- a. As a portfolio manager did you really implemented the knowledge areas that are defined as portfolio knowledge areas?
 - b. Does understanding political climate affect portfolio success? Can you support by examples? Which role demands more focus on political climate and why do you think that?
 - c. Do you agree that working in an environment that of increased level of complexity and uncertainly supports your career and project management progression and leads to comprehensive managerial and leadership knowledge?

22. Based on existing job descriptions related to portfolio management:

- a. Are the defined competencies covering the required competencies?
- b. Do you agree that decision making boundaries are considering technical decisions only?
- c. Portfolio manager role is the mediator and decision maker after negotiation with senior management and project/program managers, is it the case in reality?
- d. Who do you coach?
- e. Are the 4 portfolio processes followed in reality? If not, then do you prefer having the processes as per the researcher findings or as per defined in the job description?
- f. Do you consider HSE (Health, Security, and Environment) factors while performing your role?

23. Based on existing job descriptions related to project management:

- a. One of the responsibilities in one of the job descriptions of project managers, stated about improving internal processes related to business function and not to the project/program, such as improving processing to support DGEP and follow on DGEP requirements. Based on your experience in the field of project management, do you agree that this responsibility is part of project/program managers' role? Why?