

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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**A critical evaluation of the internal “cross-departmental” projects communications management at UNRWA- Gaza field office within the construction & infrastructure sector**

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**تقييم نقدي للتنسيق و تبادل المعلومات بين  
مختلف دوائر الأنروا بمكتب غزة الإقليمي في  
إدارة مشاريع الإنشاءات و البنية التحتية**

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

رَبَّنَا لَا تُزِغْ قُلُوبَنَا بَعْدَ إِذْ هَدَيْتَنَا وَهَبْ  
لَنَا مِنْ لَدُنْكَ رَحْمَةً إِنَّكَ أَنْتَ الْوَهَّابُ

سورة آل عمران - القرآن الكريم

## **Dedication**

*I dedicate this work:*

To my mother's soul

To my father

To my sister

To my sons "Hasan & Abdul-Rahman"

To my wife

## **Acknowledgment**

First, I would like to thank my advisor Professor Yousif Ashour for his continuous support for accomplishing this work. Prof. Yousif was always there to listen and to give advice. He taught me how to ask questions and express my ideas. He showed me different ways to think out of the box and how to be patient in pursuit of attaining a goal.

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## TABLE OF CONTENTS

<b>Chapter 1. General Introduction</b> .....	1
First- Introduction.....	2
Second- Problem Statement .....	3
Third- Research Variables .....	6
Fourth- Research Hypotheses .....	10
Fifth- Research Question .....	10
Sixth- Research Objectives.....	11
Seventh- Research Methodology.....	11
Eighth- Importance of Research.....	11
Ninth- Research Structure.....	12
<b>Chapter 2. Literature Review</b> .....	15
Section One: Projects within the Organizational Concept.....	16
Section Two: Communications.....	27
Section Three: Management Information Systems.....	37
Section Four: UNRWA overview .....	59
<b>Chapter 3. Previous Studies</b> .....	68
Introduction.....	69
First-Arabic Studies .....	69
Second- International Studies .....	73
Commentary .....	84
<b>Chapter 4. Research Methodology</b> .....	86
Introduction.....	87
First- Research Strategy .....	87
Second- Data Collection & Analysis.....	88

Third- Questionnaire Design & Content.....	91
Fourth- Statistical Analysis Tools.....	93
<b>Chapter 5. Hypothesis Testing &amp; Discussion .....</b>	<b>95</b>
First- Critical Criterion.....	96
Second- Characteristics of the Research Population.....	96
Third- Analyzing the First Dimension .....	102
Fourth-Analyzing the Second Dimension .....	107
Fifth- Analyzing the Third Dimension.....	113
Sixth- Analyzing the Fourth Dimension .....	116
Seventh- Analyzing the Fifth Dimension .....	120
Eighth- Analyzing the Five Dimensions.....	124
Ninth- Analyzing Statistical Relationships .....	125
Tenth- Analyzing Potential Differences among Participants .....	127
<b>Chapter 6. Conclusion &amp; Recommendations.....</b>	<b>132</b>
Introduction.....	133
First-Conclusion.....	133
Second-Recommendations .....	135
Third- Proposed Future Studies.....	138
<b>References.....</b>	<b>139</b>
Annexes .....	144

## List of Figures

<u>Figure 1 Research Variables Diagram</u> .....	7
<u>Figure 2 Research Conceptual Framework</u> .....	9
<u>Figure 3 – Research Importance Diagram</u> .....	12
<u>Figure 4 - The strategic organizational position of “projects”</u> .....	17
<u>Figure 5 - Basic Communication Model</u> .....	27
<u>Figure 6 – Main uses of communication directions</u> .....	30
<u>Figure 7 - Communication Flow</u> .....	31
<u>Figure 8 – General Categories of Communications</u> .....	33
<u>Figure 9 – Guide for When to Use Written versus Verbal Communication</u> .....	34
<u>Figure 10 – From [DATA] to [INFORMATION] to [KNOWLEDGE]</u> .....	39
<u>Figure 11 – Generic Model of a System</u> .....	40
<u>Figure 12 – The main three dimensions of the Information System</u> .....	43
<u>Figure 13 – Enterprise System</u> .....	49
<u>Figure 14 – The academics’ view of Information Quality</u> .....	53
<u>Figure 15 – Summary of attributes of Information Quality</u> .....	53
<u>Figure 16 – Organizational Influences on Projects</u> .....	67
<u>Figure 17 – Distribution of the participants according to the functional department</u> .....	100



## List of Tables

Table 1 - Differences between Project, Program, & Portfolio .....	18
Table 2 – Summary of the functional positions of participants from all departments except ICIP staff...	90
Table 3 – Summary of the functional positions of all research population from the ICIP .....	91
Table 4 – The main dimensions of the questionnaire .....	92
Table 5 – The adopted time frequency scale .....	92
Table 6 – One sample K-S test .....	94
Table 7 – Distribution of the Research Population according to Gender .....	97
Table 8 – Distribution of the Research Population according to Age .....	97
Table 9 – Distribution of the Research Population according to Academic Qualifications .....	98
Table 10 – Distribution of the Research Population according to Practical Experience at UNRWA .....	98
Table 11 – Distribution of the Research Population according to Functional Department .....	99
Table 12 – Distribution of the Research Population according to the organizational level.....	100
Table 13 – Distribution of the participants according to the type of involvement in projects’ tasks .....	101
Table 14 – Distribution of the Population based on the time-intensity involvement in projects’ tasks ..	102
Table 15 – Means and “t” test for the 1 <sup>st</sup> Dimension’s Paragraphs .....	103
Table 16 – Frequencies of the choices rated by the participants in response to the overall evaluation...	106
Table 17 – Means and “t” test for the 2 <sup>nd</sup> Dimension’s Paragraphs .....	108
Table 18 – Means and “t” test for the 3 <sup>rd</sup> Dimension’s Paragraphs.....	113
Table 19– Ranks for the major obstacles associated with the exchange of Information .....	115
Table 20 – Means and “t” test for the 4 <sup>th</sup> Dimension’s Paragraphs.....	117
Table 21 – Means and “t” test for the 5 <sup>th</sup> Dimension’s Paragraphs.....	120
Table 22 – Usage Frequency per each communication channel in administering UNRWA projects .....	123
Table 23 – Means and “t” test for all Dimensions.....	125
Table 24 – Correlation between the Projects Communications and the quality of information systems	126
Table 25 – Correlation between the Projects Communications and the information quality .....	126
Table 26 – Correlation between the Projects Communications and the Organizational Structure.....	127
Table 27 – Correlation between the Projects Communications and the communication flow .....	127
Table 28 – Independent “t” test for Gender.....	128
Table 29 – ANOVA test for Age.....	128
Table 30 – ANOVA test for Qualifications.....	129
Table 31 – ANOVA test for Experience .....	129
Table 32 – ANOVA test for Department .....	130
Table 33 – ANOVA test for Grade (organizational level) .....	130
Table 34 – ANOVA test for Type of Involvement [Technical/Administrative] .....	131
Table 35 – ANOVA test for Time-Intensity Involvement in Projects’ related tasks.....	131
Table 36 –correlation coefficient between each paragraph in the dimension and the whole dimension .	188
Table 37 – Structure validity of the questionnaire .....	193
Table 38 – Split-Half Coefficient Method .....	194
Table 39 – Cronbach’s Alpha for each field of the questionnaire and for the entire fields.....	195

## List of Abbreviations

<b>BA</b>	Business Analysis
<b>BPI</b>	Business Process Improvement
<b>DMS</b>	Documents Management System
<b>EmP</b>	Emergency Programme
<b>FEP</b>	Field Education Programme
<b>FFD</b>	Field Finance Department
<b>FHP</b>	Field Health Programme
<b>FPSO</b>	Field Programme Support Office
<b>GFO</b>	Gaza Field Office
<b>GRP</b>	Gaza Re-construction Plan
<b>IS</b>	Information System
<b>ISO</b>	Information System Office
<b>ICIP</b>	Infrastructure & Camp Improvement Programme
<b>OD</b>	Organizational Development
<b>PCM</b>	Programme/Project Cycle Management
<b>PMI</b>	Project Management Institute
<b>PMIS</b>	Projects Management Information System
<b>PO</b>	Projects Office
<b>ROA</b>	Rapid Organizational Assessment
<b>RSSP</b>	Relief & Social Services Programme
<b>UNRWA</b>	United Nations Relief and Works Agency for Palestine Refugees in the Near East

## **List of Appendices**

Annex No. [1]	Rationale of PMIS Model	146
Annex No. [2]	PMIS Model (Schematic Diagrams)	156
Annex No. [3]	Validity and Reliability of the Questionnaire	187
Annex No. [4]	Final Questionnaire (in Arabic)	197
Annex No. [5]	The Questionnaire (in English)	202
Annex No. [6]	Referees Who Judged the questionnaire	208

## تقييم نقدي للتنسيق و تبادل المعلومات بين مختلف دوائر الأتروا بمكتب غزة الإقليمي في إدارة مشاريع الإنشاءات و البنية التحتية

### الملخص

هدفت هذه الدراسة إلى تقييم التنسيق و تبادل المعلومات بين كافة دوائر مكتب وكالة الغوث الدولية (الأتروا) بغزة و المنخرطة في إدارة و متابعة مشاريع الإنشاءات و البنية التحتية من خلال تقييم أثر كلا من: جودة المعلومات المتبادلة ، جودة أنظمة المعلومات المتاحة، الهيكل التنظيمي للأتروا (بيروقراطية وظيفية) و التدفق التنظيمي للاتصالات . يتكون مجتمع الدراسة من الموظفين الأساسيين في إدارة و متابعة المشاريع من كافة الدوائر و البالغ عددهم (49) موظف، حيث تم جمع البيانات الأولية من مجتمع الدراسة بالكامل عبر إستبانات تمت تعبئتها من قبل المبحوثين في ظل وجود الباحث لتحقيق أكبر قدر ممكن من إزالة أي لبس أو غموض في فهم فقرات الإستبانات و لإعطاء الفرصة للحوار و فهم المضمون كلما أتاحت الفرصة ذلك أو لزم الأمر.

توصلت الدراسة إلى وجود علاقة ذات دلالة إحصائية بين التنسيق و تبادل المعلومات بين دوائر الأتروا من جهة و بين كل من: جودة المعلومات المتبادلة ، جودة أنظمة المعلومات المتوفرة، الهيكل التنظيمي الأتروا و التدفق التنظيمي للاتصالات . فعلى صعيد جودة المعلومات المتبادلة تبين من خلال التحليل أن أكثر ما يواجه الموظفين من تحد يكمن في إمكانية الحصول على المعلومات اللازمة في الوقت المناسب و دون بذل جهد غير اعتيادي . أما على صعيد جودة أنظمة المعلومات المتوفرة فقد تبين من خلال التحليل أن أنظمة المعلومات المحوسبة المتاحة لا توفر لمستخدميها كثيرا من احتياجاتهم المعلوماتية كما أنها لا تحظى بالتنوير اللازم لأخذ احتياجات المستخدمين بعين الاعتبار-أضف إلى ذلك اضطرار معظم الموظفين إلى تطوير تطبيقات إلكترونية خاصة بهم لتنظيم و إدارة بيانات و معلومات المشاريع ، الأمر الذي أدى بدوره إلى وجود العديد من أنظمة المعلومات المحوسبة بشكل غير مترابط ولا حتى متناسق. و لا يختلف الأمر كثيرا عندما يتم التطرق لأنظمة المعلومات الورقية (السجلات و الملفات و التقارير الدورية للدوائر)، حيث تبين أن هذه الأنظمة أيضا لا توفر لمستخدميها كثيرا من احتياجاتهم المعلوماتية. هذا و قد أوضحت الدراسة أن الهيكل التنظيمي الحالي للأتروا (بيروقراطية وظيفية) يعد عنصرا معطلا لإدارة المشاريع في الأتروا و ينعكس ذلك جليا في ضعف كفاءة تدفق الاتصالات التنظيمية.

في ضوء هذه النتائج خلصت الدراسة إلى عدد من التوصيات أهمها : ضرورة تبني هيكل تنظيمي فرعي مؤقت خالص بكل مشروع و تحديد قائمة بالموظفين المسئولين عن متابعة كل مشروع من كافة الدوائر مع تحديد مسؤولياتهم و صلاحياتهم و قنوات الاتصال اللازمة، كما أوصت الدراسة بضرورة تعزيز دور مكتب المشاريع في الرقابة على أداء الدوائر. ومن أهم التوصيات التي خلص لها الباحث أهمية الشروع في تطبيق نظام معلومات إداري محوسب لإدارة المشاريع، حيث قدم الباحث نموذجا مقترحا تم بناؤه تبعا لأولويات المبحوثين و ما اتضح عبر هذه الدراسة.

## **Abstract**

This study aimed at critically evaluating the internal “cross-departmental” Projects Communications Management at UNRWA- Gaza Field Office within the construction & infrastructure sector. A comprehensive survey has been adopted for the research population ; which consists of all staff members (49 in number) from all managerial levels (operational, middle management, and top management level) across the various departments at UNRWA-Gaza Field Office who are directly involved in administering/managing construction & infrastructure projects. Every participant received a copy of the questionnaire and answered its structured questions in full presence of the researcher to receive any required clarifications (in a standard and unified way to avoid any bias in the collection stage). The researcher had discussed questions with the participant for probing and thorough understanding purposes.

The study revealed that there are significant statistical relationships between the dependent variable (cross-departmental Projects Communications Management) and the following independent variables: information quality, quality of available information systems, organizational structure (functional bureaucracy) and organizational communication flow. As for the information quality, the study revealed that acquiring required information with the least feasible efforts and on-time is the main obstacle encountered during exchanging information across the departments. The quality of the available computerized information does not satisfy the users’ needs of information and these systems are not subject to periodic development or customization to the users’ needs. This forced the employees to develop by themselves many computerized applications to manage and organize their requirements of data and information; which, in turn, led to fragmented, scattered and not-integrated systems. Unfortunately, the situation for the manual information system (archives, records and periodic reports) was not an exception; where the study revealed that even these systems do not satisfy the users’ information needs. Finally, the study revealed the negative impact of the current functional bureaucracy on the projects communications management in particular and on the organization communication flow in general.

The study was concluded by practical recommendations; of which the following are the most important: 1- the necessity to adopt temporary parallel matrix structure per each project with clear responsibilities per assigned staff and well-organized communication plan, 2- the necessity to bolstering the monitoring and control role of the Field Projects Office and 3- the necessity of applying a Project Management Information System [PMIS]. The research has proposed a generic model for the PMIS based on the feedback received from the field work.

# Chapter 1. General Introduction

## CHAPTER OUTLINE

- First: Introduction
- Second: Problem Statement
- Third: Research Variables
- Fourth: Research Hypotheses
- Fifth: Research Question
- Sixth: Research Objectives
- Seventh: Research Methodology
- Eighth: Importance of Research
- Ninth: Research Structure

## First- Introduction

The success of most projects, whether handled by a dedicated project team or a cross-departmental team, depends upon a set of crucial communications management. Simply, project communications refer to the specific behaviors and techniques used to inform, motivate, lead, delegate, and report back to all stakeholders working (either directly or indirectly) on the project (Hodgetts, 1990).

Information is the glue that holds together the structure of all businesses and it is the main ingredient for any organizational communication process; which, in turn, is the vehicle that connects all managerial processes together. From this perspective, it is obvious that the **quality** and the **flow** of **information** held by the organization considerably affect the efficiency and effectiveness of all managerial processes. In recent years, the vast majority of organizations has come to realize that information has an impact on almost every activity and must therefore be seen and managed as a vital asset (Bocij et al, 2006).

UNRWA and other International Development & Humanitarian Organizations (which are basically functionally organized bureaucracies) implement many different types of projects in developing countries. The below lists common project management problems found on international development projects (Youker, 2000):

1. Organization not committed to, or structured for, project management
2. Lack of a shared perception and agreement on the objectives of a project by staff and stakeholders
3. Unclear lines of authority and responsibility
4. Poor feedback and control processes so that problems can't be detected early
5. Lack of commitment to the project by the team, management, and stakeholders
6. Delays caused by bureaucratic administrative systems
  - a. Delays in approvals
  - b. Slow decisions in personnel administration
  - c. Delays in procurement and import of goods
  - d. Delays in release of funds (especially in-house funds)
  - e. Delays in land acquisition
7. Lack of detailed, realistic and current project plans (for the schedule, budget, procurement, resources, and so forth)
8. Lack of strong project leadership
9. Lack of adequate resources (personnel, equipment and supplies)
10. Poor or no analysis of major risk factors.

The main theme of this thesis is the project communications management which is defined by the Project Management Institute (PMI) as “**the processes required to ensure timely and**

**appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information”** (PMI, Project Management Body of Knowledge, 2008) . As this definition is adopted by the author as the operationalized definition, this thesis encompasses related topics that can be set under the umbrella of: 1- Organizational Communications, 2- Management Information System and 3- Project Management.

## **Second- Problem Statement**

Unlike other United Nations organizations which work through local authorities or executing agencies, UNRWA provides its services directly to Palestine refugees. Originally envisaged as a temporary organization with focus on temporary relief efforts only, the Agency has gradually adjusted its Programmes to meet the changing and challenging needs of the refugees with an ultimate sustainable development goal rather than just temporary relief operations (UNRWA, 2012).

UNRWA today’s mission is”to help Palestine refugees achieve their full potential in human development terms under the difficult circumstances in which they live”. In order to promote the human development of Palestine refugees, UNRWA has set four long term goals which assert that Palestine refugees should have: 1- A long and healthy life; 2- Acquired appropriate knowledge and skills; 3- A decent standard of living and; 4- Human rights enjoyed to the fullest extent possible (UNRWA, 2012).

In line with the aforementioned strategic goals, UNRWA in Gaza has basically main five programs through which it provides its services to the refugees:

1. Infrastructure & Camp Improvement Programme.
2. Education Programme.
3. Health Programme.
4. Relief & Social Services Programme.
5. Emergency Programme (UNRWA, 2012).

The operations and projects carried-out by these programs are supported basically by the following seven support departments:

1. Projects Office.
2. Procurement & Logistics Services Department.
3. Finance Department.
4. Administration & Human Resources Department.
5. Information Systems Office.
6. Programme Support Office.
7. Operations Support Office (UNRWA, 2012).



The Projects Office, as one of the support department, is one of the vital arms under the top management umbrella. Its main rule is to properly administer the projects management at the field and to support the implementing departments as well as the sponsoring programmes in managing their projects. The Projects Office is the focal communication channel between all internal and external stakeholders. Externally, all communications, that are relayed to the donors through the Headquarters External Relations & Communication Department, are managed by the Projects Office. Internally, the Projects Office plays a central role for coordinating the cross-departmental communications. Therefore, this research typically addresses the core role of this office; which is the communications management among the various internal stakeholders.

Gaza Field has been progressively evolving to be extremely the largest field among all other fields in terms of the challenging emergency situation, the numerous diversity of interventions, the increasing demands on services and hence the level of required funding. In spite of all the increasing challenges, unfortunately, UNRWA continuously faces serious deficits on its regular general fund budget [GF] and UNRWA never mets its full requirements of emergency funding. The project activities of the GFO have substantially increased in terms of magnitude and complexity over the past few years; with a Project budget in 1999 of US\$ 4 million compared to an annual average of US\$ 200 million during the past three years. Accordingly, the role of projects becomes a vital lever for accomplishing UNRWA's objectives (on both levels-the short run and the long term). Additionally, as many other huge organizations over the globe, UNRWA is moving forward towards projectizing many of its interventions and services (including the regular operations) to relief the regular general fund budget, to maintain an appropriate level of reserve and contingencies and to mitigate the risks associated with the complete reliance on the voluntary regular general budget being contributed by the UN-General Assembly members -basically EC countries & USA (UNRWA, 2012).

The big portion of the project budget at GFO is allocated for the construction and infrastructure sector. This sector is directly managed by the Infrastructure & Camp Improvement Programme [ICIP]; where Gaza Reconstruction Plan is just part of the programme scope (although it is constituting the big chunk) of the construction and infrastructure projects today. Unlike all other programmes such as Education and Health, the ICIP programme by its nature heavily depends on projects rather than regular operations. **Additionally, implementing construction and infrastructure projects necessitates functional interactions and close coordination throughout the project's life cycle with all other programmes and departments. For example, ICIP cannot plan for a school construction without a prior communications with the Education programme and the**

**school, once constructed, will not be operational without being properly furnished, equipped, and provided with utilities.**

In late 2005, and in response for the strong demand for change by both internal & external stakeholders, UNRWA Commissioner-General decided to launch a comprehensive Organizational Development process (OD) initiative designed to strengthen and sustain the Agency's capacity for Programme management and delivery. The Deputy Commissioner-General at that time was assigned to manage and coordinate the OD process. The strengths and weaknesses of the Agency were identified by reviewing various external reports and internal studies and by engaging consultants to carry out a rapid organizational assessment (ROA). During the ROA, the consultants visited the Fields and the Headquarters Offices. The consultants summarized the findings in terms of eight key themes:

1. Inadequate internal communication and information flow.
2. Departments and offices working as isolated 'islands'.
3. Disconnects between responsibility and delegated authority—and the lack of accountability.
4. Convoluted and time-consuming processes, as well as bureaucratic mindsets.
5. Management malaise, especially middle managers' sense of disempowerment.
6. Stifling of new ideas and creativity.
7. Lack of clarity in strategic direction, focus and priorities.
8. Concerns about salaries, benefits, conditions, and about being cared for and respected (UNRWA-OD, 2006).

Although the OD initiative was launched in late 2005, however the associated efforts are still ongoing and, obviously, internal communications and information flow is one of the vital challenges that are being addressed by the OD. In this connection, in March 2009, UNRWA commissioned Ibis Communication (a UK based consultancy firm) to undertake a strategic review of its internal communication (ibiscommunication, 2012).

According to an official internal report issued by UNRWA-OD on "Projects Management", **there is still a lack of coordination, both across the Agency and within individual departments and fields. Clear lines of communication and decision-making have not been established for projects. Coordination has been made more difficult by a lack of information systems, guidelines and instructions on the management of projects. "No centralized, accessible space for storing important project related information & Lack of access to key project documents restricts transparency of project development process and ability to share lessons learned"** (UNRWA-OD-Intranet, 2012).

## Third-Research Variables

With an exclusive focus on Construction & Infrastructure projects and internal “cross-departmental” communications, the followings represent the research variables:

Y = Dependant Variable = **Internal “cross-departmental” Projects Communications Management**

X1 = 1st Independent Variable = **Information Quality**

X2 = 2nd Independent Variable = **Quality of available Information Systems**

X3 = 3rd Independent Variable = **Organizational Structure**

X4 = 4th Independent Variable = **Communication Flow**

Although the mutual relationships exist, these variables will not cover comprehensively all success factors that affect the project performance. Although there are other factors (independent variables) that influence the internal projects’ communications management such as : external environment (e.g. political, economical, legal, technological & cultural factors), donors’ special requirements, rush of work, exceptional decisions taken by the senior management, however, the researcher has adopted the aforementioned four independent variables for the following reasons:

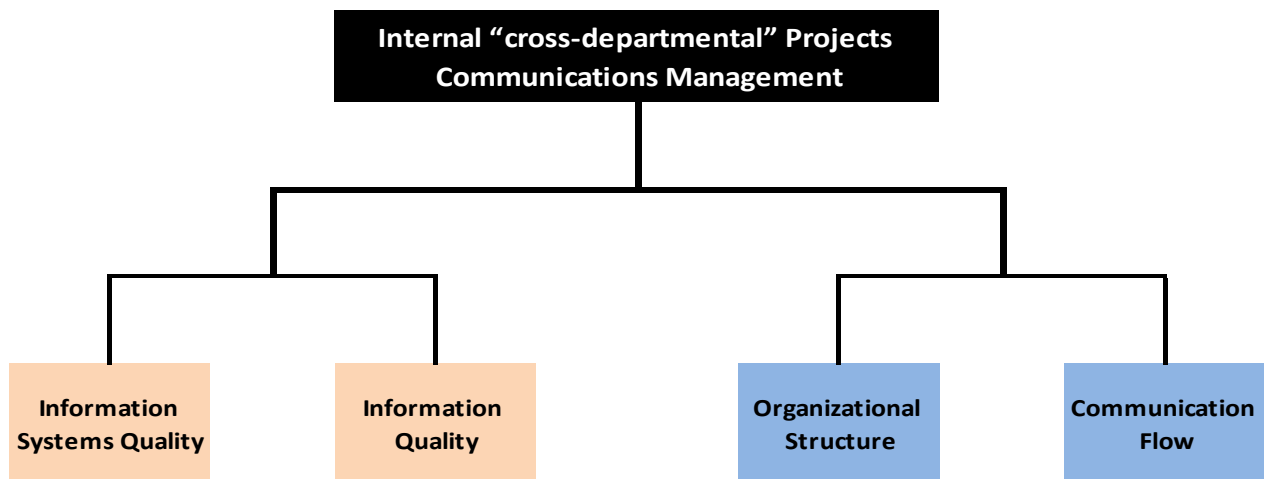
1- Based on the searched literature, it has been found that researchers, who addressed similar or relevant topics, have investigated the effect of these variables; either explicitly as in (Raymond and Bergeron, 2007) study and in (Karim, 2011) study or indirectly as in (El-Saboni, 2009) study and (Ahuja et al, 2009) study.

2- The four variables adopted in this research can be considered as internal controllable factors.

3- The research has ,by its nature, a limitation of addressing external communications as the Field Office is not authorized to communicate externally unless through the HQ-External Relations & Communication Department.

4- Since one of the study objectives is to propose a simple computerized model (which is not supposed to be a comprehensive or a stand-alone solution), the researcher, based on previous studies, found that these are the most critical factors that could address the main elements of any proposed project management information system [PMIS]. More information on the reviewed previous studies are available in chapter three.

To summarize, the following diagram features the research variables:



**Figure 1 Research Variables Diagram**

The below points summarize the operationalized definitions for the research variables as adopted by the researcher. Further definitions adopted by the Information & Communications Management researchers and practitioners are stipulated in Chapter 2 “Literature Review”:

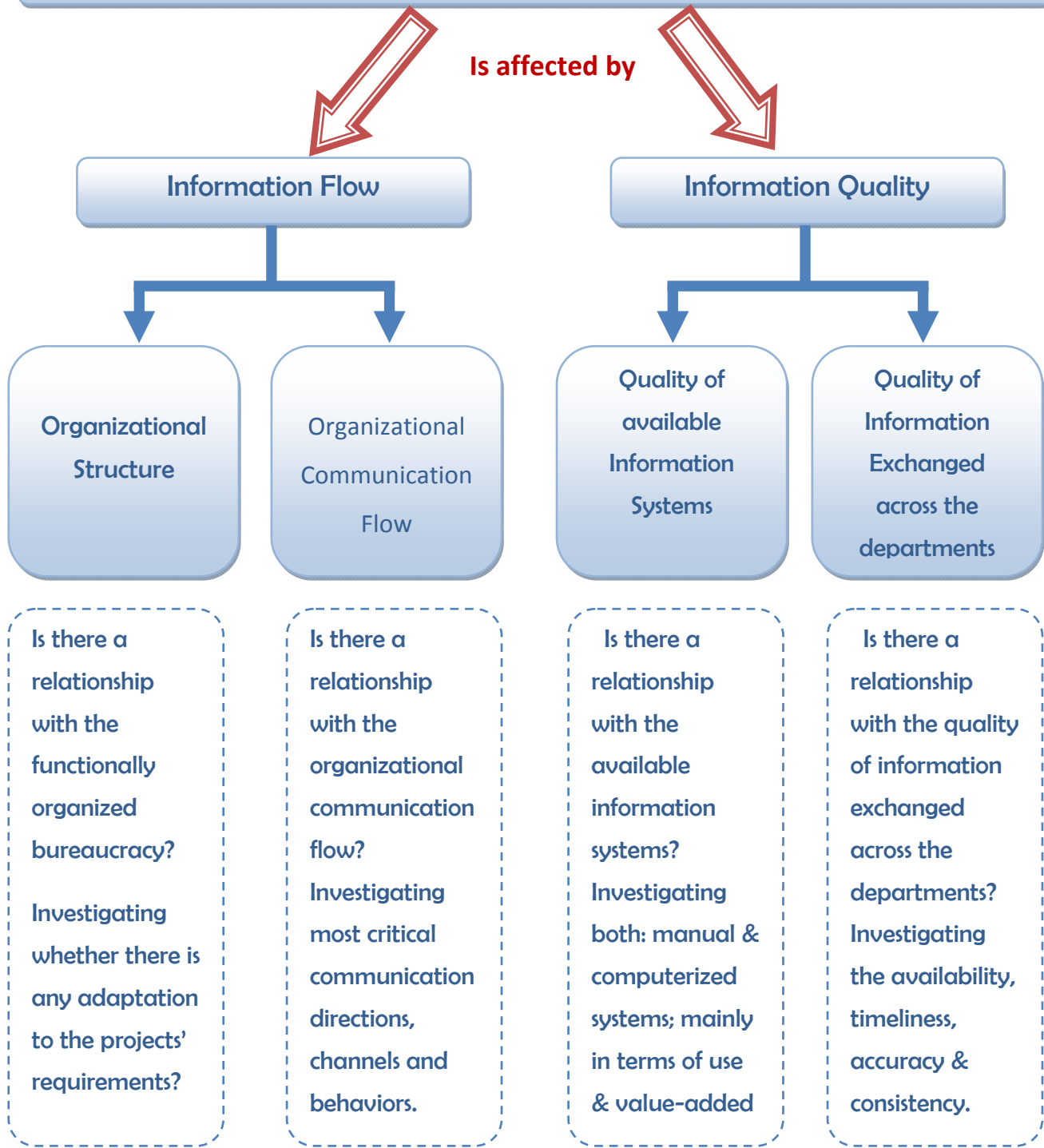
1. **Internal “cross-departmental” Projects Communications Management:** is “the processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information” (PMI, Project Management Body of Knowledge, 2008) ; with exclusive focus on the coordination and exchange of information between the various departments at the Field level who are involved in the projects’ administration.
  
2. **Information Quality:** is the factor that measures the (timeliness, completeness, relevance, accuracy and availability of sources) during exchanging and managing information across the various internal stakeholders who are involved in the projects’ administration.
  
3. **Quality of available Information Systems:** The information system is often defined as "a system, whether automated (mainly: computer-based) or manual (mainly: paper-based), that comprises people, machines, and methods organized to collect, process, transmit, and disseminate data that represent helpful information". Under this research, this variable aimed at assessing the level of benefit produced by the manual (archiving & recording) and computerized information systems that are available at UNRWA-GFO.

4. **Organizational Structure:** this variable is often represented by the reporting lines, hierarchies, and the way that work flows through the business. Since UNRWA is functionally organized bureaucracy that is structured to be operations-oriented instead of adopting a matrix structure (combining both functional hierarchy and project-based hierarchy), this variable aimed at measuring the influence of the functional, bureaucratic structure on the projects' communications.
  
5. **Communication Flow:** communications can flow in four basic directions: vertically upward, vertically downward, laterally (horizontally) or diagonally, and there are several approaches and channels to convey a piece of information. Under this research, this variable aimed at assessing the most critical directions required for effective coordination and exchange of projects' information across the various departments.

Figure No.2 provides the conceptual framework of the research.

# Internal “cross-departmental” projects communications management

Is affected by



Where the effectiveness of “cross-departmental” communications can be measured by the following indicators:

- Making & Implementing appropriate decisions on time.
- Supporting involved staff in performing their duties in a proper & professional manner.
- Motivating and directing staff.
- Lessons Learned are effectively addressed.

**Figure 2 Research Conceptual Framework**

## Fourth-Research Hypotheses

The study examines the following hypotheses:

**Hypothesis 1:** There is a significant statistical relationship between the Projects Communications Management and the quality of available information systems.

**Hypothesis 2:** There is a significant statistical relationship between the Projects Communications Management and the quality of exchanged information across the departments.

**Hypothesis 3:** There is a significant statistical relationship between the Projects Communications Management and the organizational structure.

**Hypothesis 4:** There is a significant statistical relationship between the Projects Communications Management and the organizational communication flow.

**Hypothesis 5:** There are significant differences of the population's individual's perceptions according to their personal and professional characteristic (age, education, experience, department and grade).

## Fifth-Research Question

How do information **flow** and information **quality** affect the internal “cross-departmental” projects communication management at UNRWA-GFO?

In line with the aforementioned basic question, the research also aims at critically evaluate the following sub-questions within the “case study” context:

1. How big the gap is between the status quo and what “should be” as perceived & processed by the key staff who are involved in projects administration? This can be considered as a combination of both: communication audit and information systems audit.
2. What can be done to improve the project communications management at UNRWA-GFO?
3. What are the main parameters to be addressed for developing a framework for establishing a Central Projects' Management Information System [PMIS]?

## **Sixth- Research Objectives**

With an exclusive focus on Construction & Infrastructure projects:

1. To conduct a "Critical Evaluation" for the internal projects' communications management at UNRWA-GFO in order to:
  - a. Identifying the strengths and best practices.
  - b. Identifying gaps and diagnosing bottlenecks.
  - c. Identifying areas of improvement
2. To propose a simple computerized model (which is not believed to be a comprehensive or a stand-alone solution) that can be developed further to establish a comprehensive central Projects' Management Information System [PMIS] along with electronic Documents Management System [DMS]. Further details on how this objective was attained under this study are available in chapter four and Annex no.1.

## **Seventh- Research Methodology**

Analytical descriptive approach was used to collect and analyze the quantitative measurements. The research also can be considered as the first steps in conducting an [Action Research] strategy (Saunders et al, 2007). The primary data are collected through structured & quantifiable questions and a comprehensive survey has been adopted for the research population ; which consists of all staff members (49 in number) from all managerial levels (operational, middle management, and top management level) across the various departments at UNRWA-Gaza Field Office who are directly involved in administering/managing construction & infrastructure projects. Further details on the research methodology are available in Chapter four.

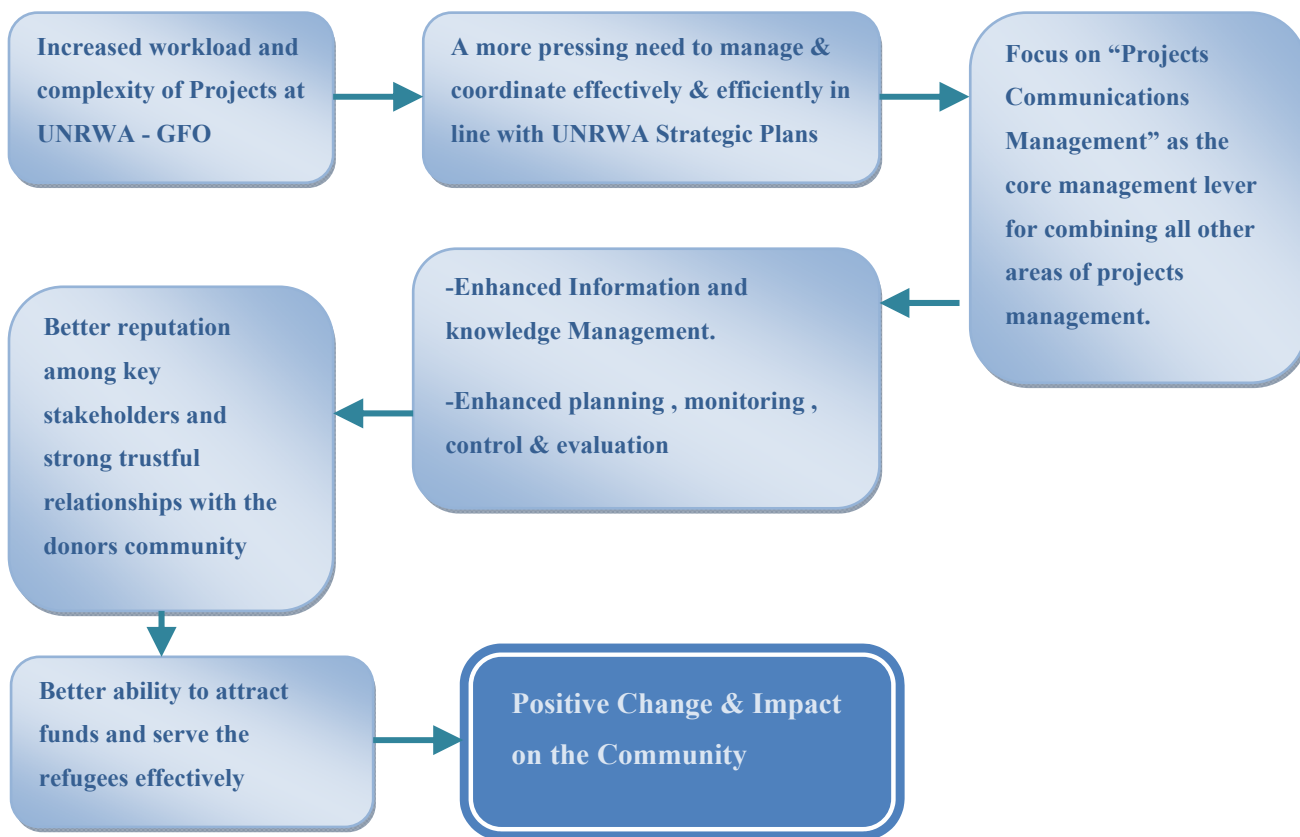
## **Eighth- Importance of Research**

The Project Communications Management processes provide the critical links among people and information that are necessary for successful service/product delivery. Decision makers can spend an inordinate amount of time communicating ineffectively with project teams, stakeholders, beneficiaries, donors and sponsors.

The practical significance of the research lies in considering the findings at the end of this research as well as the associated practical recommendations; based on the findings. These



findings are supposed to reveal the shortcomings of the current system and to further identify practical solution to the problems being encountered. Ultimately; this research will contribute significantly and indirectly in serving Palestine refugees more efficiently. The following diagram simplifies the statement.



**Figure 3 – Research Importance Diagram**

## **Ninth- Research Structure**

There are six chapters in the main body of this study. The first, this chapter, provides an outline of the rationale behind the research and the significance of the research and where it is hoped to add new insight and practical use. As this section is the last section in Chapter One “Introduction”, the following points summarize the main themes and points covered under each of the subsequent chapters to provide an overview on how these chapters are linked and mutually-supportive in a coherent manner.

- The next chapter [Chapter Two- Literature Review], presents relevant literature available on the research subject. The researcher has attempted to provide theoretical framework and definitions of the main themes related to the research problem and variables. Since the research main topic can be disaggregated into its main ingredients (i.e. projects, communications, and information management), this chapter has been divided into four sections. Adopting the ‘scope-narrowing’ approach, every section has an end that is directly related to the subsequent section. The first section begins by portraying the road map to the research importance by briefly explaining the strategic position of projects within organizations, how they are different than other works, how they are related to the organizational strategies and how they can be managed/administered and by whom; with focus on projects’ communications management. Organizational communication is discussed in the second section; where types of communications, communications barriers, communication functions and communications channels and media have been explored; including the electronic communication-which is directly related to the Management Information System. Different aspects of the Management Information System are provided in the third section; including the [data-information-knowledge] life cycle, the technical & organizational concepts of information systems [IS], types of IS and what is required from a good Project Management Information System that can be supported by a Documents Management System. The last section in this chapter is an overview on UNRWA; focusing on its operations, departments and how it is structured and operating in connection with projects’ planning and implementation.
- In [Chapter Three- Previous Studies], thesis studies conducted locally and address particularly UNRWA or projects management themes were briefly analyzed. Additionally, published journal articles related to the research’s variables and objectives have also been briefly analyzed. The chapter was concluded by a commentary section to highlight the match and mismatch points with this study.
- [Chapter Four-Research Methodology] explains the research methodology used and lays out the foundation of the research design; including the data collection and analysis techniques.
- The research findings are discussed and analyzed in [Chapter Five-Hypotheses Analysis and Discussion]; where each dimension in the questionnaire (that was administered by the interviewer) and the correlations between the independent and dependent variables were analyzed.

- The study was concluded by [Chapter Six- Conclusion & Recommendations]; where practical recommendations were proposed based on the research findings.
- Six annexes are attached to the study; where the first and the second annexes provide a proposed computerized model (which is not believed to be a comprehensive or a stand-alone solution and which is believed to be developed further) as a possible corner-stone for establishing a comprehensive central Projects' Management Information System [PMIS] along with electronic Documents Management System [DMS]. The simple model was proposed based on the feedback received from the research participants after concluding the structured interview. Every participant was asked to comment on the gaps he/she believes they are critical when coordinating efforts and exchanging information across the departments.

# Chapter 2. Literature Review

## CHAPTER OUTLINE

- Section One: Projects within the Organizational Concept
- Section Two: Communications
- Section Three: Management Information Systems
- Section Four: UNRWA overview

## Section One: Projects within the Organizational Concept

Organizations perform work to achieve a set of objectives. Generally, work can be categorized as either *projects* or *operations*, although the two sometimes overlap. They share many of the following characteristics: performed by people, constrained by limited resources, and planned, executed, and controlled. (PMI, Project Management Body of Knowledge, 2008).

Projects are a means of organizing activities that cannot be addressed within the organization's normal operational limits. Projects are, therefore, often utilized as a means of achieving an organization's strategic plan, whether the project team is employed by the organization or is a contracted service provider. On the other hand, operations are organizational functions performing the ongoing execution of activities that produce the same product or provide a repetitive service. Projects and operations differ primarily in that operations are ongoing and repetitive, while projects are temporary and unique. Examples of projects include, but are not limited to: developing or acquiring a new or modified information system, implementing a new business procedure or process, constructing a building or facility, and building a water system for a community. (PMI, Project Management Body of Knowledge, 2008)

There are a vast array of projects going on within organizations varying in size and complexity, and there are an increasing number of organizations that are now project-based (i.e. the majority of their work is accomplished through projects). However, the management of projects is often not straightforward and many projects fail as a result of *ineffective project management*. (Norton, 2010)

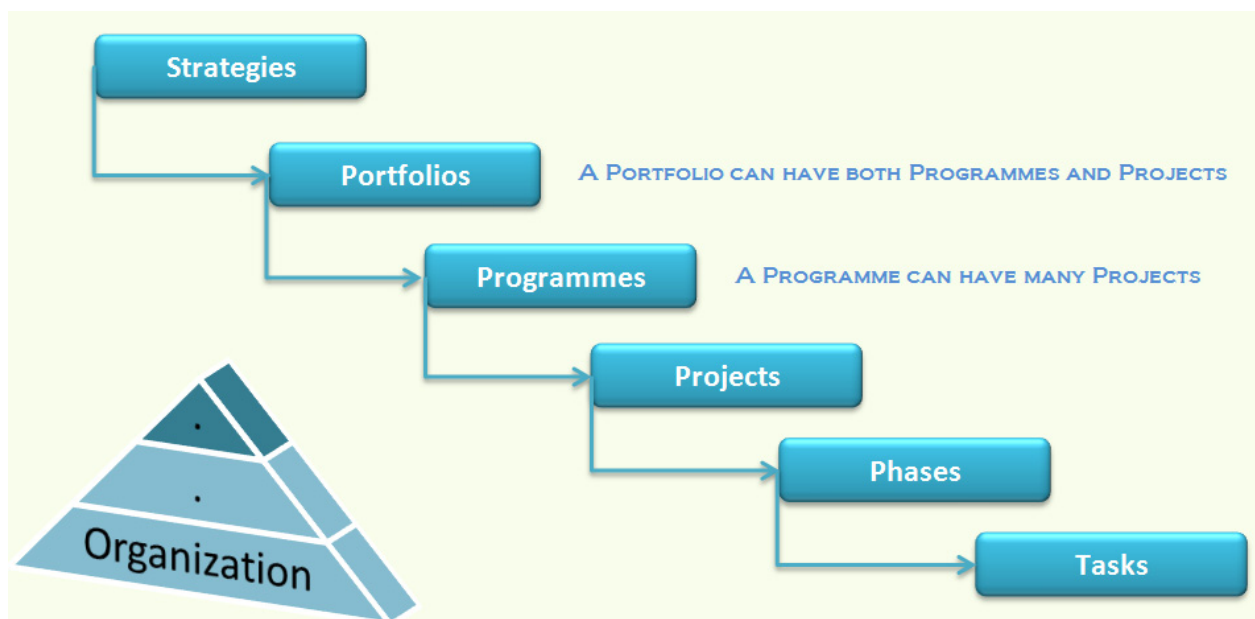
### First - The Strategic Position of Project

Figure 3 shows the strategic position of “projects” with any organization. **Projects, within programs or portfolios, are a means of achieving organizational goals and objectives, often in the context of a strategic plan.** Although a group of projects within a program can have discrete benefits, they also contribute to the benefits of the program, and to the strategic plan of the organization.

**A program** is defined as a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually. Programs may include elements of related work outside the scope of the discrete projects in the program. A project may or may not be part of a program but a program will always have projects. . (Alvin, 2011)

A **portfolio** refers to a collection of projects or programs and other work that are grouped together to facilitate effective management of that work to meet strategic business objectives. The projects or programs of the portfolio may not necessarily be interdependent or directly related. (Eric, 2011)

Keeping this strategic hierarchy, an organization's strategic plan becomes the primary factor guiding investments in projects. At the same time, projects provide feedback to programs and portfolios by means of status reports and change requests that may impact other projects, programs, or portfolios. The needs of the projects, including the resource needs, are rolled up and communicated back to the program level, which in turn sets the direction for organizational planning. (PMI, The Standard for Program Management, 2008).



**Figure 4 - the strategic organizational position of “projects”**

Source with adaptation: (Anand, 2011)

**Project Portfolio Management (PPM)** is the continuous process of identifying, selecting and managing a portfolio of projects in alignment with key performance metrics and strategic business objectives. PPM is about “**doing the right things right**”. “Things” refers to: work efforts, projects, and programs. Work efforts are the tasks and activities required to operate a business. “Doing the right things” refers to prioritizing and selecting programs and projects to achieve the organizational goals. “Doing things right” means delivering high quality projects or programs. The fundamental objective of PPM is to determine the optimal mix and sequencing of ongoing and/or proposed projects to best achieve the organization's overall goals - typically expressed in terms of business strategy goals - while honoring constraints imposed by management or external real-world factors. PPM is for organizations that need

improved governance and execution for its large number of projects (Microsoft-Project, 2012).

To summarize, a portfolio is a collection of projects (temporary endeavors undertaken to create a unique product, service or deliverable) and/or programmes (a group of related projects and operations managed in a coordinated way to obtain benefits and control not available from managing them individually) that are grouped together to facilitate the effective management for meeting the strategic business goals (PMI-Portfolio, 2006)

Projects, programs, and portfolios have different approaches. The below table shows the comparison of project, program, and portfolio views across several domains including change, leadership, management, and others.

**Table 1 - Differences between Project, Program, & Portfolio**

	<b>PROJECTS</b>	<b>PROGRAMS</b>	<b>PORTFOLIOS</b>
Scope	Projects have defined objectives. Scope is progressively elaborated throughout the project life cycle.	Programs have a larger scope and provide more significant benefits.	Portfolios have a business scope that changes with the strategic goals of the organization.
Change	Project managers expect change and implement processes to keep change managed and controlled.	The program manager must expect change from both inside and outside the program and be prepared to manage it.	Portfolio managers continually monitor changes in the broad environment.
Planning	Project managers progressively elaborate high-level information into detailed plans throughout the project life cycle.	Program managers develop the overall program plan and create high-level plans to guide detailed planning at the component level.	Portfolio managers create and maintain necessary processes and communication relative to the aggregate portfolio.
Management	Project managers manage the project team to meet the project objectives.	Program managers manage the program staff and the project managers; they provide vision and overall leadership.	Portfolio managers 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 managers monitor and control the work of producing the products, services or results that the project was undertaken to produce.	Program managers monitor the progress of program components to ensure the overall goals, schedules, budget, and benefits of the program will be met.	Portfolio managers monitor aggregate performance and value indicators.

Source: (PMI, The Standard for Program Management, 2008)

## Second-Project Definition

The Association of Project Managers defines a project as: *'A human activity that achieves a clear objective against a time scale.'* A project also can be defined as a *unique undertaking to achieve a specific objective that requires resources and activity.* (Norton, 2010)

An alternative, the Project Management Body of Knowledge Guide defines a project as a *temporary endeavor undertaken to create a unique product, service, or result.* (PMI, Project Management Body of Knowledge, 2008)

UNRWA defines a project as *'a series of activities aimed at bringing about clearly specified objectives within a defined time period and with a defined budget'*. (UNRWA-PSCU, 2008). In essence, a project is any planned initiative that is intended to bring about beneficial change to a given context (community, institution, organisation, etc). It has boundaries that are determined by its objectives, resources and time span. According to UNRWA definition, a project should contain the following features:

1. defined and measurable results
2. a set of activities to achieve those results
3. a finite and defined life cycle
4. clearly identified stakeholders
5. an organizational structure with clear roles and responsibilities for management, coordination and implementation
6. a defined amount of resources and
7. a monitoring and evaluation system.

In UNRWA's operational context, the term 'project' mainly refers to interventions, which are externally funded over and above the Regular Budget of the Agency (known as the General Fund budget – GF). Projects in UNRWA either address multi-sectoral interventions (e.g. the restructuring of whole refugee camps, as in the case of Gaza Reconstruction & Recovery Programme following the 2008/2009 war), or simpler interventions which supplement existing activities (e.g. the construction of a school or a health centre).

## Third- Project Management

In its modern form, project management is a relative newcomer to the management science. Business and industry started to see the benefits of efficient project management in the early 1960s, but the origins of project management can be traced back to the early 19<sup>th</sup> century, when large-scale 'projects' – the building of railroads, canals, ships, etc – were being



undertaken. Managers of these projects faced new problems: they had to deal with large numbers of workers, complicated elements that needed to be completed in sequence, and the logistics of organizing workers and resources. (Lockitte, 2007)

Frederick Taylor (1856–1915) undertook a detailed study of work and showed that it could be broken down into elementary parts and that those elements could be planned and built into the production process. Henry Gantt (1861–1919), an associate of Taylor, studied the elementary parts in greater detail. One outcome of his work was the introduction of the Gantt chart, which highlighted the sequence and duration of all tasks that in total formed a project. The Gantt chart proved so successful as a project management tool that it remained unchanged for almost 100 years; only recently has it been adapted to show the interdependence of tasks. Other tools have been introduced, such as project evaluation review technique (PERT) charts and critical path analysis, to improve the ‘scientific’ approach to project management. (Lockitte, 2007)

Project management is the term used to describe *‘the application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder needs and expectations from the project’, or ‘the integration of all aspects of a project, ensuring that the proper knowledge and resources are available when and where needed, and above all to ensure that the expected outcome is produced in a timely, cost-effective manner’* (Norton, 2010)

Project management System is the body of knowledge concerned with principles, techniques, and tools used in planning, control, monitoring, and review of projects; while business management system is set of policies, practices, procedures, and processes used in developing and deploying strategies, their execution, and all associated management activity (Business-Dictionary, 2011).

The term “project management” is sometimes used to describe an organizational or managerial approach to the management of projects and some ongoing operations, which can be redefined as projects, which is also referred to as “management by projects.” An organization that adopts this approach defines its activities as projects in a way that is consistent with the definition of a project provided earlier. There has been a tendency in recent years to manage more activities in more application areas using project management. More organizations are using “management by project.” This is not to say that all operations can or should be organized into projects. The adoption of “management by project” is also related to the adoption of an organizational culture that is close to the project management culture. (PMI, The Standard for Program Management, 2008)

A number of methodologies have emerged in the project management marketplace. Whereas PMBoK (Project Management Body of Knowledge) is largely in the public and private domain internationally and in USA where born, other methodologies have been’ developed

by proprietary interests. In the context of this research, PRINCE 2 can be seen as the most important alternative methodology and hence is worth mentioning:

1. PRINCE2 (Projects IN Controlled Environments) is a process-based method for effective project management. PRINCE2 is a de facto standard used extensively by the UK Government and is widely recognized and used in the private sector, both in the UK and internationally. The key features of PRINCE2 are:
  - a. Its focus on business justification
  - b. Enforces a clear structure of authority and responsibility on the project team. The structure of supervision and reporting ensures that each party has clear objectives and that they are supported in achieving these objectives.
  - c. Ensures the production of a number of ‘management products’ associated with the management and control of the project: for example, the project initiation document, the project budget, the project plan and various progress reports.
  - d. Includes a number of different types of plan, ensuring that all the participants in the project (both internal and external to the organization) have a clear understanding of the tasks to be completed, the relationships between them and their roles in the tasks’ completion.
  - e. Contains several quality controls, such as clearly defined and documented technical and management procedures. These ensure that work is completed both on time and at the appropriate level of quality. (PRINCE2, 2011)
2. PMBoK (Project Management Body of Knowledge) – The US-based Project Management Institute (PMI) has defined best-practice project management principles and processes into a volume entitled PMBoK. It describes nine key areas in terms of inputs, outputs, tools, techniques and how they fit together. A number of vendors encapsulate PMBoK into their own service and offerings. (Norton, 2010)

According to PMI, managing a project typically includes:

- a. Identifying requirements
- b. Establishing clear and achievable objectives
- c. Adapting the specifications, plans, and approach to the different concerns and expectations of the various stakeholders.
- d. Balancing the competing project constraints including, but not limited to: Time/Schedule, Budget/Cost, Quality, Scope, Resources, and Risk. (PMI, Project Management Body of Knowledge, 2008)

Project management (according to PMI) is the “*application of knowledge, skills, tools, and techniques to project activities to meet the project requirements*”. Thus, the Project management is accomplished through the appropriate application and integration of logically grouped project management processes comprising the five Process Groups. These five Process Groups are: 1- Initiating, 2- Planning, 3- Executing, 4- Monitoring and

controlling, and 5- Closing. And the following nine knowledge areas represent the main pillars for any successful approach of project management:

1. Project **Integration** Management
2. Project **Communications** Management
3. Project **Scope** Management
4. Project **Time** Management
5. Project **Cost** Management
6. Project **Quality** Management
7. Project **Human Resources** Management
8. Project **Risk** Management
9. Project **Procurement** Management

This research attempts to address basically one of these knowledge areas – namely: the Projects Communications Management which is defined by PMI as the “*the processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information*”. Principally, this definition will be adopted as the operationalized definition in this thesis.

#### **Fourth-Project Management Office**

A project management office (PMO) is an organizational body or entity assigned various responsibilities related to the centralized and coordinated management of those projects under its domain. The responsibilities of a PMO can range from providing project management support functions to actually being responsible for the direct management of a project.

The PMO can have different names such as: Projects Office, Programme Support and Projects Office, Projects Administration Office and Projects Control & Coordination Office (Hill, 2004).

The projects *supported* or *administered* by the PMO may not be related, other than by being managed together. The specific form, function, and structure of a PMO is dependent upon the needs of the organization that it supports. A PMO may be delegated the authority to act as an integral stakeholder and a key decision maker during the beginning of each project, to make recommendations, or to terminate projects or take other actions as required to keep business objectives consistent. In addition, the PMO may be involved in the selection, management, and deployment of shared or dedicated project resources. A primary function of a PMO is to support project managers in a variety of ways which may include, but are not limited to:

1. Coordinating communication across projects.
2. Monitoring compliance with project management standards, policies, procedures, and templates via project audits;
3. Developing and managing project policies, procedures, templates, and other shared documentation (organizational process assets); and
4. Managing shared resources across all projects administered by the PMO;
5. Identifying and developing project management methodology, best practices, and standards;
6. Coaching, mentoring, training, and oversight.

Project managers and PMOs pursue different objectives and, as such, are driven by different requirements. All of these efforts, however, are aligned with the strategic needs of the organization. Differences between the role of project managers and a PMO may include the following:

1. The project manager focuses on the specified project objectives, while the PMO manages major program scope changes which may be seen as potential opportunities to better achieve business objectives.
2. The project manager controls the assigned project resources to best meet project objectives while the PMO optimizes the use of shared organizational resources across all projects.
3. The project manager manages the constraints (scope, schedule, cost, and quality, etc.) of the individual projects while the PMO manages the methodologies, standards, overall risk/opportunity, and interdependencies among projects at the enterprise level (PMI, PMBOK, 2008).

## **Fifth- Project Communications Management**

Project Communications Management plays a key role in keeping all members of the project team on the same page. Without communication among all team members and project stakeholders there can be a breakdown in processes which could have a negative impact on the final product. One of the many factors that contribute to the failure of projects is poor or insufficient communication. Communication is the Lifeblood of a Project, it is the fuel that keeps the project running smoothly; it is the glue that holds a project team together. An effective Project Manager spends most of her/his time in Communication and according to the PMBOK guide, a Project Manager spends 70-90% of her/his time in communication during a project.

Project communications management can be simplified by answering the following questions: Who needs what information and when? What type of information will they need and in what detail? What will the goal be when the information is communicated and how the information be provided to them? (Goudar, 2010)

Proper information distribution makes information available to project stakeholders in a timely manner. The project communication management processes provides the critical links among people and information that are necessary for successful communications. Project communication is the exchange of project-specific information with the emphasis on creating understanding between the sender and the receiver. Effective communication is one of the most important factors contributing to the success of a project. The project team must provide timely and accurate information to all stakeholders. Members of the project team prepare information in a variety of ways to meet the needs of project stakeholders. Team members also receive feedback from these stakeholders. (Caltrans, 2007)

Projects rely on effective communications - a project is no place for individuals to decide what, when and how, without reference to anyone else. Communication management is a proactive attempt to manage the expectations and requirements of all stakeholder groups including the project itself. It must address the fundamental questions . (JISC-InfoNet, 2011)

:

1. what information needs to flow both into and out of the project?
2. who needs what information?
3. when will the information be required?
4. in what format and by which channel will the information be provided?
5. who will be responsible for ensuring the information is provided?

The basic functions of communication in projects are (JISC-InfoNet, 2011):

1. giving information to those who need it
2. co-coordinating, stimulating and facilitating of action
3. supporting change and influencing the attitudes and behavior of stakeholder groups
4. encouraging and facilitating feedback and two-way information flow

The main audiences for communication in projects are (JISC-InfoNet, 2011):

1. members of the Project Team and others directly involved in project activities
2. members of the Project Board and others (e.g. Programme Manager/Office) involved in managing,
3. steering, co-coordinating, controlling funds or involved in changing business processes
4. the remainder of the organization's management and workforce (including end-users and anyone affected by the outputs from the project)

5. External stakeholders such as suppliers, partners, funding bodies, regulatory bodies etc.

Team members can improve overall project communication by adhering to the following communication guidelines (Caltrans, 2007). :

1. Awareness
  - a. Base communication strategies on stakeholder needs and feedback.
  - b. Ensure that communication is shared in a timely manner.
2. Content
  - a. Advocate open, honest, face-to-face, two-way communication.
  - b. Create an environment where project team members and other stakeholders can constructively challenge behavior and ideas.
3. Context
  - a. Remember that communication is two-way. Listen as well as deliver the message.
  - b. Involve senior management when appropriate.
4. Communication flow
  - a. Coordinate communication with project milestone events, activities, and results.
  - b. Include key stakeholders in developing an interest-based conflict management process.
5. Effectiveness
  - a. Conduct regular assessments of the communication plan and process.
  - b. Communication must focus on the key stakeholder.
6. Format and media -as the project team has a variety of methods to share information, take advantage of existing communication vehicles and opportunities.

A certain amount of record keeping and core documentation is required in any project. Well-managed records will not only help you manage a project, they will help you and/or others the next time round. Many projects are repeated or have certain aspects that have been done or researched before. Well organized and accessible records allow people to review what has gone before and either avoid pitfalls or see how to get out of them. Many managers new to project management may be asking 'How much time will be devoted to filling in forms or records. The real question however is 'How important are the forms and records? Most of the key documents associated with any project will: be referred to repeatedly during the course of the project or need updating periodically (JISC-InfoNet, 2011) . A Communication Management Strategy contains a description of the means and frequency of communication to parties both internal and external to the project. It facilitates engagement with stakeholders

through the establishment of a controlled and bi-directional flow of information (PRINCE2, 2011).

According to PMI, Project Communications Management includes the processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information. Project managers spend the majority of their time communicating with team members and other project stakeholders, whether they are internal (at all organizational levels) or external to the organization. Effective communication creates a bridge between diverse stakeholders involved in a project, connecting various cultural and organizational backgrounds, different levels of expertise, and various perspectives and interests in the project execution or outcome. (PMI, Project Management Body of Knowledge, 2008). The Projects Communications Management processes (based on PMBoK) include mainly the following:

1. **Communications Planning:** determining the information and communications needs of the project stakeholders.
2. **Information Distribution:** making needed proper information available to project stakeholders in a timely manner.
3. **Progress Reporting:** collecting and distributing performance information & forecasting.
4. **Managing Key Stakeholders:** managing communications to satisfy the requirements of and resolve issues with project stakeholders (PMI, Project Management Body of Knowledge, 2008).

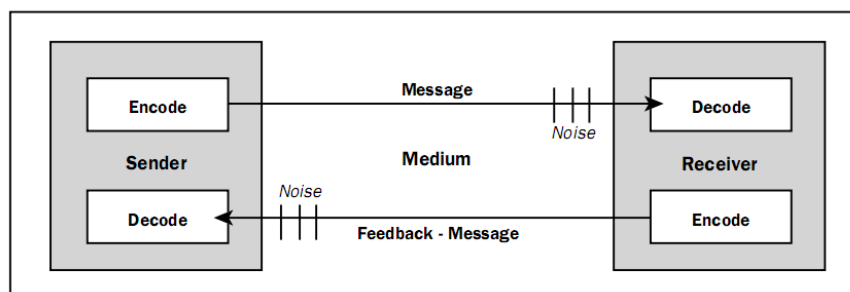
## Section Two: Communications

### First- Business Communications

Communication is the *transfer* and *understanding* of meaning (Robbins & Judge, 2009). It can be seen as the process of transmitting *meaningful information* from sender to receiver through a medium (Hodgetts, 1990). Communication is commonly defined as "the imparting or interchange of thoughts, opinions, or information by speech, writing, or signs". Communication can be perceived as a *two-way process* in which there is an exchange and progression of thoughts, feelings or ideas towards a mutually accepted goal or direction (Abu-Warda, 2010). The effectiveness of communication can be measured by analyzing how small it is the gap between the intended meaning of the source and the perceived meaning of the receiver, and in reality it is unlikely to be one-hundred percent the same.

### Second- The Basic Communication Process Model

The goal of communication is to convey information—and the understanding of that information—from one person or group to another person or group (El-Shikhdeeb, The Role of Business Communication in Decision Making Process : Case Study - PALTEL, 2008). This communication process is divided into three basic components: A *sender* transmits a message through a *channel* to the *receiver*. The sender first develops an idea, which is composed into a message and then transmitted to the other party, who interprets the message and receives meaning. Information theorists have added somewhat more complicated language. Developing a message is known as *encoding*. Interpreting the message is referred to as *decoding*. A basic model of communication, shown in the below figure, demonstrates how information is sent and received between two parties, defined as the sender and the receiver.



**Figure 5 - Basic Communication Model**

Source: (PMI, Project Management Body of Knowledge, 2008)



The key components of the model include (PMI, Project Management Body of Knowledge, 2008):

- Encode: To translate thoughts or ideas into a language that is understood by others.
- Message and feedback-message: The output of encoding.
- Medium: The method used to convey the message.
- Noise: Anything that interferes with the transmission and understanding of the message (e.g., distance, unfamiliar technology, lack of background information).
- Decode: To translate the message back into meaningful thoughts or ideas.

### Third-Functions of Organizational Communication

Communication serves four major functions within a group or organization: ***control***, ***motivation***, ***emotional expression*** and ***information***. Communication acts to control member behavior in several ways. Organizations have authority hierarchies and formal guidelines that employees are required to follow. When employees, for instance, are required to communicate any job-related grievance to their immediate boss, to follow their job description, or to comply with company policies, communication is performing a control function. But informal communication also controls behavior. When work group tease or harass a member who produces too much (and makes the rest of the group look bad), they informally communicating with, and controlling, the member's behavior.

Communication fosters motivation by clarifying to employees what is to be done, how well they are doing, and what can be done to improve performance if it's subpar. Formation of specific goals, feedback on progress toward the goals, and reinforcement of desired behavior all stimulate motivation and required communication .

For many employees, their work group is a primary source for social interaction. The communication that takes place within the group is a fundamental mechanism by which members show their frustration and feeling of satisfaction. Communication, therefore, provides a release for the emotional expression of feelings and for fulfillment of social needs.

The final function that communication performs relates to its role in facilitating decision-making. It provides the information that individuals and groups need to make decisions by transmitting the data to identify and evaluate alternative choices. No one of these four functions should be seen as being more important than the others. For groups to perform effectively, they need to maintain some form of control over members, stimulate members to perform, provide a means for emotional expression, and make decision choices. You can

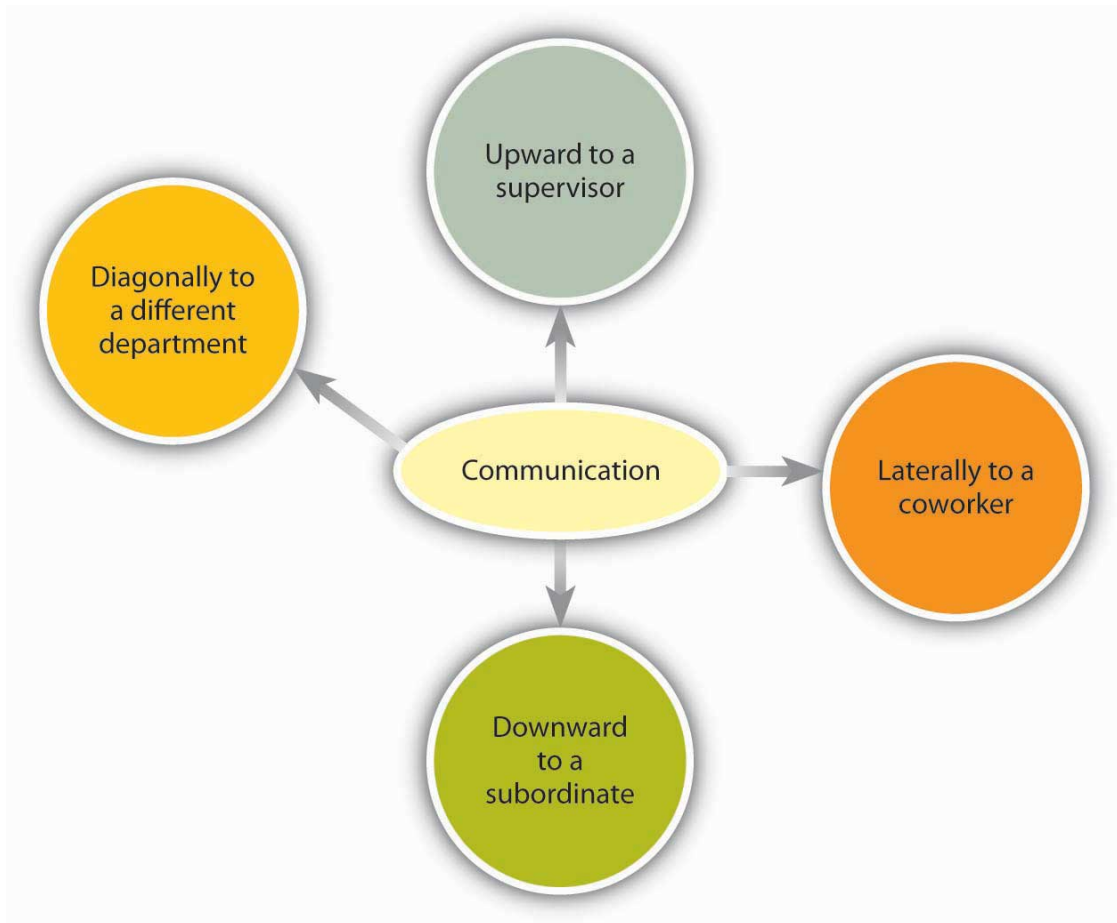
assume almost every communication interaction that takes place in a group or organization; perform one or more of these four functions. (Robbins & Judge, 2009).

Communication is vital to organizations—it's how we *coordinate actions* and achieve goals. It is defined in Webster's dictionary as a process by which *information is exchanged* between individuals through a *common system* of symbols, signs, or behavior. In most work environments, a miscommunication is an annoyance—it can interrupt workflow by causing delays and interpersonal strife. But, in some work arenas, like operating rooms and airplane cockpits, communication can be a matter of life and death (Organizational Communications, 2011). Communication is central to the entire management process for four primary reasons:

- **Communication is a linking process of management:** Communication is the way managers conduct the managerial functions of planning, organizing, staffing, directing, and controlling. Communication is the heart of all organizations.
- **Communication is the primary means by which people obtain and exchange information:** Decisions are often dependent upon the quality and quantity of the information received. If the information on which a decision is based is poor or incomplete, the decision will often be incorrect.
- **The most time-consuming activity a manager engages in is communication.** Managers spend between 70 to 90 percent of their time communicating with employees and other internal and external stakeholders.
- **Information and communication represent power in organizations.** An employee cannot do anything constructive in a work unit unless he or she knows what is to be done, when the task is to be accomplished, and who else is involved. The staff members who have this information become centers of power.

#### Fourth-Communication Flow

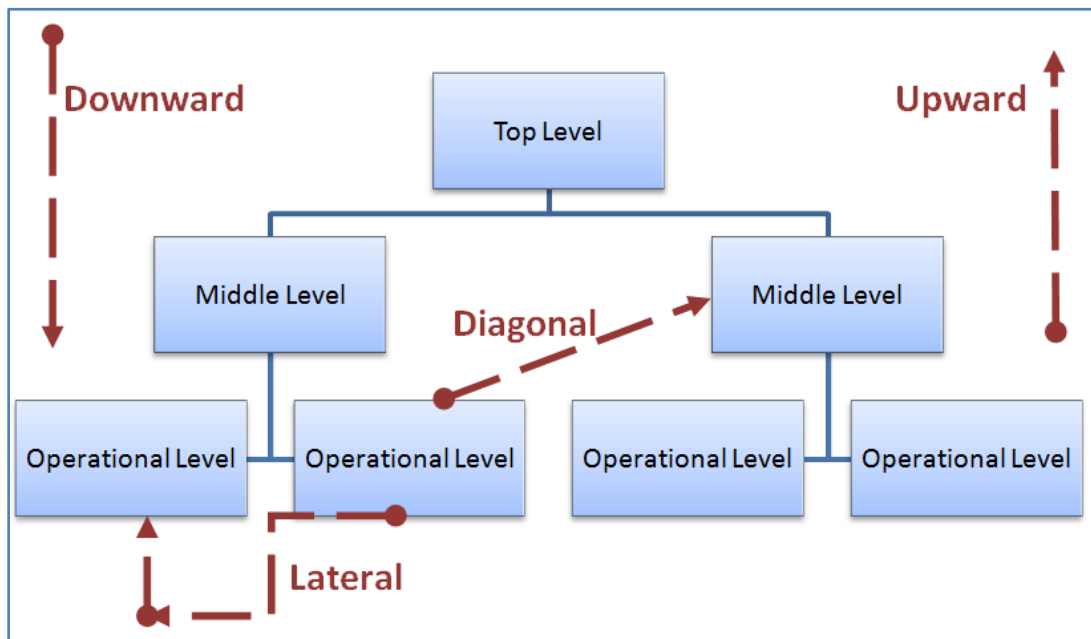
Communications can flow in four basic directions: vertically upward, vertically downward, laterally (horizontally) or diagonally (Hodgetts, 1990). The below figure illustrates each direction of flow:



**Figure 6 – Main uses of communication directions**

Source: (Erdogan, 2010)

As illustrated in the figure no.7, downward communication travels from the superior to the subordinates; where the most common purpose of it is to transmit information and instruct employees in the performance of their jobs. On the contrary, Upward communication travels from subordinate to superior; mainly to provide feedback on how well things are going in addition to complaints and requests for help. On the other hand, the lateral communications focus on coordination of tasks or resources between people on the same level of hierarchy and hence lateral communication is the base of teamwork. The last flow direction is the ***diagonal communication*** which occurs between people who are ***neither in the same department nor on the same level of hierarchy*** to facilitate efficiency. This direction of communication flow (diagonal) is of particular importance to this thesis as it is the base for coordinating and exchanging projects' information.



**Figure 7 - Communication Flow**

Source: Adapted by the researcher based on (Hodgetts, 1990)

### **Fifth- Communications Barriers**

All communication flows are subject to barriers that prevent the receiver from getting the sender's meaning and in some occasions, such barriers prevent even the sender to send the accurate meaning. Some of the most common barriers are:

- **Status**; which refers to the relative ranking of an individual in a group , department or organization. When people communicate, status affects the process, because they often monitor what they say or write on the basis of who is going to receive the message, and they distort what they hear by judging its accuracy according to who said it (Source's lack of credibility).
- **Filtering**; which refers to a sender's purposely manipulating information so it will be seen more favorably by the receiver.
- **Inference**, which is an assumption made by the receiver of the message. This is most often present in long and detailed messages. This also can be known as "**Expectations of familiarity (or hearing what one is expected to hear)**".

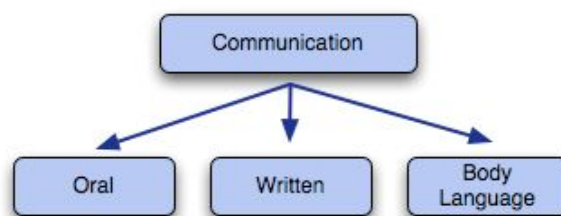
- **Absence of feedback**, where feedback is the check on how successful we have been in transferring our messages as originally intended, and hence it is a corner-stone for any effective two-way communications. One-way communication flows from sender to receiver only, as in the case of a written memo or a voice-mail message. There is no direct and immediate feedback from the recipient. Two-way communication, by contrast, goes from sender to receiver and back again. In these constructive exchanges, information is shared between both parties rather than delivered from one person to the other. It is more accurate, fewer mistakes occur, and fewer problems arise. It is characterized by the normal interactive conversations in our daily experiences. Research indicates that two-way communication is more accurate and effective than is one-way communication, even though it is also more costly and time consuming (El-Shikhdeeb, The Role of Business Communication in Decision Making Process : Case Study - PALTEL, 2008).
- **Semantic barriers**, which are one of the most frequent difficulties in communication, arise because the same word or symbol means different things to different individuals or because the communication involves a poor choice or use of words and mixed/contradictory messages. A word such as “effectiveness” may mean “achieving high production” to a factory superintendent and “employee satisfaction” to a human resources specialist.
- In this regard, the popular KISS principle of communication is always worth remembering: Keep It Short & Simple” (Dessler, 2008).
- **Perception**; which is the process by which individuals organize and interpret their sensory impressions in order to give meaning to their reality. This can lead to what is known as “selective perception”; which is the tendency to selectively interpret what one sees on the basis of one’s interests, backgrounds, experience, and attitudes.
- **Information overload**; which refers to a condition in which information inflow exceeds an individual’s processing capacity.
- **Emotions**; which refers to how the receiver feels at the time of receipt of a communication which can significantly affect the interpretation.
- **Communication apprehension**; which is an undue tension or anxiety about oral or written communications.
- **Language , cultural and gender differences**

## Sixth- Types of Communications

Communications can be classified into different types based on a criterion. On the “level” criterion” Communication is frequently divided into the following levels (Baker, 2009) :

- **Interpersonal communication:** which is real-time, face-to-face or voice-to-voice conversation that allows immediate feedback. Interpersonal communication plays a large role in any daily activities, but especially in organizations that use teams (Communication Methods, 2011) .
- **Group level communication:** involves three or more persons, though communication scholars are inconsistent as to the top end of the number scale. The smaller the number in the group, the more closely this mode resembles interpersonal communication. Often group communication is done for the purpose of problem solving or decision making. Example: University study group (Smith, 2010).
- **Organizational level communication:** deals with communication within large organizations. This is sometimes considered part of group communication, but communication scholars have built up a body of knowledge focused primarily on organizations. Example: Work-focused discussion between employer and employees (Organizational Communications, 2011)
- **Inter-organizational level communication:** is the exchange of meaningful information through established relationships between two or more organization within an inter-organizational collaboration framework (Kirsi Ziegler, 2004).
- **Mass communication:** is a more public form of communication between an entity and a large and diverse audience, mediated by some form of technology. This may be either real time or on a taped-delay basis or it may be rooted in the usually recent past. Examples: Radio and television, newspapers and magazines (Smith, 2010).

Based on the “method” of communicating, communications can be classified into two broad categories: (1)- Verbal Communications , and (2)-Non-verbal Communications. Verbal Communications relies on using words & language either through speaking and listening (**Oral Communications**) or through printed or e-forms (**Written Communications**).



**Figure 8 – General Categories of Communications**

Source: Adapted by the researcher based on (Organizational Communications, 2011)

Although the most common methods of communication are carried out orally or in writing, when it comes to management techniques, the power of **non-verbal communication** must never be underestimated. Your smile, your gestures and several other body movements send out a message to the people around you. You need to be mindful of this while dealing with your colleagues, supervisors, employees and clients (Communication Methods, 2011) .

The below figure highlights the main uses of written and verbal communication components:

Use written communication when	Use oral communication when:
conveying facts	conveying emotion and feelings
the message needs to become part of a permanent file	the message does not need to be permanent
there is little time urgency	there is time urgency
you do not need immediate feedback	you need immediate feedback
the ideas are complicated	the ideas are simple or can be made simple with explanations

**Figure 9 – Guide for When to Use Written versus Verbal Communication**

Source: (Erdogan, 2010)

Another way for classifying communications is according to the formality of the communication channel (media); where there are two types; **formal** communications and **informal** communications. Information flows in organizations through both formal and informal channels of communication. The formal communication in an organization sets out the command structure and interrelationships between the departments within it. A company organizational chart will usually outline the chain of command and responsibility and hence indicate the likely information flow within that organization (El-Shikhdeeb, The Role of Business Communication in Decision Making Process : Case Study - PALTEL, 2008). Thus, formal communications are established by the organization and transmit messages that are related to the professional activities of the members. Although formal communications are supposed to be fully pass through the hierarchal lines in line with the organizational structure; this is not the case always as diagonal communications for business-related issues are formal communications as long as they are controlled and allowed by the organization. On the contrary, informal communications are all other forms of messages, such as personal or

social, that follows informal channels in the organization. These informal channels are spontaneous and emerge as a response to individual choices (Robbins & Judge, 2009). Informal communications tend to co-exist alongside the formal structures that are established by management. In this way individuals formal networks and information is communicated as people chat during tea breaks, over the photocopier and as they pass in corridors. Such informal networks arise due to social needs and to fill the information gaps left by the formal communication (El-Shikhdeeb, The Role of Business Communication in Decision Making Process : Case Study - PALTEL, 2008).

## **Seventh- Electronic Communications**

The primary medium of communication in today's organizations is electronic. Electronic communications include e-mail, text messaging, networking software, Internets, blogs (Web logs) and video conferencing (Robbins & Judge, 2009). Electronic communications have revolutionized both the ability access other people and to reach them almost instantaneously. Managers use computers not only to gather and distribute data but also to talk with others electronically. In electronic decision rooms, software supports simultaneous access to shared files and allows people to share views and do work collectively. Advances in electronic communication technology are allowing organizations to; (1) distribute information much faster than before; (2) make more information available than ever before; (3) allow broader and more immediate access to this information; (4) encourage participation in the sharing and use of information; and, (5) integrate systems and functions, and use information to link with environments in unprecedented ways (El-Shikhdeeb, The Role of Business Communication in Decision Making Process : Case Study - PALTEL, 2008) . The Internet and electronic communications (also called computer mediated communications, or CMC) doesn't just mean new tools for communication; it means new ways to communicate.

Electronic communications adds a powerful new channel that not only will change how you use this mix of options, but it will create entirely new ways to interact. For example:

- Electronic communications lets you combine numerous media - text, graphics sound, video, etc. - into a single message. That can result in far more meaningful communications tailored to the nature of your particular audience
- Electronic communications is interactive. It engages audiences in active, two-way communications.
- Two-way communication is nothing new. But electronic communications creates a new form of many-to-many communications that lets geographically distributed groups communicate interactively and simultaneously through text, sound and video. One of the burgeoning phenomena of the Internet is businesses and organizations



sponsoring, supporting and moderating discussion groups about issues, products, strategies - anything of interest to the organization and its constituents.

- Many organizations are using electronic communications facilities, such as the World Wide Web, as internal communications tools to enhance team work. Many individuals at different locations can work on the same documents, hold meetings and integrate research findings (KnowledgeWay, 2011).

It is worth mentioning that the “Electronic Communication” is in line with the main theme covered in this thesis and the following sections illustrate more on related topics.

## Section Three: Management Information Systems

### First- Data vs. Information vs. Knowledge

**Data** are streams of raw facts representing events occurring in organizations or the surrounding environment before they have been organized, analyzed and arranged into a form that concerned people can understand and use (Laudon, 2010).

**Data** are raw facts or observations that are considered to have little or no value until they have been processed and transformed into information. It is only when data have been placed in some form of context that they become meaningful to a manager. Data can be a series of symbols, numbers, values or words, a series of facts obtained by observation or research and recorded, or the record of an event or fact (Bocij, Chaffey, Greasley, & Hickie, 2006).

**Information** are clusters of meaningful facts that are extracted after having the raw data analyzed and arranged in specific forms that are useful to the concerned people. The facts fed to the records & computers by the data-entry clerk at the registration departments about clients/beneficiaries are raw data. However, the charts, statistical analysis, reports & special queries produced out of these data to meet specific managerial requirements are information (Laudon, 2010).

There are several definitions of information that are in common use: data that have been processed so that they are meaningful; data that have been processed for a purpose; and data that have been interpreted and understood by the recipient. Three important points can be drawn from these definitions. First, there is a clear and logical process that is used to produce information. Secondly, information involves placing data in some form of meaningful context, so that they can be understood and acted upon. Thirdly, information is produced for a purpose, to serve an information need of some kind. Some examples of data processes include the following: Classification, Rearranging/sorting, Aggregating, Performing calculations, and Selection (Bocij, Chaffey, Greasley, & Hickie, 2006).

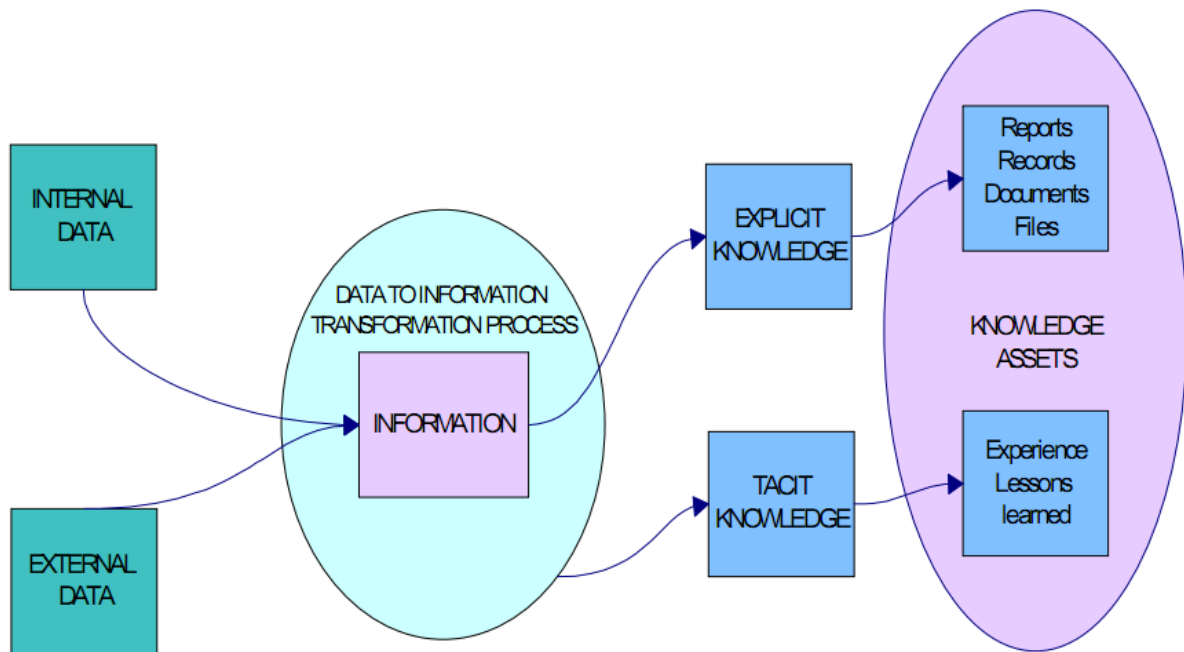
The value of a firm's products and services is based not only on its physical resources but also on intangible knowledge assets. Some firms perform better than others because they have better knowledge about how to create, produce, and deliver products and services. This firm knowledge is difficult to imitate, unique, and can be leveraged into long-term strategic benefit. Knowledge management systems collect all relevant knowledge and experience in the firm and make it available wherever and whenever it is needed to support business processes and management decisions. They also link the firm to external sources of knowledge. Knowledge management systems support processes for acquiring, storing, distributing, and applying knowledge, as well as processes for creating new knowledge and

integrating it into the organization. They include enterprise-wide systems for managing and distributing documents, graphics, and other digital knowledge objects, systems for creating corporate knowledge directories of employees with special areas of expertise, office systems for distributing knowledge and information, and knowledge work systems to facilitate knowledge creation (Laudon, 2010).

**Knowledge management (KM)** describes a broad range of activities related to ensuring that an organization makes the best use of its information resources (Bocij, Chaffey, Greasley, & Hickie, 2006). The concept of **knowledge** is more difficult to state than that of data or information. However, knowledge can be regarded as the next level of sophistication or business value in the cycle from data through information to knowledge. Although there are numerous definitions of knowledge, many tend to agree that it involves harnessing a person's unique abilities, such as his or her perceptions, experiences, intuition and analytical skills. When these abilities are combined with the information a person holds, this represents knowledge. In other words, knowledge can be thought of as the integrated collection of concepts, experience, and insight that provide a framework for creating, evaluating, and using information (Laudon, 2010) or as the combined result of a person's experiences and the information they possess (Bocij, Chaffey, Greasley, & Hickie, 2006) or as the managerial & technical experience that is needed and applied to best utilize the available information in decision making (Robbins & Judge, 2009).

Theorists have identified two different types of knowledge, and different approaches can be used to disseminate each type of knowledge within an organization:

- **Explicit** – details of processes and procedures. Explicit knowledge can be readily detailed in procedural manuals and databases. Examples include records of meetings between sales representatives and key customers, procedures for dealing with customer service queries and management reporting processes.
- **Tacit** – less tangible than explicit knowledge, this is experience on how to react to a situation when many different variables are involved. It is more difficult to encapsulate this knowledge, which often resides in the heads of employees. Techniques for sharing this knowledge include learning stories and histories. To acquire tacit knowledge may rely on sharing knowledge with partners outside the company or others in different sectors (Bocij, Chaffey, Greasley, & Hickie, 2006).



**Figure 10 – From [DATA] to [INFORMATION] to [KNOWLEDGE]**

Source : (Henczel, 2000).

The main applications of KM include:

- 1- **Competitive intelligence (CI)** : which is a process that transforms disaggregated information into relevant, accurate and usable strategic knowledge about the external environment factors with focus on rival's & clients positions, performance, capabilities and intentions,
- 2- **Document image processing (DIP)**: which involves converting printed documents into an electronic form. One of the advantages of DIP is that documents can be searched quickly and easily in order to locate specific items of information.
- 3- **Data mining (DM)**: this involves analyzing a body of corporate data in order to discover patterns or trends that are not immediately obvious. The results of data mining can bring many benefits, for example the potential to launch a new product or service might be identified (Bocij, Chaffey, Greasley, & Hickie, 2006).

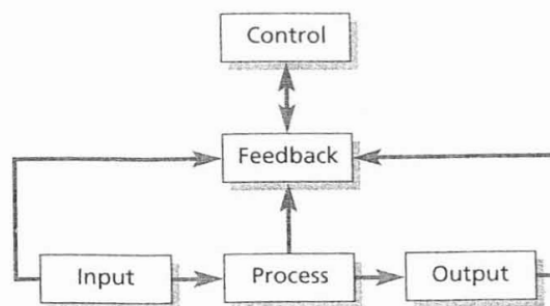
Knowledge management encompasses both the management of information and the management of people. Knowledge cannot be managed directly – only the information about the knowledge possessed by people in organizations can be managed (Henczel, 2000).

Based on (Kanagasabapathy et al , 2004) study, the following factors are necessary for effective implementation of a knowledge management system:

- Information systems infrastructure
- culture
- Knowledge structure
- Performance measurement
- Benchmarking
- A trusting and open organizational environment
- Senior management leadership and Commitment
- Employee involvement
- Employee training
- Trustworthy teamwork
- Employee empowerment

## Second- What is an Information Systems [IS]?

The counterpoint between the organization and its individual members has particular relevance to information management because of its responsibilities to both the organization at one level and to individuals at another level. This counterpoint means that there is a need to consider both the organization and its members in information terms as a starting point for developing strategies for effective information management in any organization (Kirk, 1999). A **system** can be defined as a collection of interrelated components that work together towards a collective goal. The generic model of a system shows that there are five main components of any system; these are : Inputs, Processes, Outputs, Feedback & Control.



**Figure 11 – Generic Model of a System**

Source : (Henczel, 2000).

As per the shown figure, the **input** to a system can be thought of as the raw materials for a process that will produce a particular **output**. Inputs are turned into outputs by subjecting them to a transformation **process**. Information on the performance of the system is gathered by a **feedback** loop. If alterations are needed to the system (based on the feedback) , adjustments are made by some form of **control** mechanism, *to ensure that the resulting outputs fully meet the desired objectives* . Systems **do not operate in isolation**. They contained within an environment that contains other systems. The scope of the system is defined by its boundary; where everything outside the boundary is part of the system's environment and everything within the boundary forms part of the system itself. Thus, there are always exchanges between a system and the environment or other systems. Systems can be complex and made-up of other smaller sub-systems. **Systems, therefore, are hierarchal**; where systems are made-up of subsystems that may themselves be made-up of other subsystems. From this, it's apparent that parts of a system are dependent on one another and this interdependence means that a change to one part of a system leads to or results from changes to one or more other parts. (Bocij, Chaffey, Greasley, & Hickie, 2006).

Information System from a pure technical perspective is a set of inter-related components that : collect and retrieve, process, store, and distribute information to support **decision making & control** in an organization. Additionally, Information System contains information about specific people, places, services, facts, and things within the organization and in the environment surrounding it as well (Laudon, 2010).

Information Systems from a business perspective is an **organizational & management solution** to business challenges that arise from the business environment. Thus, Information Systems are part of a series of **VALUE-ADDING** Activities for: **acquiring, transforming, and distributing information** that mangers can use to improve decisions-making, enhance organizational performance and, ultimately, achieve the organizational goals effectively and sufficiently (Laudon, 2010).

A business information system is a group of interrelated components that work collectively to carry-out input, processing, output, storage and control actions in order to convert data information products that can be used support forecasting, planning, control, coordination, decision making and operational activities in an organization (Bocij, Chaffey, Greasley, & Hickie, 2006).

Management Information System is an organized approach to the study of the information needs of an organization's management at every level in making operational, tactical, and strategic decisions. Its objective is to design and implement procedures, processes, and routines that provide suitably detailed reports in an accurate, consistent, and timely manner. In a management information system, modern, computerized systems continuously gather relevant data, both from inside and outside an organization. This data is then processed, integrated, and stored in a centralized database (or data warehouse) where it is constantly

updated and made available to all who have the authority to access it, in a form that suits their purpose (Business-Dictionary, 2011).

### Third- “Formal” & “Informal” Information Systems

**Formal Information Systems** are well structured systems that operate in conformity with predefined rules for all stages [input, processing & outputs]; so that they are relatively fixed and not easily changed. There are the main two types of the Formal Information Systems:

- **Computer-based Information Systems (CBIS)** which rely on computer hardware & software technologies to process and disseminate information.
- **Manual systems** which are mainly paper-based records that are on some occasions are necessary and complementary to the CBIS (Laudon, 2010). A simple example of such a “manual information system” is a set of accounting ledgers (Bocij, Chaffey, Greasley, & Hickie, 2006).

**Informal Information Systems** rely on unstated rules of treating the three successive stages [input, processing & outputs]; so that there is, for example, high flexibility in choosing what types of data to be collected at different times. Such systems are essential for the organization life; however, its quality and procedures are completely dependent on the organization administration.

### Fourth- The main three dimensions of [IS]

The introduction or alteration of an information system has a powerful behavioral and organizational impact. Changes in the way that information is defined, accessed, and used to manage the organization’s resources often lead to new distributions of authority and power (Laudon, 2010).

The main three dimensions of the Information Systems are:



**Figure 12 – The main three dimensions of the Information System**

Source : (Laudon, 2010)

**I. Organization.**

The Organization as a term can be defined from two different perspectives; the behavioral definition and the technical definition.

**Organization** (the Behavioral definition) is a collection of rights, privileges, obligations, and responsibilities that are correctly balanced over a period of time through conflict and conflict resolution. Thus, the behavioral view of organizations emphasizes group relationships, values and structures.

**Organization** (the Technical definition) is a stable, formal, legal social structure that has its internal rules and procedures and that takes resources from the external environment and processes them to produce outputs.

One important thing here, that is; there is NO contradiction between the technical & the behavioral definitions. Indeed they complement each other: where the technical definition informs us how to incorporate capital, labor and outputs effectively in any IS ; while the behavioral definition tells us how to effectively utilize the internal business/social relationships in the organization while introducing IT improvements (Laudon, 2010).

Information System “IS” is an integral part of the organization. The key elements of an organization with which the “IS” are integrated are:



- a. People
- b. Culture
- c. Business processes
- d. Structure
- e. Politics

- a) **People** who work in an organization develop customary ways of working; they gain attachments to existing relationships; and they make arrangements with subordinates and superiors about how work will be done, the amount of work that will be done, and under what conditions work will be done. Most of these arrangements and feelings are not discussed in any formal rulebook. Therefore, building a new information system or re-building old ones, involves much more than just technical re-arrangement of workers, processes and machines. Some information systems change the organizational balance of rights, privileges, obligations, responsibilities and feelings that have been established over a long period of time. For example, introducing IS requires changes in who owns and controls information, who has the right to access and update that information, and who makes decisions about whom, when and how. Another example, is the fact that usually the length of time required to implement effectively a new IS is much longer than frequently anticipated ; simply because there is a lag between implementing a technical system and teaching employees and managers how to use the system.
- b) **Organizational Culture** is the set of fundamental assumptions about: What products/Services the organization must deliver, how it should be done, when, where, for whom and who is responsible. Generally, these cultural assumptions are taken for granted in spite of the fact that they are rarely publicly announced or spoken about. It is a fact that Business Processes (which are the vital contributing factor to the organizational VALUE) are usually anchored in the organizational culture. One of the main advantages of the organizational culture is that; it is a Powerful Unifying Force that restrains political conflicts and promotes common understanding and practices (Laudon, 2010).
- c) A **business process** is a set of defined ad-hoc or sequenced collaborative activities performed in a repeatable fashion by an organization. Processes are triggered by events and may have multiple possible outcomes. A successful outcome of a process will deliver value to one or more stakeholders (IIBA, 2009). A **business process** is a collection of related, structured activities or tasks that produce a specific service or product to serve a particular objective. It often can be visualized with a flowchart as a sequence of activities with

inter-leaving decision points or with a Process Matrix as a sequence of activities with relevance rules based on the data in the process (Wikipedia, 2010). **Routines** are the standard operating procedures (including precise rules and practices) that have been efficiently developed over time by the various individuals in the organizations; as a logical result of having these employees become more productive and efficient by time (where every day they learn new experiences and try to make tasks easier) and as a logical response to changing challenges. Thus, Routines are patterns of individual behaviors that enable organizations to cope with all recurring situations. Actually, **Business Processes are just a collection of routines. Organization can be looked at as a collection of Business Processes.** New Information Systems Applications require that individual routines and business process change to achieve high levels of organizational performance (Laudon, 2010).

- d) **Organizational Structure** is the framework, typically hierarchical, within which an organization arranges its lines of authority and communications, and allocates rights and duties. Organizational structure determines the manner and extent to which roles, power, and responsibilities are delegated, controlled, and coordinated, and how information flows between levels of management. Any structure depends entirely on the organization's objectives and the strategy chosen to achieve them. In a centralized structure, the decision making power is concentrated in the top layer of the management and tight control is exercised over departments and divisions. In a decentralized structure, the decision making power is distributed and the departments and divisions have varying degrees of autonomy. An organizational chart illustrates the organizational structure (Business-Dictionary, 2011). Among the common features of Organizations, there are "Structural Characteristics" for all organizations; these are:
- Hierarchy: Everyone is accountable to someone and authority is limited to specific span of actions.
  - Clear division of labor: Specialization.
  - Explicit rules and procedures; where authorities and actions are further limited by these standards.
  - Impartial judgments; where there is almost a universal decision-making and everyone is treated equally.
  - Technical qualifications for positions; where hiring people and promoting them do basically rely on their qualifications and professionalisms (Laudon, 2010).
- e) **Organizational Politics** is the pursuit of individual agendas and self-interest in an organization without regard to their effect on the organization's efforts to achieve its goals (Business-Dictionary, 2011). People in organizations occupy

different positions with different specialties, concerns, goals, attitudes, personalities and perspectives. As a result of these individual variances, organizational staff naturally have different viewpoints about: how resources, rewards and punishments should be distributed. These differences matter to both managers and employees and result in political struggle for resources, competition and conflict. For example, political resistance to change is one of the difficulties of imposing positive change as the IT in the organization (Laudon, 2010).

## II. Management.

Management is the organization and coordination of the activities of an enterprise in accordance with certain policies and in achievement of defined objectives (Business-Dictionary, 2011).

The field of Management Information System (MIS) can be divided into **Technical & Behavioral** approaches. Thus, though IS are composed of machines, devices and physical technologies, they also require substantial social, organizational and intellectual investments to make them work properly. In a socio-technical perspective, the performance of a system is optimized when both the technology and the organization mutually adjust to one another until a satisfactory fit is obtained.

On that basis, the followings are considered as vital **COMPLEMENTARY ASSETS** to the Information System: New business processes, Management behavior, Organizational culture & Training. Also, the followings are considered as vital **ORGANIZATIONAL CAPITAL** to the Information System: Supportive business culture that values efficiency and effectiveness, Efficient business processes, decentralization of authority, Highly distributed decision rights & a strong information system (IS) development team (Laudon, 2010)

## III. Information Technology.

- Hardware: Physical equipment
- Software: Detailed preprogrammed instructions
- Storage: Physical media for storing data and the software
- Communications technology: Transfers data from one physical location to another
- Networks: Links computers to share data or resources

Information technology is one of the tools managers use to cope with change. Managers need to know enough about information technology to make intelligent decisions about how to use it **for creating business value**.

The interaction between **IT** and **organization** is a complex two-way relationship and is influenced by many mediating factors. The role of management is to take care of controlling and utilizing this complex relationship. These mediating factors are: Business Processes, Organization Structure, Organization Culture, External Environment, Management Decisions (Laudon, 2010).

### **Fifth- Major types of [IS] in a typical organization**

Because in every individual organization, there are different: levels, specialists, objectives and interests. Thus, no single system can provide all the information needed by an organization.

Any organization can be divided into three levels: Strategic, Management, and Operational. The **main** categories IS systems are those serve the different **levels** of an organization:

- **Operational-level systems:** support operational managers, keeping track of the elementary activities and transactions of the organization. The principal purpose of any system at this level is to answer routine questions and track the flow of tasks/jobs/transactions through the organization.
- **Management-level systems:** serve the monitoring, controlling, decision-making, and administrative activities of middle managers. The principal purpose of any system at this level is to answer the following question periodically: “Are things working well?” – “What If?” In addition, at this level, non-routine decision-making and periodic reports must be supported by any IS system.
- **Strategic-level systems:** help senior management tackle and address strategic issues and long-term trends, both inside the organization and in the external environment. The main principal concern at this level is to match the running/forecasted changes in the external environment with the existing organizational capabilities/capacity.

In light of the above, we can say that we have four major types of Information Systems within any organization:

- |   |                                  |
|---|----------------------------------|
| 1. Transaction Processing Systems (TPS) | ----- At the Operational - level |
| 2. Management Information Systems (MIS) | ----- At the Management - level  |
| 3. Decision-Support Systems (DSS)       | ----- At the Management - level  |
| 4. Executive Support Systems (ESS)      | ----- At the Strategic - level   |

Transaction Processing Systems (TPS) are the basic business systems that serve the operational level of the organization. TPS is a computerized system that performs and records the daily routine transactions necessary to the conduct of the business.

Management Information Systems (MIS) are the basic systems that serve the management level of the organization. MIS is a computerized system that provides middle managers with reports (often online access to the organization's current performance as well as the historical records). MIS primarily serve the functions of : planning, monitoring, controlling and decision-making at the management level .

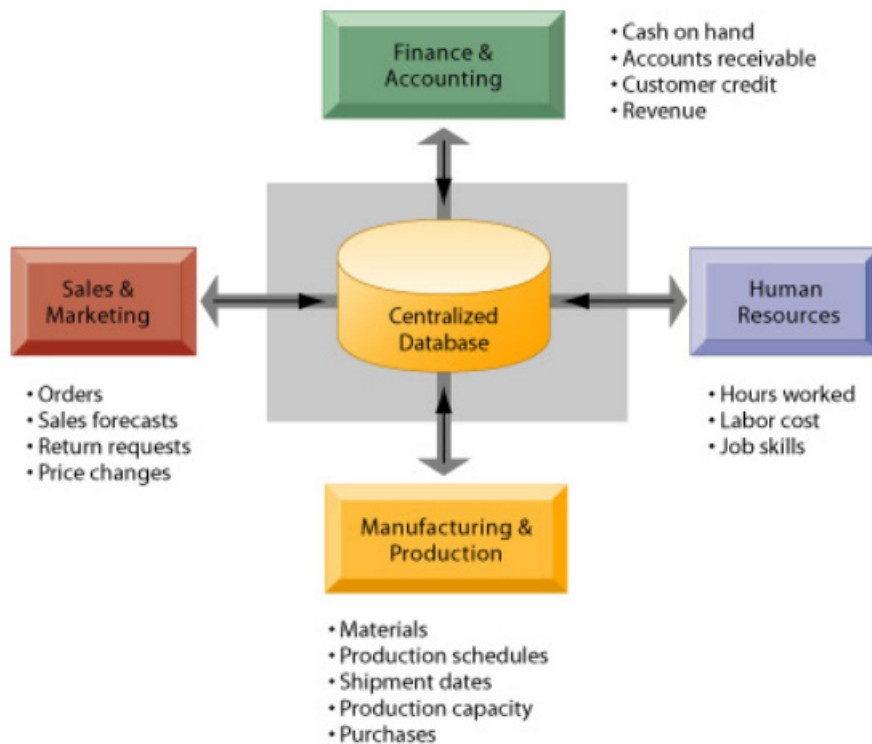
Decision-Support Systems (DSS) are the basic systems that also serve the management level of the organization; just like MIS. However, DSS is a computerized system that help managers in making managerial decisions that are unique, rapidly changing, and not easily specified in advance .

Executive-Support Systems (ESS) are the basic systems that serve the strategic level of the organization. ESS is a computerized system that helps senior managers in making strategic decisions that are unique, requiring judgment & evaluation, and cannot be specified in advance at all.

TPS systems are typically the major source of data for all other systems, whereas ESS are primarily a recipient of data from lower-level systems. MIS & DSS may exchange data with each other as well (Laudon, 2010).

## **Sixth-Enterprise Resources Planning (ERP) System**

Enterprise systems integrate the key business processes of an entire organization into a single software system that enables information to flow seamlessly throughout the organization. These systems focus primarily on internal processes but may include transactions with external stakeholders such as customers and vendors. The enterprise system collects data from various key business processes in finance and accounting, services, and human resources and stores the data in a single comprehensive data repository where they can be used by other parts of the business. Managers emerge with more precise and timely information for coordinating the daily operations of the business and an organization-wide view of business processes and information flows (Laudon, 2010).



**Figure 13 – Enterprise System**

Source: (Laudon, 2010)

## Seventh-System Development

Whatever their scope and objectives, new information systems are an outgrowth of a process of organizational problem solving. A new information system is built as a solution to some type of problem or set of problems the organization perceives it is facing. The problem may be one in which managers and employees realize that the organization is not performing as well as expected, or it may come from the realization that the organization should take advantage of new opportunities to perform more successfully. The activities that go into producing an information system solution to an organizational problem or opportunity are called **systems development**. Systems development is a structured kind of problem solving with distinct activities. These activities consist of:

- systems analysis,
- systems design,
- programming,
- testing,
- conversion,
- and production and maintenance.

**Systems analysis** is the analysis of the problem that the organization will try to solve with an information system. It consists of defining the problem, identifying its causes, specifying the solution, and identifying the information requirements that must be met by a system solution. The systems analyst creates a road map of the existing organization and systems, identifying the primary owners and users of data along with existing hardware and software. The systems analyst then details the problems of existing systems. By examining documents, work papers, and procedures; observing system operations; and interviewing key users of the systems, the analyst can identify the problem areas and objectives a solution would achieve. Often the solution requires building a new information system or improving an existing one (Laudon, 2010).

Perhaps the most challenging task of the systems analyst is to define the specific information requirements that must be met by the system solution selected. At the most basic level, the information requirements of a new system involve identifying: **who needs what information, where, when, and how**. Information requirements analysis carefully defines the objectives of the new or modified system and develops a detailed description of the functions that the new system must perform. A system designed around the wrong set of requirements will either have to be discarded because of poor performance or will need to undergo major modifications. Some problems do not require an information system solution but instead need an adjustment in management, additional training, or refinement of existing organizational procedures. If the problem is information related, systems analysis still may be required to diagnose the problem and arrive at the proper solution. It is obvious that the System Analyst not only develops technical solutions but also redefines the configurations, interactions, job activities, and power relationships of various organizational groups (Laudon, 2010).

## **Eighth- Information Audit**

Auditing is a recognized management technique providing managers with an overview of the present situation regarding specific resource(s) and services within an organization. Many different types of audits currently exist in the management world, including audits of information resources. Currently, as far as the researchers could determine, there exists no single accepted methodology for performing an information audit. In view of this, the researchers investigate whether it is possible (and desirable) to develop a standardized information auditing methodology. Investigating the nature and characteristics of the information audit as well as how a number of other audit types do this, e.g. the financial audit, the communication audit. The researchers conclude that none of these are the same as the information audit, although similarities exist. (Botha & Boon, 2003)

**The Information Audit (IA)** extends the concept of auditing holistically from a traditional scope of accounting and finance to the organizational information management system. Information is representative of a resource which requires effective management and this led to the development of interest in the use of an IA. A definition for the Information Audit cannot be universally agreed-upon amongst scholars, however the definition offered by the UK-based Association for Information Management- ASLIB (<http://www.aslib.co.uk>) received positive support from a few notable scholars; where Information Audit is a **systematic examination of information use, resources and flows, with a verification by reference to both people and existing documents, in order to establish the extent to which they are contributing to an organization's objectives** (Wikipedia, 2012).

An **information technology audit**, or **information systems audit**, is an examination of the management controls within an Information technology (IT) infrastructure. The evaluation of obtained evidence determines if the information systems are safeguarding assets, maintaining data integrity, and operating effectively to achieve the organization's goals or objectives. These reviews may be performed in conjunction with internal audit, or other form of verification engagement. IT audits are also known as "automated data processing (ADP) audits" and "computer audits". They were formerly called "electronic data processing (EDP) audits" (Wikipedia, 2012).

To develop an effective information systems plan, the organization must have a clear understanding of both its long- and short-term information requirements. **Two principal methodologies for establishing the essential information requirements** of the organization as a whole are:

1. Enterprise Analysis (Business System Planning)
2. Critical Success Factors (Strategic Factors Analysis) (Laudon, 2010) .

Enterprise analysis (also called business systems planning) argues that the firm's information requirements can be understood only by examining the entire organization in terms of organizational units, functions, processes, and data elements. Enterprise analysis can help identify the key entities and attributes of the organization's data. The central method used in the enterprise analysis approach is to take a large sample of managers and ask them how they use information, where they get their information, what their objectives are, how they make decisions, and what their data needs are. The results of this large survey of managers are aggregated into subunits, functions, processes, and data matrices. Data elements are organized into logical application groups—groups of data elements that support related sets of organizational processes. The weakness of enterprise analysis is that it produces an enormous amount of data that is expensive to collect and difficult to analyze. The questions frequently focus not on management's critical objectives and where information is needed but rather on what existing information is used. The result is a tendency to automate



whatever exists rather than developing entirely new approaches to conducting business (Laudon, 2010).

The strategic analysis, or critical success factors, approach argues that an organization's information requirements are determined by a small number of critical success factors (CSFs) of managers. If these goals can be attained, success of the firm or organization is assured. CSFs are shaped by the industry, the firm, the manager, and the broader environment. For example, CSFs for the automobile industry might include styling, quality, and cost to meet the goals of increasing market share and raising profits. New information systems should focus on providing information that helps the firm meet these goals. The principal method used in CSF analysis is personal interviews—three or four—with a number of top managers identifying their goals and the resulting CSFs. These personal CSFs are aggregated to develop a picture of the firm's CSFs. Then systems are built to deliver information on these CSFs. The strength of the CSF method is that it produces less data to analyze than does enterprise analysis. Only top managers are interviewed, and the questions focus on a small number of CSFs rather than requiring a broad inquiry into what information is used in the organization. This method is clearly biased toward top managers, although it could be extended to elicit ideas for promising new systems from lower-level members of the organization (Laudon, 2010).

## **Ninth- Information Quality**

Information quality (IQ) has become a critical concern of organizations and an active area of Management Information Systems (MIS) research. The growth of data warehouses and the direct access of information from various sources by managers and information users have increased the need for, and awareness of, high-quality information in organizations. The below summarizes the academic definition of IQ as depicted from the (Lee et al, 2002) study.

	Intrinsic IQ	Contextual IQ	Representational IQ	Accessibility IQ
Wang and Strong	Accuracy, believability, reputation, objectivity	Value-added, relevance, completeness, timeliness, appropriate amount	Understandability, interpretability, concise representation, consistent representation	Accessibility, ease of operations, security
Zmud	Accurate, factual	Quantity, reliable/timely	Arrangement, readable, reasonable	
Jarke and Vassiliou	Believability, accuracy, credibility, consistency, completeness	Relevance, usage, timeliness, source currency, data warehouse currency, non-volatility	Interpretability, syntax, version control, semantics, aliases, origin	Accessibility, system availability, transaction availability, privileges
Delone and McLean	Accuracy, precision, reliability, freedom from bias	Importance, relevance, usefulness, informativeness, content, sufficiency, completeness, currency, timeliness	Understandability, readability, clarity, format, appearance, conciseness, uniqueness, comparability	Usableness, quantitiveness, convenience of access <sup>a</sup>
Goodhue	Accuracy, reliability	Currency, level of detail	Compatibility, meaning, presentation, lack of confusion	Accessibility, assistance, ease of use (of h/w, s/w), locatability
Ballou and Pazer	Accuracy, consistency	Completeness, timeliness		
Wand and Wang	Correctness, unambiguous	Completeness	Meaningfulness	

**Figure 14 – The academics’ view of Information Quality**

Source : (Lee et al, 2002)

Based on the various literature, the main IQ parameters can be listed as : Accessibility, Appropriate amount , Believability , Completeness , Concise representation , Consistent representation , Ease of operation , Free-of-error , Interpretability , Objectivity , Relevancy , Reputation , Security , Timeliness , and (Lee et al, 2002).

Information can be said to have a number of different characteristics that can be used to describe its quality. The differences between ‘good’ and ‘bad’ information can be identified by considering whether or not it has some or all of the attributes of information quality. The below table summarize IQ parameters as adopted by (Bocij et al, 2006):

Time	Content	Form	Additional characteristics
Timeliness	Accuracy	Clarity	Confidence in source
Currency	Relevance	Detail	Reliability
Frequency	Completeness	Order	Appropriateness
Time period	Conciseness	Presentation	Received by correct person
	Scope	Media	Sent by correct channels

**Figure 15 – Summary of attributes of Information Quality**

Source : (Bocij et al, 2006)

Where it is obvious that there are based on (Bocij et al, 2006) three main groups of IQ attributes: Time, Content and Form.

The time dimension describes the time period that the information deals with and the frequency at which the information is received.

- **Timeliness:** the information should be available when needed. If information is provided too early, it may no longer be current when used. If the information is supplied too late, it will be of no use.
- **Currency:** the information should reflect current circumstances when provided as well as being up-to-date. Additionally, the information should also indicate those areas or circumstances liable to change by the time the information is used.
- **Frequency:** in addition to being available when needed, information should also be available as often as needed. This normally means that information should be supplied at regular intervals, e.g. weekly reports and monthly reports.
- **Time period:** the information should cover the correct time period. A sales forecast, for example, might include information concerning past performance, current performance and predicted performance so that the recipient has a view of past, present and future circumstances.

The content dimension describes the scope and contents of the information.

- **Accuracy:** Information that contains errors has only limited value to an organization.
- **Relevance:** the information supplied should be relevant to a particular situation and should meet the information needs of the recipient. Extraneous detail can compromise other attributes of information quality, such as conciseness.
- **Completeness:** all of the information required to meet the information needs of the recipient should be provided. Incomplete information can compromise other attributes of information quality, such as scope and accuracy.
- **Conciseness:** only information relevant to the information needs of the recipient should be supplied. In addition, the information should be provided in the most compact form possible. As an example, sales figures are normally provided in the form of a graph or table – it would be unusual for them to be supplied as a descriptive passage of text.
- **Scope:** the scope of the information supplied should be appropriate to the information needs of the recipient. The recipient's information needs will determine whether the information should concern organizational or external situations and whether it should focus on a specific area or provide a more general overview.

The form dimension describes how the information is presented to the recipient.

- Clarity: the information should be presented in a form that is appropriate to the intended recipient. The recipient should be able to locate specific items quickly and should be able to understand the information easily.
- Detail: the information should contain the correct level of detail in order to meet the recipient's information needs. For example, in some cases highly detailed information will be required whilst in others only a summary will be necessary.
- Order: Information should be provided in the correct order. As an example, management reports normally contain a brief summary at the beginning. This allows a manager to locate and understand the most important aspects of the report before examining it at a higher level of detail.
- Presentation: the information should be presented in a form that is appropriate to the intended recipient. Different methods can be used to make information clearer and more accessible to the recipient, for example it is common to present numerical information in the form of a graph or table.
- Media: Information should be presented using the correct medium. Formal information, for example, is often presented in the form of a printed report, whereas a presentation might make use of a slide projector.

Nevertheless, (Laudon, 2010) have adopted only seven dimensions for measuring IQ:

- Accuracy: Do the data represent reality?
- Integrity: Are the structure of data and relationships among the entities and attributes consistent?
- Consistency: Are data elements consistently defined?
- Completeness: Are all the necessary data present?
- Validity: Do data values fall within defined ranges?
- Timeliness: Are data available when needed?
- Accessibility: Are the data accessible, comprehensible, and usable?

## **Tenth- Project Management Information System [PMIS]**

Centralized information systems that are accessible to all parties in a construction project are powerful tools in the quest to improve efficiency and to enhance the flow of information within the construction industry (Scott et al, 2002).

A **project management information system** (PMIS) is an information system consisting of the tools and techniques used to gather, integrate, and disseminate the outputs of project

management processes. It is used to support all aspects of the project from initiating through closing, and can include both manual and automated systems (TermWiki, 2011).

A **project management information system** (PMIS) is a part of management information systems (MIS) and manages information of a project centric organization/entity. These electronic systems help to plan, execute, and close project management goals. PMIS systems differ in scope, design and features depending upon an organization's operational requirements. The PMIS also consists of people, policies, procedures, and systems (automated and manual), which provide the means for planning, monitoring, evaluating, and controlling a project through both formal and informal channels. (Formal channels include written progress reports and formal project evaluation and control meetings. Informal channels include observations by the project manager and discussions with the project team.) (PMK, 2010).

It is important to identify the PMIS functions and how they relate to the project management life cycle. Those functions occur in four primary areas:

### **Initiation**

During the initiation phase, the project team uses the PMIS for:

- Preliminary budget, including cost estimates, labor requirements, and financial structure.
- Preliminary schedule, including the network model, schedule, and summary graphics.
- Approval cycle, including defining work scope, preparing the bid, and presenting the information to management.

### **Planning**

In the planning phase, the project team uses the PMIS for:

- Detailed schedule, including detailed task analysis, project working calendar, and critical path analysis.
- Cost management planning, including detailed work breakdown structure analysis, integration of control procedures, and specifications of cost accounts.
- Resource planning, including labor/material/equipment requirements, availability of resources, and resource leveling.
- Obtaining sign-off for baselines. This includes establishing baselines for scope, schedule, and cost.

### **Execution and control**

Once the project is under way, the project team collects and enters current information from all project sites into the project database. The project team compares the actual to the baseline plan to track project progress. The PMIS provides cost and schedule forecasts to assist the

project manager to develop scenarios concerning alternatives and corrective actions. It assists the project manager and stakeholders in investigating opportunities for reducing costs and accelerating schedules. When the PMIS is properly integrate with purchasing and inventory databases, it will assist in expediting purchase orders, controlling inventories, and tracking deliveries. In this phase, the project team uses the PMIS for:

- Materials management, which includes expediting orders, tracking deliveries, and controlling inventories.
- Cost collection, which includes collecting actual costs, extracting accounting data, and summarizing cost data.
- Performance measurement, which includes monitoring project status, analyzing variances, assessing productivity, and forecasting trends.
- Records management, which includes controlling drawings, tracking contracts, and records management.
- Reporting, this includes revising budgets, modifying schedules, analyzing alternatives, and recommending actions.

### **Closing out**

During this phase, the project manager and the team use the PMIS for reviewing requirements to ensure that the project has met all of its contractual requirements. Throughout the project life cycle, the team has entered information into the project database.

Accordingly, one may summarize that a typical PMIS (manual or automated) consists of the following modules designed to meet the specific reporting and decision needs of a project:

- **Planning and scheduling:** This module provides a systematic process for depicting the qualitative goals, interdependencies, and time-sensitive information within the project.
- **Budgeting:** This module provides for cost control monitoring. It integrates with the work breakdown structure. It keeps track of the funds and costs associated with work packages.
- **Work authorization and control:** This module provides the basis for releasing work orders. Each work order is a small but crucial part of the project control. It specifies how we are going to implement requirements, which resources we are allowed to use, and the time over which we should complete the work.
- **Control of changes:** This module provides a formal system for change review and control.
  - It identifies changes as they occur.
  - It reveals their consequences in terms of impact on project costs, duration, and other tasks.

- It permits managerial analysis, investigation of alternative courses of action, and acceptance or rejection.
- It communicates changes to all impacted parties.
- It specifies a policy for minimizing conflicts and resolving disagreements.
- It ensures that the project team implements approved changes.
- It periodically reports on all changes to date and their impact on the project.
- **Communicating all of these functions:** This module provides regular narrative reports at every level of the project. These reports need to satisfy the information requirements of all the project stakeholders.
- **Others:** Certain projects may require additional modules such as resource management, inventory control, document management, safety, and risk management (Sifri, Tuning a PMIS for top Performance, 2002).

## Eleventh- Documents Management System

Document management is one of the oldest of the content management disciplines - and was essentially born out of the need to manage ever growing amounts of information being created within organizations. In a world where only hardcopy information existed - there was always a physical limit to the amount of information that could be stored and retrieved. It could be argued that Microsoft with the introduction of MS-Office and MS-Windows released users from this physical limit - and with the exponential increase in information that has resulted, document management software has become an intrinsic part of most organizations as they seek to manage the vast quantities of data they hold. At the simplest level - all users who have a PC who set up folders into which they store word docs, PDFs, PowerPoint presentations, Excel spreadsheets etc are effectively generating a basic document folder structure to allow them to easily store, retrieve and expire document content. The difference between this type of document management and that provided by DMS vendors is effectively the scale of what is being managed.

Document management systems are designed from the ground up to assist entire organizations seeking to manage the creation, storage, retrieval and expiry of information stored as documents. Unlike a file structure on the PC, a DMS revolves around a centralized repository that is used to manage the storage of any type of information that could be of value to an organization - and protect the same against loss.

A well-designed document management system promotes finding and sharing information easily (ECM, 2011).

## Section Four: UNRWA overview

The below sections are written by the researcher based on the following resources:

- UNRWA official web site.
- UNRWA internal Organizational Directives and Regulations.
- The researcher's ten-year experience at UNRWA and
- the feedback obtained during the conduct of the interview
- Previous studies on UNRWA context; particularly the (Abu-Warda, 2010) study for the general communication climate.

### First- Overview and General Background

Following the 1948 Arab-Israeli war, the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), was established by United Nations General Assembly resolution 302 (IV) of 8 December 1949 with a mandate, "to carry out direct relief and works programmes in collaboration with local governments," to "consult with the Near Eastern governments concerning measures to be taken preparatory to the time when international assistance for relief and works projects is no longer available" and to "plan for the time when relief was no longer needed" (Abuwarad, 2010).

The Agency began operations on 1 May 1950. In the absence of a solution to the Palestine refugee problem, the General Assembly has repeatedly renewed UNRWA's mandate. Originally envisaged as a temporary organization, the Agency has gradually adjusted its programmes to meet the changing needs of the refugees (Abuwarad, 2010).

Under UNRWA's operational definition, Palestine refugees are persons whose normal place of residence was Palestine between June 1946 and May 1948 and who lost both their homes and means of livelihood as a result of the 1948 Arab-Israeli war. UNRWA's definition of a refugee also covers the descendants of persons who became refugees in 1948. All refugees living in UNRWA's areas of operations, as well as the children of refugee women married to non-refugees (MNR), are eligible for UNRWA's services (Abuwarad, 2010).

The number of registered Palestine refugees has subsequently grown from 914,000 in 1950, to more than 4.7 million in 2011, and continues to rise due to natural population growth. More than 1.5 million refugees, around one third of the total, live in 58 recognized camps: UNRWA's services are located in or near the camps where there are large concentrations of refugees. Today UNRWA provides education, health and relief and social services to eligible



refugees in its five fields of operations: Jordan, Lebanon, Syria, the West Bank and Gaza Strip (UNRWA, 2012).

Unlike other United Nations organizations which work through local authorities or executing agencies, UNRWA provides its services directly to Palestine refugees. Originally envisaged as a temporary organization with focus on temporary relief efforts only, the Agency has gradually adjusted its Programmes to meet the changing and challenging needs of the refugees with an ultimate sustainable development goal rather than just temporary relief operations (UNRWA, 2012).

UNRWA's values are rooted in the United Nations Charter, the Agency's mandate, directives, rules, regulations and code of conduct, and in human rights instruments. UNRWA strives to provide to its staff a working environment that empowers all, promotes lifelong learning and ensures equal fairness through full accountability and transparency.

UNRWA today's mission is "to help Palestine refugees achieve their full potential in human development terms under the difficult circumstances in which they live". In order to promote the human development of Palestine refugees, UNRWA has set four long term goals which assert that Palestine refugees should have: 1- A long and healthy life; 2- Acquired appropriate knowledge and skills; 3- A decent standard of living and; 4- Human rights enjoyed to the fullest extent possible (UNRWA, 2012).

## **Second-UNRWA core Programmes**

### **▪ EDUCATION Programme**

UNRWA operates one of the largest school systems in the Middle East and has been the main provider of basic education to Palestine refugees for nearly five decades. Nine years of basic elementary and preparatory schooling is available to all Palestine refugee pupils registered with the Agency. The Agency operates 238 schools (in 135 school buildings) at the Gaza strip with a total enrolment of ~213,000 pupils in the running scholastic year 2011/2012. In the Gaza Strip, the education programme accounts for nearly two-thirds of its annual budget, while the teaching staff [ circa 8,000 staff] represents over 70 percent of its work force.

### **▪ HEALTH Programme**

UNRWA's health programme aims to protect, preserve and promote the health of Palestine refugees and to meet their basic health needs. Since its establishment, the Agency has been the main health care provider for the Palestine refugee population, providing the following health services: Primary health care, Nutrition and

supplementary feeding, Assistance with secondary health care, and Environmental health in refugee camps .

UNRWA at Gaza has 20 Primary Health Care Canters, and 2 Sub Health Canters, 13 dental units and 3 mobile dental units, providing primary health care (preventative and curative) but no secondary or tertiary health care. A referral system operates for patients in need of specialized treatments.

▪ **RELIEF & SOCIAL SERVICES Programme**

UNRWA aims to ensure a minimum standard of nutrition and shelter for Palestine refugees and the Agency's relief and social services programme supports the poorest refugee families who are unable to meet their own basic needs. The programme also facilitates longer-term social and economic development for refugees and their communities without prejudice to their rights as refugees recognized in United Nations General Assembly resolutions. Food aid , Cash assistance, Registration and eligibility, Poverty alleviation and Community development are among the main services provided under the subject scheme.

▪ **EMERGENCY Programme**

This is relatively a unique programme for Gaza Field Office; where it has been established exceptionally after the 2008/2009 Israeli aggression on Gaza Strip. The main goal for creating this programme at that time is to unify the different means of emergency interventions (ranging from cash and food assistance to shelter repair and reconstruction) under one managerial umbrella; keeping close coordination with the other programmes.

▪ **INFRASTRUCTURE AND CAMP IMPROVEMENT Programme [ICIP]**

This newly announced programme (established in January 2010) is the result of amalgamating the two former departments: Engineering & Construction Services Department (ECSD) with the Special Environmental Health Programme (SEHP). Infrastructure & Camp Improvement Programme (ICIP) was created in response to calls at the Geneva Conference on UNRWA (2004) to address the deteriorating living conditions of Palestine refugees in camps where UNRWA operates. This scheme is designed to feed the following four strategic impacts:

- **Security of Shelter** and Built Environment by providing shelters to vulnerable refugees; including the homeless families and those classified as Social Safety Net / Special Hardship families and by ensuring that reconstruction programmes result in improved living conditions for refugees .
- Improving the quality of basic **health** and **education** programmes for refugees;
- Creating urgently needed **employment** opportunities, particularly in the construction and manufacturing sectors

- Stimulating **economic** activity through expanded microfinance programmes.
- **Human Development** by adopting a community participatory approach throughout all the phases of the programme cycle; and by addressing the vulnerable and marginalized groups including: persons with disabilities, children, women, boys, girls, elderly and youth.
- **Sustainable Development of the camp refugees' community** by integration of socio-economic infrastructure development with the physical infrastructure improvement (UNRWA, 2012).

### **Third-Infrastructure and Camp Improvement Programme [ICIP]**

The principal goal of UNRWA's Infrastructure & Camp Improvement Programme is to ensure that Palestine refugees' entitlement to adequate housing, up to acceptable standards, is met. The types and levels of development envisaged range from construction of utilities, roads and paving with minimum change to boundaries and structures, to comprehensive residential development that matches local standards. For all types of interventions, and to the extent possible, existing infrastructure and the social cohesion of the site will be preserved, access for refugees will be enhanced, and allowance made for additional services. In the Gaza Strip, priority is given to the refugee families whose homes have been demolished or damaged during Israeli military operations, but not yet re-housed

Since its establishment, UNRWA at Gaza has succeeded in implementing several construction and infrastructure projects at a total budget of more than US\$ 400 million; including construction and equipping of schools, health centres, Housing Units along with its public facilities and infrastructure.

Accordingly, Infrastructure & Camp Improvement Programme (ICIP) is set to transfer the UNRWA core intervention from just relief to development by improving the living conditions of Palestine refugees in camps through adopting an integrated, holistic and comprehensive development approach that combines: effective needs assessment & prioritization, participative planning & implementation with the different stakeholders including the refugee community, and constructing sustainable superstructure and infrastructure facilities that upgrade the socio-economic status of the beneficiaries in line with the international standards and within the UN values and principles scheme.

At Gaza Field, there are four main divisions constituting the ICIP as following:

#### **1. Administration & Management Support Division**

This division is responsible for providing management support to all ICIP activities and projects in addition to managing all related administrative tasks. The division is composed of one Division Head, two Office Engineers, one technical assistant, and one Administrative Officer. Since this division is considered as the key communication & coordination point with ICIP for communicating with all other UNRWA Programmes/departments and ICIP divisions, all its staff have participated in this study.

## **2. Urban Planning & Camp Development Division**

This division is responsible for preparing housing, urban planning and socio-economic studies to support the strategic implementation of the ICIP projects and planning. The division is composed of one Division Head, one Housing & Camp Improvement Planner, one GIS Specialist, one Quantity Surveyor, One Draftsman, two Civil Engineers, One Socio-Economic Officer, two social workers, and one clerk. Unfortunately, as of to date, none of the posts in this division is occupied as the division has been newly established and it is still not fully operational except for appointing on temporary basis an acting for the division head and three assistant engineers. Accordingly, only the division head along with the three engineers have participated in this study.

## **3. Planning & Design Division**

This division is responsible for preparing all detailed designs (land survey, architectural, structural, electrical & mechanical) required for the ICIP projects; in addition to the associated bill of quantities and specifications. The division is composed of one Division Head, two Architect Planners, one Senior Structural Engineer, two structural engineers, one senior infrastructure engineer, two infrastructure design engineers, two architects, three quantity surveyors, seven draftsman and one clerk. The only person who is involved in projects communication and coordination is the Division Head; while the other staff are working on purely technical issues. For this reason, only the division head is interviewed under this study.

## **4. Construction & Maintenance Division (Superstructure & Infrastructure)**

This division is responsible for implementing all construction (Superstructure & Infrastructure) and maintenance/repair projects. The division is composed of two Division Heads -one for the construction and maintenance projects and one for the infrastructure projects, two senior projects managers, two Accountants, two Admin. Assistants, five area construction engineers and more than 100 site engineers. Since only thirteen staff members are directly working on communicating and coordinating projects matters internally and externally, those staff have participated in this study. Namely: two Division Heads, two senior projects managers, five area construction engineers, two accountants

and the two Admin. Assistants. Further details on the organizational positions of the research population are available in chapter four.

## Fourth-UNRWA Support Departments

In addition to the aforementioned five core Programmes at UNRWA, and like any organization, there are other seven supporting departments; namely:

1. Projects Office
2. Procurement & Logistics Services Department
3. Finance Department
4. Administration & Human Resources Department
5. Information Systems Office.
6. Programme Support Office
7. Operations Support Office

## Fifth- Projects Office

The Projects Office, as one of the support department, is one of the vital arms under the top management umbrella. Its main rule is to properly administer the projects management at the field and to support the implementing departments as well as the sponsoring programmes in managing their projects. **The Projects Office is the focal communication channel between all internal and external stakeholders.** Externally, all communications relayed to the donors through the Headquarters External Relations & Communication Department are managed by the Projects Office. Internally, the Projects Office plays a central role for coordinating the cross-departmental communications. Therefore, **this Research typically addresses the core role of this office;** which is the communications management among the various internal stakeholders.

Gaza Field has been progressively evolving to be extremely the largest field among all other fields in terms of the challenging emergency situation, the numerous diversity of interventions, the increasing demands on services and hence the level of required funding. In spite of all the increasing challenges, unfortunately, UNRWA continuously faces serious deficits on its regular general fund budget [GF] and UNRWA never met its full requirements of emergency funding. The project activities of the GFO have substantially increased in terms of magnitude and complexity over the years; with a Project budget in 1999 of US\$ 4 million compared to an annual average of US\$ 200 million during the past three years. Accordingly,

the role of projects becomes a vital lever for accomplishing UNRWA's objectives (on both levels-the short run and the long term). Additionally, as many other huge organizations over the globe, UNRWA is moving forward towards projectizing many of its interventions and services (including the regular operations) to relief the regular general fund budget, to maintain an appropriate level of reserve and contingencies and to mitigate the risks associated with the complete reliance on the voluntary regular general budget being contributed by the UN-General Assembly members (basically EC countries & USA).

It is worth mentioning that, more than 65% of the earmarked project budget at GFO is allocated for the construction and infrastructure sector. This sector is directly managed by the Infrastructure & Camp Improvement Programme [ICIP]; where Gaza Reconstruction Plan is just part of the programme scope (although it constitutes the big chunk) of the construction and infrastructure projects. Unlike all other programmes such as Education and Health, the ICIP programme by its nature heavily depends on projects rather than regular operations. Additionally, implementing construction and infrastructure projects necessitates functional interactions and close coordination throughout the project's life cycle with all other programmes and departments. For example, ICIP cannot plan for a school construction without a prior communications with the Education programme and the school, once constructed, will not be operational without being properly furnished, equipped, and provided with utilities.

## **Sixth- Projects Communications at UNRWA**

Despite the numerous projects being implemented at UNRWA – Gaza Field at gigantic budget, there are no projects managers and ultimately the responsibilities associated with the projects management for a typical UNRWA project are scattered and spanned over different officers from different Programmes and departments. This reality puts additional burden on the Field Projects Office to not only take the lead in coordinating the cross-departmental communications and efforts , but also to be sometimes directly involved in managing the projects' activities.

To have a clearer picture on how the projects are managed at UNRWA, the below points list the headline steps (in terms of process flow) associated with a typical project for constructing a new school:

- The Field Education Programme [FEP] inform the Projects Office [PO] on the need for raising fund to construct and equip a new school at specific geographical area; with some headlines such as the required capacity ,number and gender of students , educational cycle [elementary or preparatory] ..etc.

- The PO ask the ICIP to search for a suitable piece of land and to provide initial information on the school design; such as: number of stories classrooms, cost estimate, implantation timeframe.
- Once the required information in the second step are secured at the PO end, FEP is requested to supply the PO with a detailed list of all required items to equip and furnish the school along with the cost estimate.
- The PO prepares a comprehensive fund-raising project proposal to be submitted to different potential donors through the Headquarters External Relations & Communications Department [HQ-ERCD].
- Usually, the potential donors ask for specific clarifications and special requirements that are managed at the Field level by the PO in coordination with the concerned department and programmes.
- Once the donor approval on the project is secured, the PO launches routine tasks for reviewing the agreement stipulation, arranging for the fund allocation and informing the sponsoring programmes and implementing departments to get ready. For example, ICIP is asked to start the detailed design works and FEP is asked to prepare the lists of requirements to be procured. Additionally, the Field Finance Department [FFD] is asked to allocate the appropriate budget lines.
- Once the agreement is signed and the fund is available (whether internally or externally), the PO is coordinating with the ICIP and Field Procurement and Logistics Department [FPLD] to tender the works relating to the construction and items procurement. The PO coordinating the efforts during the tendering and awarding stage.
- Once the received bids are evaluated and contracts/purchase orders are signed, the implementation stage is started. During this stage, the PO conducts a monthly follow-up on all activities at both levels [operationally and financially] and prepares monthly progress reports for the top management and for the donor; where the latter is relayed through HQ-ERCD. Additionally, implementation-related issues such as : change of scope , need for time extension, shortage or excess of funds are administered by the PO in close coordination with the concerned departments.
- Once the projects activities are completed, a comprehensive final operational and financial report is prepared by the PO to close the project.

The above points are just indicative and are not inclusive in terms of all “cross-departmental” communications during the project implementation. However, they are listed to illustrate the mechanism of projects communications. What is important in this connection, is to mention that usually there are few staff in each department who are directly involved in handling administrative matters related to the ICIP projects. Further details on the organizational positions of the research population are available in chapter four.

Organizational structure affects the availability of resources and influence how projects are conducted. UNRWA is functionally organized bureaucracy and in spite of the fact that the reliance on projects fund has been increasing exponentially over the past ten years, UNRWA still lacks the appropriate adaptation mechanisms. Organizational structures range from functional to projectized, with a variety of matrix structures between them. The below figure as depicted from (PMI-PMBOK, 2008) shows key project-related characteristics of the major types of organizational structures:

Project Characteristics / Organization Structure	Functional	Matrix			Projectized
		Weak Matrix	Balanced Matrix	Strong Matrix	
Project Manager's Authority	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
Resource Availability	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
Who controls the project budget	Functional Manager	Functional Manager	Mixed	Project Manager	Project Manager
Project Manager's Role	Part-time	Part-time	Full-time	Full-time	Full-time
Project Management Administrative Staff	Part-time	Part-time	Part-time	Full-time	Full-time

**Figure 16 – Organizational Influences on Projects**

Source : (PMI-PMBOK, 2008)



## **Chapter 3. Previous Studies**

### **CHAPTER OUTLINE**

- First : Arabic Studies
- Second: International Studies

## Introduction

Project communications management has been examined from different perspectives and through different research strategies. In this chapter, we will shed more lights on some of Arabic and international studies. Since this study focuses on a specific context (UNRWA-Gaza Field Office), Palestinian and international studies on UNRWA context have been reviewed and summarized as well.

## First-Arabic Studies

### 1- (Abuwarda, 2010)

#### **Communication and its Impact on Work Performance at UNRWA – Gaza Field Office: Case Study**

This study aimed at identifying the impact of organizational communication on the work performance at UNRWA - Gaza. This aim is attained through showing the effect of *the media of organizational communication, organizational communication climate* and the *personal communication skills* on the *work performance* in the UNRWA - Gaza. The study population consists of the whole staff working in the UNRWA Gaza Filed office (1014 employees). The study follows the analytical descriptive approach where a stratified random sample is taken according to the grade in order to guarantee that the various managerial levels are well represented. This sample consists of 449 employees. In general, the study found that : 1-there is a significant statistical correlation between the media of communication and the work performance, 2- there is a significant statistical correlation between the organizational communication climate and the Work Performance and 3- there is a significant statistical correlation between the Personal Communication skills and the work performance.

Basically, what have been concluded under this study met with (Abuwarda, 2010) findings in the following points:

- Employees think that the meetings inside the UNRWA - Gaza are not well organized.
- There is dissatisfaction among UNRWA employees from the archiving system.
- Managers do not have sufficient knowledge of the problems that face their employees
- The employees cannot communicate freely with their managers.
- The employees do not have full knowledge of the UNRWA goals and plans.

Among the several recommendations, the study recommends the urgent need for working on improving the media of communication in the organization and improving the managers' communication skills with the employees.

## 2- (Bessiso, 2010)

### **The impact of implementing the Electronic Managerial System (EMS) on the efficiency of administrative processes in Palestine Refugees Records Project (PRRP) at UNRWA, Gaza Field**

The study aims at examining the *impact of implementing the Electronic Managerial System (EMS)*, on the *efficiency of administrative processes* in Palestine Refugees Records Project (PRRP) at UNRWA, Gaza Field, through studying the merits and demerits of the current EMS of the subject project.

The researcher used the descriptive analytical approach and deductive approach to analyze the primary (interview) and secondary data. Primary data was collected through direct 25 interviews with supervisors, managers and employees. In addition, the applied approach was used to examine the data collected through the main EMS database which includes private and comprehensive data about the project processes during the project three-year life cycle.

The most significant findings of (Bessiso, 2010) that are relevant to this research can be summarized as following:

- Adopting *Electronic Managerial System* increases the efficiency of the decision making process.
- Implementing *Electronic Managerial System* in a project leads to supporting and enhancing controlling system .
- Adopting sound *Electronic Managerial System* leads to decreasing running expenses and cost associated with human resource.
- Adopting sound *Electronic Managerial System* leads to workload balancing which consequently leads to an employee satisfaction.

All of the aforementioned deliverables are applicable to this research ; where one of the key recommendations made was to establish a computerized Project Management Information System that will not only provide easy , accurate , comprehensive and flexible access to the variety need of information, but it will also assist in regulating the communications between all internal stakeholders.

### 3- (Ammar, 2009)

#### **The Possibility of applying the electronic management at UNRWA-GFO and its impact on the performance**

This study aimed at assessing the *possibility to apply electronic management* in the United Nations Relief and Work Agency [UNRWA]– Gaza Field Office, through the availability of the necessary requirements for successful application of e-management, namely: financial requirements, technical requirements, human resources requirements and the commitment and support of top management. In addition this study also aimed at *predicting the impact of using e-management* in the improvement of employees' performance in the Agency. Primary data have been collected through distributing questionnaires to a stratified random sample from the study community (225 participants in number).

The most significant findings of (Ammar, 2009) that are relevant to this research can be summarized as following:

- Employees are aware of e-management and its requirements for successful implementation,
- The presence of commitment and support from top management to the implementation of e-management.
- The individuals support for e-management applications in terms of increasing significantly the effectiveness and efficiency of job performance due to quick completion of work, raising productivity, quick and accurate delivery of instructions and saving staff time and effort.

The study summarizes the most important recommendations such as: the need of increasing financial support needed to train the staff on the application of e-management, the need of continuous follow-up to develop and modernize the information technology infrastructure to ensure the validity to the application of e-management constantly, and the need of having all levels of management involved in the development of objectives and programs related to the application and use of e-management.

### 4- (El-Shikhdeeb, 2008)

#### **The Role of Business Communication in Decision Making Process : Case Study - PALTEL**

This study aims at investigating the effect of *business communication* on *decision-making process* in the Palestinian Telecommunication Company (PalTel) by examining the role of *Modern Communication Technologies* (MCTs), *business communication methods*, and *employee's communication skills* on decision-making process. The research population

consists of all PalTel's employees in the low level management, middle level management, and top level management (446 in number). A stratified random sample method according to managerial level was utilized. A total of 279 questionnaires were collected.

The most significant findings of (El-Shikhdeeb, 2008) that are relevant to this research can be summarized as following:

- Specifying the concerned objective before initiating the communication process found to improves the effectiveness and efficient of the communication process as whole.
- There is a significant correlation between MCTs and decision-making process.
- MCTs found to create records of discussion, which leads to creating database to document team members' expectations and responsibilities.
- There is a significant correlation between business communication methods and decision-making process.
- There is a significant correlation between the personnel communication skills and decision-making process.
- Running effective meetings and successful presentations were found to increase the quality and quantity of the decisions.

#### **5- (El-Aff, 2007)**

##### **Institutional Sustainability: Mainstreaming Project Management Best Practices in Palestinian NGOs**

This study approaches the issue of institutional sustainability through mainstreaming project management best practices in Palestinian NGOs. The study has been conducted on the largest 40 Palestinian NGOs. For the purposes of achieving the study objectives, structured interviewees have been used to collect the data.

The most significant findings of (El-Aff, 2007) that are relevant to this research can be summarized as following:

- The Palestinian NGOs are characterized by being heavily staffed, low budgeted, have department based structures, and usually don't have dedicated project managers. This situation relatively resembles UNRWA current situation.
- The project managers in Palestinian NGOs are characterized by being usually relied on experience rather than proper education or skills and one of their main qualifications (that is used as a key criterion to handle a project) is just their fluency in English language.

- Lack of the minimum required understanding of project management by the top management in the Palestinian NGOs ; in addition to their poor practices. This situation relatively resembles UNRWA current situation; with a main difference of the fact that UNRWA is operations-oriented rather than being projects-oriented..

## **Second- International Studies**

### **6- (Karim, 2011)**

#### **Project management information systems (PMIS) factors: an empirical study of their impact on project management decision making (PMDM) performance**

This research was subject to consult 28 Project Managers from different industries in different countries to review a proposed Project Management Information System [PMIS] model which was constructed based on different models developed by different authors. Then, the constructed PMIS conceptual model was assessed through a survey, and the questionnaire was designed and distributed to 170 employees who were a member in at least three project teams, and statistical analysis was used to evaluate the impact of developed factors of the proposed PMIS model on Project Management Decision Making (PMDM) process. The result showed a significant contribution of PMIS to better project planning, scheduling, monitoring and controlling, which consequently led to highly effective and efficient project management decisions making in each phase of project life-cycle.

The study of (Karim, 2011) was used during the conduct of this research to insight the development of PMIS model proposed under this study. Additionally, the most significant findings of (Karim, 2011) that are relevant to this research can be summarized as following:

- Information Quality has strong statistical relationship with the Effective and Efficient Project Management Decision Making.
- Communication System Quality has strong statistical relationship with the Effective and Efficient Project Management Decision Making.
- Decision-Maker Quality has strong statistical relationship with the Effective and Efficient Project Management Decision Making.

### **7- (Vanita et al, 2009)**

#### **Study of ICT adoption for building project management in the Indian construction industry**

Study of ICT adoption for building project management in the Indian construction industry

This paper discusses factors and issues on adoption of Information and Communication Technologies (ICT) in the context of Indian construction industry. A questionnaire survey was conducted and through quantitative data analysis the extent of adoption of formal Project Management processes, ICT adoption for these processes and factors including perception based factors affecting ICT adoption were studied. Results of data analysis include identification of issues that require action. The results can be generalized for other countries with due considerations.

The study of (Vanita et al, 2009) was helpful during the conduct of this research to insight the development of PMIS model proposed under this study. Additionally, the most significant findings of (Vanita et al, 2009) that are relevant to this research can be summarized as following:

- Organizations must have a communication management strategy at the organizational level per each project. This is found extremely applicable to UNRWA context.
- E-communications have to be supported with inter-personal communications.
- Hard copy storage of data and documents is substantial even if electronic copies are also maintained.
- Meetings are essential communication tools.

## **8- (Keating, 2009)**

### **How does the project management office (PMO) deliver value to the organization?**

The Project Management Office (PMO) is a relatively recent phenomenon, but over the last 10 to 15 years it has become a prominent feature in many organizations. Despite its proliferation, no consensus exists on how the PMO is best structured, what functions it should perform and, of particular importance, what value does the PMO contribute to the organization.

This research has been carried out to advance the existing body of knowledge in this field, specifically in relation to what functions the PMO performs in delivering value to the organization. Using knowledge gleaned from the existing body of research in this field, the author has created the PMO Value Framework, a theoretical framework used to describe the functions or roles performed by PMOs as following:

- i.** Monitoring & Control as two parallel functions that must not be separated or treated individually within the context of PMO.
- ii.** Reporting (internally to top management) and externally (to sponsors and funders).
- iii.** Maintaining and Developing Project management Competencies and methodologies.

- iv. Ensuring strategic alignment with the overall organizational plans.
- v. Ensuring that there is always a loop of feedback, lessons learned and knowledge accumulation to have a learning organization.
- vi. Attempting continuously to achieve Project Management Excellence.

These roles are referred to as the PMO Value Roles. The author's hypothesis is that it is through performing these roles that the PMO delivers value to the organization and as the PMO's ability to perform these roles improves the value delivered will increase.

Using multiple case studies to test the theory the research found that PMOs perform the PMO Value Roles to different degrees and it is through performing these that the PMO delivers value to the organization.

The most significant findings of (Keating, 2009) that are relevant to this research can be summarized as following:

- Through improving the effectiveness of each role the PMO contributes to improving the project management competency within the organization and thus helps develop organizational project management maturity.
- The PMO needs to develop a more significant strategic role within the organization and is well placed to do so.

These findings were considered as practical and relevant recommendations under this study.

## **9- (Russell, 2008)**

### **Foundations of Process-Aware Information Systems**

Over the past decade, the ubiquity of business processes and their need for ongoing management in the same manner as other corporate assets has been recognized through the establishment of a dedicated research area: Business Process Management (or BPM). There are a wide range of potential software technologies on which a BPM offering can be founded. Although there is significant variation between these alternatives, they all share one common factor (their execution occurs on the basis of a business process model ) and consequently, this field of technologies can be termed Process-Aware Information Systems (or PAIS). This thesis develops a conceptual foundation for PAIS based on the results of a detailed examination of contemporary offerings including work flow and case handling systems, business process modeling languages and web service composition languages. This foundation is based on several patterns that identify recurrent core constructs in the control flow, data and resource perspectives of PAIS. The study of (Russell, 2008) was helpful during the conduct of this research to insight the development of PMIS rationale proposed under this study.



## **10- (McComb et al, 2007)**

### **Team flexibility's relationship to staffing and performance in complex projects: An empirical analysis**

This study examined the role of flexibility in project team effectiveness. Specifically, it hypothesized that (1) it will mediate the relationship between staffing quality and effectiveness and (2) its relationship with team effectiveness will be moderated by project complexity, where more flexibility will be required when projects are complex. Hypotheses are tested using data collected from 60 cross-functional project teams. The results indicated that flexibility mediates the relationship between staffing quality and team performance (goal achievement and cohesion, but not project efficiency). Additionally, one of the study finding is that managers need to heed the staffing process to ensure that high quality, professional team members who can work together flexibly are assigned to projects. For those team members not possessing the desired skill set, the study recommended training them prior to any team assignments. In addition to the staffing implications, the results suggest that flexibility within a project team is not universally a positive characteristic. When projects embody high levels of project multiplicity, management must be careful of how team flexibility affects team performance.

The most significant findings of (McComb et al, 2007) that are relevant to this research can be summarized as following:

- The need of assigning clear responsibilities, authorities per each assigned staff within any project team.
- The need for having well trained team members to fill the competencies gap required for implementing any project effectively and efficiently before letting the team run the business.

## **11- (El-Saboni et al, 2008)**

### **Electronic communication systems effects on the success of construction projects in United Arab Emirates**

This research investigates the use of modern electronic communication management systems, and how these systems affect the success of construction projects in the United Arab Emirates (UAE). The research starts with a literature survey, and a brief background on how the communication mechanism works; how using these systems influence relationships amongst the project stakeholders, and consequently the project's success. Two case studies are introduced, followed by an analysis of results and conclusions. The first case study, based on

action research, employs interactive tools to collect the evidence, including interviews, surveys, document review, and feedback on progress. The study uses success criteria from construction projects in the UAE, previously identified by the authors. The second case study takes into consideration the co-existence of the new modern project electronic communication systems with the other traditional communication media. It has been shown that such an arrangement works both for the strategic benefit of the projects, and the projects stakeholders.

The most significant findings of (El-Saboni et al, 2008) that are relevant to this research can be summarized as following:

- The study has revealed an organizational transformation trend, from functional, towards matrix and project structures. These types of change are taking place after the implementation of project electronic communication management systems into the client organization, and are enhancing chances of project success. This is typically one of the practical recommendations proposed under this study where UNRWA must consider such organizational transformation trend for all sectors that are heavily dependent on implementing projects.
- Co-existence of the new modern project electronic communication systems with the other traditional communication media can lead to dramatic positive change if this co-existence is re-organized to match with the organizational structure.

## **12- (Hsieh & Wu, 2008)**

### **A visual project management information system**

Based on questionnaires and industry interviews, the research in this paper prototypes a visual project management information system (VisPMIS) for effectively solving project related problems such as information and system integration among different project participants and engineering application systems. This research prototyped a visual project management information system (VisPMIS). It assists construction management organizations in controlling and managing engineering projects. There are five major characteristics of VisPMIS: (1) with the establishment of an integrated data model, engineering project information can be stored intact and complete; (2) by representing the project information visually, the project manager can quickly grasp the present stage of an ongoing project, and communicate and coordinate accordingly with other project participants more efficiently; (3) with the support of data queries from a multi-data-view, users can find and obtain necessary and relevant data in a more direct and efficient way; (4) through the performance evaluation and statistical analysis functionality, the project management team can accurately monitor project progress; (5) the information in the integrated data model can

be exported to different file formats for data exchange and sharing, thus increasing the value of the system while extending the application of the integrated information. For the characteristics mentioned above, VisPMIS can not only integrate and manage engineering project information for construction management organizations, but also effectively assist in controlling and monitoring the engineering project. In addition, a real engineering project example was used in this research to demonstrate the functionality and applicability of VisPMIS. The research reached to a conclusion that VisPMIS can effectively assist construction management firms in achieving project goals and delivering the project with the best balance of cost, schedule, and quality.

The study of (HSIEH & WU, 2008) was helpful during the conduct of this research to insight the development of PMIS model proposed under this study.

### **13- (Chen & Kamara, 2008)**

#### **The Mechanisms of Information Communication on Construction Sites**

This paper describes a survey that is aimed at investigating the current mechanism of information retrieval and transfer on construction sites. Following a description of the research method and the research process, this paper discusses survey findings from the following aspects: the nature of information, sources and destinations of information transfer, mediums of information communication, approaches of information access and collection on work sites, and the users' perception of mobile computing.

The most significant findings of (Chen & Kamara, 2008) that are relevant to this research can be summarized as following:

- The main finding of the study is that the mechanism of construction site information management indicates the information sources from which users retrieve information and the information destinations to which users transfer information can be more effective by applying modern communication technologies.
- The directions of information flow have to be built into any computerized information system.
- Construction industry is information intensive environments that need for sure the use of well-organized computerized and internet-based systems.

### **14- (Ahlemann, 2009)**

#### **Towards a conceptual reference model for project management information systems**

This paper has introduced a new conceptual information system reference model (RefModPM) for project and project portfolio management. RefModPM tries to cover comprehensively all aspects of project management and offering data structures and processes. The development of the first version of RefModPM was attained with the help of 13 domain experts from German and Swiss enterprises and took approximately 1.5 man-years to complete. Furthermore, it is based on an analysis of 28 commercial project management software systems. RefModPM has already been applied in several projects and is the basis of the forthcoming standardized project management data model. The main merits of the developed framework can be summarized as following:

- Data Structures
- Documentation
- Organizational Structures
- Processes
- [Scope , Time Cost, Quality , HR, Communications, Procurement & Risk] Management.

The most significant findings of (Ahlemann, 2009) that are relevant to this research can be summarized as following:

- Before setting-up any project information systems, there must be a comprehensive internal scanning to figure-out how such new system will fit the existing process, structures and types of data, information and documents. Usually, setting-up such PMIS will require alerting or dramatically changing one or more of these controlling internal environment factors. Under this research, the developed PMIS was built on the basis to fit with the existing conditions at the minimum possible changes required.
- The necessity of incorporating all phases in the project's life cycle in any PMIS. This also has been considered under this research when proposing the PMIS model.

#### **15- (Raymond & Bergeron, 2007)**

##### **Project management information systems: An empirical study of their impact on project managers and project success**

Project management information systems (PMIS) usually acquired by organizations as software packages are meant to provide managers with the decision-making support needed in planning, organizing, and controlling projects. However, the actual contribution of PMIS to project success or performance is still unknown. The purpose of this study is to empirically assess the quality of the PMIS presently used in organizations and to examine their impact on project managers and project performance, based on a PMIS success model.

This model is composed of five constructs:

- the quality of the PMIS,
- the quality of the PMIS information output,
- the use of the PMIS,
- the individual impacts of the PMIS and
- the impacts of the PMIS on project success.

Analysis of questionnaire data obtained from 39 project managers confirms the significant contribution of PMIS to successful project management. Improvements in effectiveness and efficiency in managerial tasks were observed in terms of better project planning, scheduling, monitoring, and control. Improvements were also observed in terms of timelier decision-making. Advantages obtained from PMIS use are not limited to individual performance but also include project performance. These systems were found to have direct impacts on project success, as they contribute to improving budget control and meeting project deadlines as well as fulfilling technical specifications. One can therefore conclude that PMIS make a significant contribution to project success and should continue to be the object of project management research. The study of (Raymond & Bergeron, 2007) was extremely helpful during the design of the structured questions of this research .

## **16- (Zeng et al, 2007)**

### **Managing information flows for quality improvement of projects**

The aim of this study is to explore management of information flows in construction project management. Based on the characteristics of the construction industry, this study designed an organizational structure with three levels, including firm, sub-firms and project departments. The paper examined the difficulties for the multi-level organizational structure in information transferring and feedback. The paper proposes reengineering current management strategy for establishing an information network for project management. The study recommends for all construction firms to reengineer their information flow channels for decreasing risk due to information flow suspension; where this needs construction firms to create a culture and environment to conducive to sharing information.

The most significant findings of (Zeng et al, 2007) that are relevant to this research can be summarized by figuring-out the key internal barriers to information flow as following:

- Organization Barrier:
  - Multi-level and departmentalized structure. This is applicable for UNRWA context.

- Information asymmetries and no proper information sharing mechanism between project departments. This is applicable for UNRWA context.
- Behavioral Barrier:
  - Un-compulsory Liability. This is applicable for UNRWA context.
  - Lack of incentive mechanism. This is applicable for UNRWA context.
  - Different arrangements in different projects-lack of inconsistency. This is also applicable for UNRWA context.

## **17-(Kevin & Roberto, 2006)**

### **Project management offices: A case of knowledge-based archetypes**

While Project Management offices (PMOs) have become a mainstay in organizations, systematic research has not yet been undertaken to study their intricacies. In this paper, an exploratory and descriptive case study of PMOs was conducted, based on interviews with senior managers and directors of PMOs in 32 IT organizations. The objectives are to: (1) outline the nature and characteristics of PMOs; (2) classify and derive archetypes of PMOs; and (3) enumerate critical success factors of PMOs.

The study revealed that the primary purpose of a PMO is to centralize information in order to create a knowledge base. An organization would profit from the time and effort it takes to define the right PMO archetype to match its corporate culture and goals. A well-defined, effective PMO can be an important step to greater success for the organization. Administrative PMOs typically document and disseminate project reports, lessons learned and best practices, but here tacit knowledge from projects is difficult to capture. Knowledge-intensive PMOs create collaborative communities for project managers to share knowledge and learning that may be difficult to capture and document through conventional mechanisms.

The most significant findings of (Kevin & Roberto, 2006) that are relevant to this research can be summarized as following:

- The synergy of project management and knowledge management concepts creates a sturdy knowledge-based framework that enables sharing of project knowledge and lessons learned, and promote the cross-pollination of ideas.
- Knowledge-based PMOs promote wider organizational involvement and support and facilitate ownership of project management knowledge.

These findings were considered as practical and relevant recommendations under this study.

## **18- (Caldas et al, 2005)**

### **Methodology for the Integration of Project Documents in Model-Based Information Systems**

This paper describes a research study that investigated methods for the integration of project documents in architecture, engineering, construction, and facility management (AEC/FM) model-based information systems and determined the formalisms and mechanisms needed to achieve this integration during the development and utilization of such systems. The main objectives were (1) to formalize methods to improve the organization and access of large document collections in project management information systems, and (2) to elaborate a methodology to integrate project documents in AEC/FM model-based information systems.

The first main finding of this paper is that the methodology promotes a significant improvement in the capability to identify documents that are related to the projects. This constitutes a required step for the full integration of AEC/FM project information. Access to project documents is improved because large collections of documents can be analyzed more effectively. Differences in vocabulary are minimized using the classification-based approach and process automation makes the results more consistent. Integrated documents can then be used to support the planning, implementation, control, and analysis of project activities.

The second contribution of this study was the development of semiautomatic methods for the classification, retrieval and ranking, and association. The way in which these methods were formalized facilitates their incorporation on existing project management information systems. This is an important requirement for the application of the proposed methodology in real-world projects. The main benefit for existing systems resides on the improvement of the organization and access of large document collections. This research creates new opportunities for project management and triggers future research needs such as project knowledge management and project information flow management and smart text researchable e-archive.

The study of (Caldas et al, 2005) was helpful during the conduct of this research to insight the development of PMIS model proposed under this study.

## **19- (Castro et al, 2002)**

### **Towards Requirements-Driven Information Systems Engineering: The Tropos Project**

This study aims at proposing a software development methodology which adopts an organizational modeling framework, which offers the notions of actor, goal and (actor) dependency, and uses these as a foundation to model early and late requirements, architectural and detailed design. The paper outlines the software development methodology

phases through an e-business example, and sketches a formal language which underlies the methodology and is intended to support formal analysis. The modeling framework views software from five complementary perspectives:

- Social – who are the relevant actors, what do they want? What are their obligations? What are their capabilities?
- Intentional – what are the relevant goals and how do they interrelate? How are they being met, and by whom ask dependencies?
- Communicational – how the actors dialogue and how can they interact with each other?
- Process-oriented – what are the relevant business/computer processes? Who is responsible for what?
- Object-oriented – what are the relevant objects and classes, along with their inter-relationships?

The study of (Castro et al, 2002) was partially used during the conduct of this research to insight the development of PMIS model proposed under this study.

## **20- (Nash et al, 2002)**

### **Development of automated communication of system for managing site information using internet technology**

The construction industry is highly fragmented compared with other manufacturing industries. The degree of this fragmentation is unparalleled in any other sector with significant impact on productivity and performance. Many research studies have developed and proposed a number of integrated process models. Unfortunately, they are unable to formalize how communication and information exchange within the construction process can be achieved, without duplication or lost in quality.

The need for integration of the construction processes with information, for decades, has been widely acknowledged in the industry. It can now be realistically achieved using the evolving information technology, especially the capability of web technology. The collaborative research that is reported in this paper has been exploring this possibility. The goal of the research is to develop a methodology and a system that will ease and improve communication and exchange of data and information between the construction project team. The paper reports on an IT-based tool for site document management as a first phase of the project. It provides an automated integrated environment for communication, retrieval, storage and distribution of project documents between the construction project team. The paper has described and discussed the research objectives and approach adopted in an effort to develop IT enabling tools to improve communication and information sharing and exchange during



the construction of a building. The development and implementation of the system were described. The test and evaluation of the system, compared with the paper-based system, was also discussed. The performance assessment of the system shows a saving of more than 90% in man-hours, with estimated huge saving in cost. This result shows how the available IT facilities can be exploited to improve communication within the whole of the construction supply chain. Optimum utilization of already available IT can clearly improve the construction processes with accrued benefits. The study of (Caldas et al, 2005) was helpful during the conduct of this research to insight the development of PMIS model proposed under this study; particularly in terms of how best to integrate an Electronic Documents Management System within the PMIS.

## Commentary

The main theme of this thesis is the project communications management which is defined by the Project Management Institute (PMI) as “**the processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information**” (PMI, 2008) . As this definition is adopted by the author as the operationalized definition, this thesis encompasses related topics that can be set under the umbrella of: 1- Organizational Communications, 2- Management Information System and 3- Project Management.

In pursuit to the previous chapter [Chapter Two- Literature Review], this chapter sheds the light on some of Arabic and international studies that have examined related topics. Since this study focuses on a specific context (UNRWA-Gaza Field Office, all available Arabic studies that are related to the research problem and variables have been reviewed. More specifically, these Arabic studies are thesis conducted by Palestinian researchers at the Islamic University of Gaza. It is believed that (Abuwarda, 2010) is one of the most related studies; where the study variables and measured indicators address directly the internal communication at UNRWA- GFO. Apart from the shared findings among (Abuwarda, 2010) study and this research (mentioned earlier in this chapter), this research can be considered as a further step in building on the knowledge obtained by (Abuwarda, 2010) study with an attempt to narrow the research scope with deeper insight into one of the most critical areas. That is, the projects' communication management. Dimensions; like: quality of information exchanged , quality of available information systems and critical behaviors and channels in the communication flows are only addressed under this research for the first time. The findings of (Bessiso, 2010) and (Ammar, 2009) are also of relevant importance to this research as they address UNRWA's capacity to use electronic management. Apart from the shared findings among (Bessiso, 2010) and (Ammar, 2009) studies and this research (mentioned earlier in this chapter), this research has identify critical gaps in the available infrastructure of Information

System at UNRWA- not only in terms of the technical infrastructure but also and mainly in terms of the organizational infrastructure.

Related international studies have also been investigated. Part of the reviewed studies [mainly: (Karim, 2011), (El-Saboni et al, 2008) , (Raymond & Bergeron, 2007) and (Ahlemann, 2008)] have searched directly the main factors constituting an effective Projects Management Information System [PMIS] with emphasis on the impact of PMIS on projects performance, projects managers and decision-making. These studies were of extreme support to this research; particularly in designing the structured questions intended to measure the research variables. Additionally, great insight on the possible designs of any suggested PMIS was obtained from these studies. The approaches used in these studies for collecting and analyzing data were almost heavily dependent on the descriptive analytical approach except for (El-Saboni et al, 2008); which has adopted the case study strategy. The approach used in (Raymond & Bergeron, 2007) study was used as a benchmark for this research; with substantial alterations to meet the research objectives and its particular context. For example, (Raymond & Bergeron, 2007) study has adopted three main independent variables : PMIS Quality, PMIS Information Quality, PMIS use and investigated their impact on the project success and project manager. Also the variables used by (Karim, 2011) ; which are : Information Quality , System Quality and communication Quality were among the main dimensions addressed under this research. The study of (Caldas et al, 2005) was helpful during the conduct of this research to insight the development of PMIS model proposed under this study; particularly in terms of how best to integrate an Electronic Documents Management System within the PMIS. Aspects that affect projects' communication and information flow/quality were briefed from other international studies. In general, previous studies used different types of methodologies, some of them applied the analytical descriptive method, and another part of them carried case studies, while others used proposed modules or simply relied on critically review previous literature. Moreover these studies were conducted on different types of organizations including the governmental organizations, and private sector's organizations. These studies conducted on different countries with different societies, environments and cultures in the period between 2002 and 2011. Part of the results that were found throughout this study came in line with the previous researches and other findings were the privilege of this study.

# Chapter 4. Research Methodology

## CHAPTER OUTLINE

- Introduction
- First: Research Strategy
- Second: Data Collection & Analysis
- Third: Questionnaire Design & Content
- Fourth: Statistical Analysis Tools

## Introduction

To accomplish the research objectives specified in chapter one, this study was conducted in two major phases. In the first phase, the relevant literature on projects management, business communication, management information systems and business analysis were reviewed. Based on the literature review, related hypotheses and primary data collection tool were produced. In the second phase, initial structured questions that measure the research's variables and their relations were developed. After revising and refining the initial structured questions, a final version of the questionnaire was generated and then was administered to the research population. A comprehensive survey has been adopted for the research population; which consists of all staff members (49 in number) from all managerial levels (operational, middle management, and top management level) across the various departments at UNRWA-Gaza Field Office who are directly involved in administering/managing construction & infrastructure projects.

## First-Research Strategy

Analytical descriptive approach was used to collect and analyze the quantitative measurements. The research also can be considered as the first steps in conducting an [Action Research] strategy. This research concentrates on *promoting a particular change within a particular organization (action)* and hence proper level of direct involvement by concerned/key employees (who are considered the most informants and influential to the case context) is essential. Unlike the typical process cycle for action research, this research concentrates on studying the case under question and proposing a road map for change. The remaining steps for a typical action research (i.e. implementation, monitoring, modifying and evaluation) are beyond the scope of this study (Saunders et al, 2007). This research is completely in line with the ongoing UNRWA's Organizational Development process; where *the employees themselves are the main levers for identifying the needs and implementing the demanding change*.

Accordingly, the following means are used during the conduct of the research:

1. As for the secondary data, related previous studies, published researches, papers, textbooks, internet-based information and other documents related to the research topic have been examined. Searched literatures also include similar and new Projects Communications Management, Project Management Information System models, e-archiving solutions, and relevant business process improvements studies.

2. Consulting internal experts in the subject (including Information Systems Office key staff).
3. During the piloting stage, unstructured interviews were conducted to refine the structured questions that can be quantified in the final dispatch of the questionnaires.
4. The questionnaires were not distributed among the study population to be purely self-administered by the participants. Instead, the approach was closer to the interviewer-administered questionnaire, where every participant received a copy of the questionnaire and answered its structured questions after receiving all required clarifications (when requested in a standard way to avoid any bias in the collection stage). Statistical Package for the Social Sciences, (SPSS) was used to perform the quantitative analysis of the collected data.
5. After completing the structured interview, each participant was asked to provide the most critical requirements, in his/her opinion, to be included in any proposed Projects Management Information System [PMIS]. The researcher, based on the provided feedback, established a flow chart with detailed information requirements per each phase in the project's life cycle and per each business process. Different chart versions have been reviewed and amended with key participants to ensure that the suggested PMIS will be bridging the most critical gaps in the current projects communication management. The final and consolidated version of this chart (upon which the PMIS was proposed, is available in Annex No.[1].

This research is completely in line with the ongoing UNRWA's **Organizational Development** process; where *the employees themselves are the main levers for identifying the needs and implementing the demanding change.*

## **Second-Data Collection & Analysis**

To introduce the theoretical literature of the subject, the following data sources were used in compiling secondary data: books and references (mainly in English language), published papers and articles, UNRWA reports and statistics and web sites.

The collection of the primary data within the context of this research has been carried-out in successive stages -**Staged Approach**. The **first stage** was started by exploratory unstructured interviews with the most informant members of the study population (all staff members at the Projects Office). The purpose of this stage was to investigate in-depth the main factors that affect the projects' communication and to formulate the structured questions that will be used in quantifying the research variables through the questionnaire. During the

**second stage**, an initial list of the structured questions was discussed thoroughly through a focus group session with all staff members of the Field Projects Office (six in number; where four of them hold MBA degree). The main deliverable of this stage was a more tuned list of structured questions that can be easily interpreted and understood by every participant; in addition to having revised/new questions. In the **third stage**, the questionnaire was judged by referees (9 in number) from the Islamic University of Gaza and from UNRWA- all of them holds postgraduate degrees and have related experience. The questionnaire design has been also amended to meet the feedback provided by the referees who judged the questions. In the **fourth stage**, the questionnaires were not purely administered by the participants. Instead, the adopted approach was closer to the interviewer-administered questionnaire approach, where every participant received a copy of the questionnaire and answered its structured questions after receiving all required clarifications (when requested in a standard and unified way to avoid any bias in the collection stage). The researcher had discussed some questions with the participant for probing and thorough understanding purposes. Statistical Package for the Social Sciences, (SPSS) was used to perform the quantitative analysis of the collected data. The **fifth and last stage** involved compiling the collected data and information in order to reach to practical recommendations and to devise the main specifications for a possible Project Management Information System-PMIS.

The entire research population who are key UNRWA employees involved directly in either managing or administering the projects has been identified. The identified population members represent the mostly informative cases that can enrich the research process and its findings/deliverables; based on their appropriate practical knowledge & involvement on the research topic. What is important in this connection, is to mention that usually there are few staff in each department who are directly involved in handling administrative matters related to the ICIP projects. Those focal points across the various departments are the research population for this study and they are as following:

**Table 2 – Summary of the functional positions of all research population from all departments except the ICIP staff**

<b>Sponsoring Programme / Support Department</b>	<b>No. of Participants</b>	<b>Who are they?</b>
Education Programme	3	Administration Staff assigned to handle ICIP Projects' issues; namely: The Administrative Officer and his two assistants
Health Programme	2	Administration Staff assigned to handle ICIP Projects' issues; namely: The Administrative Officer and his assistant
Relief & Social Services Programme	4	Senior and Administration Staff assigned to handle ICIP Projects' issues; namely: the Deputy CRSSP, the Relief Operations Officer, the Administrative Officer and the Admin. Assistant.
Emergency Programme	5	Senior and Administration Staff assigned to handle ICIP Projects' issues; namely: The Emergency Shelter Assistance Coordinator, the Emergency Appeal Support Officer, the Eligibility & Standard Applications Officer and the Emergency Shelter Engineers.
Finance Department	3	Administration Staff assigned to handle ICIP Projects' issues; namely: The Budget Officer and his two assistants
Procurement & Logistics Department	3	Senior Staff assigned to handle ICIP Projects' issues; namely: all the three Procurement Officers (one for construction contracts, one for goods & supplies and the last one for services).
Projects Office	6	All staff at the Field Projects Office plus the researcher on the Programme support.
<b>TOTAL</b>	<b>26</b>	

The below summarizes all focal points at ICIP who are the participants for this study's population:

**Table 3 – Summary of the functional positions of all research population from the ICIP**

<b>ICIP Division</b>	<b>No. of Participants</b>	<b>Who are they?</b>
Administration & Management Support Division	5	All staff in this division; namely: the Division Head, the two Office Engineers, the technical assistant and the Admin. Officer.
Construction & Maintenance Division (Superstructure & Infrastructure)	13	Staff members are directly working on communicating and coordinating projects matters internally, namely: two division heads, two senior projects managers, the five area construction engineers, two accountants and two administrative assistants.
Urban Planning & Camp Development Division	4	The Division Head plus the three engineers working in this division.
Planning & Design Division	1	The Division Head.
<b>TOTAL</b>	<b>23</b>	

### **Third- Questionnaire Design & Content**

The questionnaire was provided with a covering letter explaining the purpose of the study, the way of responding, the aim of the research and the security of the information in order to encourage a high response. The questionnaire included multiple choice questions; which are used widely in the questionnaire. The variety in these questions aims first to meet the research objectives, and to collect all the necessary data that can support the discussion, results and recommendations in the research. As mentioned earlier, the questionnaires were not purely administered by the participants. Instead, the adopted approach was closer to the interviewer-



administered questionnaire approach, where every participant was briefed on the study problem, objectives and main terminologies. Then, every participant received a copy of the questionnaire and answered its structured questions in full presence of the researcher and after receiving all required clarifications (when requested in a standard and unified way to avoid any bias in the collection stage). The researcher had discussed questions with the participant for probing and thorough understanding purposes.

The questionnaire has been divided into five dimensions as following:

**Table 4 – The main dimensions of the questionnaire**

S.N	No. of Items	Dimension Title	Designed to measure
1 <sup>st</sup> Dimension	8 Questions	Internal [Cross-Departmental] Projects Communications Management as Perceived by Key Staff	the Dependant Variable
2 <sup>nd</sup> Dimension	8 Questions	Information System Quality	One of the Independent Variables
3 <sup>rd</sup> Dimension	7 Questions	Information Quality	One of the Independent Variables
4 <sup>th</sup> Dimension	7 Questions	Organizational Structure	One of the Independent Variables
5 <sup>th</sup> Dimension	10 Questions	Communication Flow	One of the Independent Variables

The questionnaire was originally in English language and carefully translated into the Arabic Language. The Arabic version is the one judged by the referees for its reliability. The vast majority of the questionnaire questions adopt the Likert scale [one through five with equally-distant intervals in-between]. Instead of measuring the agreement degree through this scale (where “3” rate means neutral or not sure), a time frequency scale has been adopted as following:

**Table 5 – The adopted time frequency scale**

		Frequency Range with respect to time
5	Almost Always	More than [80%] and up to [100%]
4	Usually	More than [60%] and up to [80%]
3	Sometimes	More than [40%] and up to [60%]
2	Seldom	More than [20%] and up to [40%]
1	Almost Never "Once in great while"	From [0%] to [20%]

In addition to the scale interpretation in the questionnaire's covering letter, the interpretation of the scale has been made clear by the researcher to every participant before administering the questionnaire.

#### **Fourth-Statistical Analysis Tools**

The Data analysis was performed by using (SPSS) application. The following statistical methods were utilized:

1. Descriptive analysis (Frequencies and Percentile).
2. Alpha- Cronbach Test for measuring reliability of the questionnaire's items.
3. Spearman –Brown Coefficient.
4. Person correlation coefficients for measuring validity of the questionnaire's items.
5. one sample t test
6. One-Way Analysis of Variance “ANOVA”

Pearson correlation coefficient was used to examine whether there is a significant statistical relationship between the various research's variables. Independent t test was used to examine if there is a significant statistical difference between two means among the respondents due to gender. One-Way Analysis of Variance “ANOVA” test was used to examine if there is a significant statistical difference between several means among the respondents toward due to age, qualification, experience, department, grade, type & time-intensity of involvement (Saunders et al, 2007) .

It is important to highlight here that all of the aforementioned statistical analysis test are considered as parametric tests; where the research population was tested for normality (being in line with the normal distribution) by applying the Kolomogrove-Smirnov [K-S] test as following:

One Sample K-S test was used to identify if the data follow normal distribution or not, this test is considered necessary in case testing hypotheses as most parametric. Test results as shown in the Table No.6, clarify that the calculated p-value is greater than the significant level which equals 0.05 ( $p\text{-value} > 0.05$ ). This, in turn, denotes rejecting the null hypothesis and indicates that data follows normal distribution, and so parametric tests must be used (Saunders et al, 2007).

**Table 6 – One sample K-S test**

<b>S.N</b>	<b>No. of Items</b>	<b>Dimension Title</b>	<b>Statistic</b>	<b>P-value</b>
<b>1<sup>st</sup></b> Dimension	<b>8</b> Questions	Internal [Cross-Departmental] Projects Communications Management as Perceived by Key Staff	0.970	0.304
<b>2<sup>nd</sup></b> Dimension	<b>8</b> Questions	Information System Quality	0.716	0.685
<b>3<sup>rd</sup></b> Dimension	<b>7</b> Questions	Information Quality	0.971	0.302
<b>4<sup>th</sup></b> Dimension	<b>7</b> Questions	Organizational Structure	1.200	0.112
<b>5<sup>th</sup></b> Dimension	<b>10</b> Questions	Communication Flow	0.966	0.308

# Chapter 5. Hypothesis Testing & Discussion

## CHAPTER OUTLINE

- First: Critical Criterion
- Second: Characteristics of the Research Population
- Third: Analyzing the First Dimension
- Fourth: Analyzing the Second Dimension
- Fifth: Analyzing the Third Dimension
- Sixth: Analyzing the Fourth Dimension
- Seventh: Analyzing the Fifth Dimension
- Eighth: Analyzing the Five Dimensions
- Ninth: Analyzing Statistical Relationships
- Tenth: Analyzing Potential Differences among Participants

This chapter presents the analysis of the survey data and the results of the tests of the hypotheses proposed in chapter one.

### **First-Critical Criterion**

[One Sample “t” test] was used to determine if the mean of a paragraph is significantly different from a hypothesized value of 4 (i.e. usually – which is equivalent to a time frequency ranges from more than 60% up to 80% of the time). The hypothesized value was selected carefully to exactly measure what is intended to be measured. The whole research is about performing a “critical evaluation” for the cross-departmental coordination and exchange of information in managing UNRWA projects. Hence, the questionnaire items were designed and paraphrased to measure critical actions and behaviors. The vast majority of the questionnaire’s questions supports the positive direction and assumes by default an acceptable situation. For example, when the mean of respondents’ rates is [4] for a positive statement like “*The cross-departmental communications of projects' tasks (as per the current situation) lead to timely decision-making and actions*”, then there is no problem associated with this business behavior. This example can be also interpreted in a different approach, where this rating also means that only a maximum of 20% of the time (occurrences), there are no timely decisions and actions and this is assumed acceptable in the real-life context. Therefore, adopting the rate [4] as a cut point will be identifying those areas where there is really a serious gap as perceived by the involved employees. Consequently, if the mean of this statement as provided by the participants is [3=sometimes] and this mean is significantly different than the cut-point of [4], then this means that only up to 60% of the time, there are timely decisions and actions- leading to a considerable gap of 40% including what is assumed as acceptable margin of imperfectness in the real-life context. Accordingly, when the P-value (Sig.) is smaller than or equal to the level of significance,  $\alpha=0.05$ , then the mean of a paragraph is significantly different from a hypothesized value [4]. The sign of the test value indicates whether the mean is significantly greater or smaller than hypothesized value of [4]. On the other hand, if the P-value (Sig.) is greater than the level of significance,  $\alpha =0.05$ , then the mean of the paragraph is insignificantly different from a hypothesized value [4].

### **Second- Characteristics of the Research Population**

In pursuit to what have illustrated earlier in chapter four on the research population, the following points involve further analysis to the research population:

## A. Gender

**Table 7 – Distribution of the research population according to gender**

Gender	Frequency	Percentage
Male	43	87.8%
Female	6	12.2%
Total	49	100%

Table No.7 shows that 87.8 % of the research population is “Male”, and 12.2% of them is “Female”. These figures do not match with the most relevant and recent (Abuwarda, 2010) study which showed that 58% of the study population is “Male”, and 42% of them is “Female”. Simply, (Abuwarda, 2010) study adopted a stratified random sample from which possible generalization to the whole UNRWA population can be provided. However, this research focuses only on key staff who are directly involved in managing and administering projects communications within construction and infrastructure sector; and hence, generalization of the statistics is not applied. Furthermore, since about half the research population is from ICIP staff (who are mainly engineers-with majority of civil engineers), it is well noted in the local society that there is a huge gap between the number of female engineers and male engineers and UNRWA-GFO is not an exception. Other key positions in the other departments and programmes are mainly occupied by male staff.

## B. Age

**Table 8 – Distribution of the research population according to age**

Age Range	Frequency	Percentage
From 20 - less than 30 years	0	0%
From 30 - less than 40 years	23	46.9%
From 40 - less than 50 years	19	38.8%
50 years and above	7	14.3%
Total	49	100%

Table No.8 shows that 46.9% of the research population ages " From 30 - less than 40 years" , and 38.8 % of them ages " From 40 - less than 50 years ", while 14.3 % ages "50 years and above ". These results imply that the vast majority of the research population

[85.7%] are from 30 to < 50 years old; which indicate the level of experience required for key staff involved directly in coordinating the efforts and exchanging information across the department.

### C. Academic Qualifications

**Table 9 – Distribution of the research population according to academic qualifications**

Academic Qualifications	Frequency	Percentage
Diploma	3	6.1%
Bachelor	28	57.1%
Master	17	34.7%
Others (PhD)	1	2.0%
Total	49	100%

Table No.9 shows that 6.1% of the research population holds "Diploma " academic degree, and 57.1 % of them holds " Bachelor " academic degree, and 36.7 % holds postgraduate degree. These results imply that the vast majority of the research population [93.9% ] holds university degree ; which indicate the level of qualifications required for key staff involved directly in coordinating the efforts and exchanging information across the department.

### D. Experience at UNRWA

**Table 10 – Distribution according to the practical experience at UNRWA**

Practical Experience at UNRWA	Frequency	Percentage
Less than 5 years	2	4.1%
From 5 to less than 10 years	14	28.6%
From 10 to less than 15 years	12	24.5%
15 years and above	21	42.9%
Total	49	100%

Table No.10 shows that 4.1% of the research population has "Less than five years of practical experience at UNRWA " , and 28.6% of them has "From 5 to less than 10 years of practical experience at UNRWA " , and 24.5% has " From 10 to less than 15 years of practical

experience at UNRWA " , while 42.9% of the research population has" 15 years and above of practical experience at UNRWA " . These results imply that the vast majority of the research population [96% ] has more than five years of practical experience at UNRWA ; which indicate the level of contextual & organizational understanding required for key staff involved directly in coordinating the efforts and exchanging information across the department.

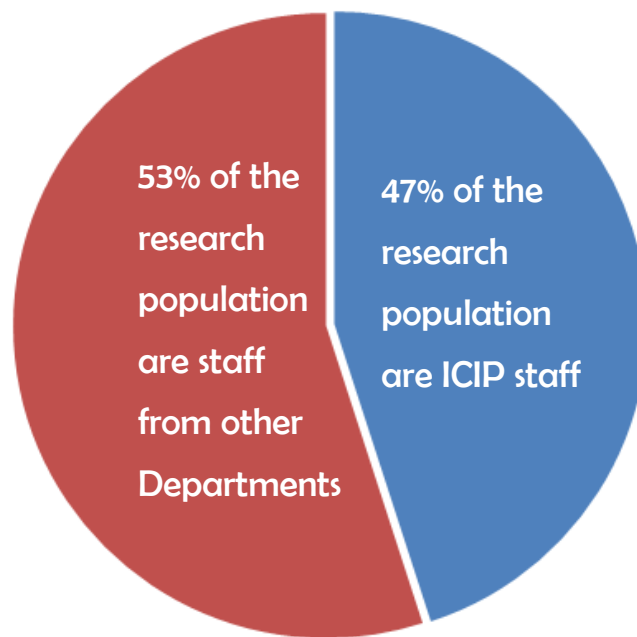
## E. Department

**Table 11 – Distribution according to the functional department**

Department	Frequency	Percentage
Infrastructure & Camp Improvement Programme	23	46.9%
Education Programme	3	6.1%
Health Programme	2	4.1%
Relief & Social Services Programme	4	8.2%
Emergency Programme	5	10.2%
Procurement & Logistics Services Department	3	6.1%
Finance Department	3	6.1%
Projects Office	6	12.2%
<b>Total</b>	<b>49</b>	<b>100%</b>

Table No.11 shows that 46.9% of the research population works in the "Infrastructure & Camp Improvement Programme", 12.2 % works in the "Projects Office", 10.2% works in the "Emergency Programme", 8.2% works in the "Relief & Social Services Programme" , 6.1% works in the "Education Programme", 6.1% works in the "Procurement & Logistics Services Department" , 6.1 % works in the "Finance Department" , and 4.1% works in the " Health Programme ". This result is in line with the research's main theme (cross-departmental communications); where apart from the tasks performed by the ICIP staff, administrative tasks for construction and infrastructure projects are usually performed by other departments' staff who are not technical employees (i.e. engineers). For example, the Procurement Officer who is responsible for purchasing the required furniture, equipment and supply items for a construction project performs administrative tasks within this particular context.





**Figure 17 – Distribution of the participants according to the functional department**

#### **F. Grade (Organizational Level)**

**Table 12 – Distribution according to the organizational level**

<b>Organizational level at UNRWA</b>	<b>Frequency</b>	<b>Percentage</b>
From Gr. 6 To Gr.11	12	24.5%
From Gr.12 To Gr.15	30	61.2%
From Gr.16 To Gr.20	7	14.3%
<b>Total</b>	<b>49</b>	<b>100%</b>

Table No.12 shows that 24.5% of the research population belongs to the operational level of the organizational pyramid with grade ranges "From Gr. 6 To Gr.11", and 61.2% of the research population belongs to the middle management level of the organizational pyramid with grade ranges " From Gr.12 To Gr.15 ", and 14.3% belongs to the top management level with grade ranges " From Gr.16 To Gr.20 ". These results imply that the majority of the research population [61.2% ] belongs to the middle management level of the organizational pyramid with grade ranges " From Gr.12 To Gr.15 "; which is completely in line with the research context, where efforts' coordination and exchanging of information across the departments are the typical duties of this organizational level-mainly through lateral and diagonal communications.

## G. Type of Involvement in Projects' related tasks

**Table 13 – Distribution according to the type of involvement in projects' tasks**

Involvement in projects' tasks	Frequency	Percentage
Almost Technical	0	0.0%
Almost Administrative	31	63.3%
Sharing technical & administrative tasks	18	36.7%
Total	49	100%

Table No.13 shows that 63.3% of the research population has “almost administrative” roles and the remaining 36.7% are involved in tasks that combine both technical and administrative aspects. This result is in line with the research’s main theme (cross-departmental communications); where apart from the tasks performed by the ICIP staff, administrative tasks for construction and infrastructure projects are usually performed by other departments’ staff who are not technical employees (i.e. engineers). For example, the Procurement Officer who is responsible for purchasing the required furniture, equipment and supply items for a construction project performs administrative tasks within this particular context. As for the ICIP employees, and although the majority of this department consists of engineers; however, the majority of administrative staff (such as: Administration Officer and Assistants, Accountants and even some senior positions) are involved in “almost administrative tasks”. The remaining part of the ICIP (mainly engineers) performs tasks that combine both administrative and technical aspects. For example, the Office Engineer is responsible for checking the received bids not only in terms of financial evaluation but also in terms of technical evaluations. One last point in this regard, that having no participant whose tasks are usually with pure technical nature is in line with the research theme. A resident site engineer ,for instance, who is directly involved in supervising technically the progress of construction activities on daily basis and who is responsible for raising technical reports to his/her supervisors cannot be considered as a direct participant in the “cross-departmental communications”.

## H. Time-Intensity Involvement in Projects' Tasks

**Table 14 – Distribution according to the time-intensity involvement in projects' tasks**

<b>Practical Experience at UNRWA</b>	<b>Frequency</b>	<b>Percentage</b>
Less than 25%	0	0.0%
From 25% to less than 50%	9	18.4%
From 50% to less than 75%	7	14.3%
Greater than 75%	33	67.3%
<b>Total</b>	<b>49</b>	<b>100%</b>

Table No.14 shows that 67.3% of the research population has “greater than 75% of their working time” dedicated to projects' related tasks. This result is in line with the research's main theme (cross-departmental communications); where more than two-thirds of the research populations are working mainly (if not solely) on projects. The remaining categories (14.3% has time involvement less than 75% and greater than 50% plus 18.4% has time involvement less than 50% and greater than 25%) are working partially on projects. For example, the Procurement Officer who is responsible for purchasing the required furniture, equipment and supply items for a construction project has also other non-projects' related tasks for purchasing routine goods and supplies for the regular operations at UNRWA; such as : medical supplies for health centers and cleaning supplies for the schools.

### **Third- Analyzing the First Dimension**

The first dimension investigates the “[cross-departmental] projects communications management as perceived by key staff”. The related results of this dimension are shown in the Table No.15:

**Table 15 – Means and “t” test for the 1<sup>st</sup> Dimension’s Paragraphs**

<b>No.</b>	<b>Paragraph</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Weighted Mean</b>	<b>t-value</b>	<b>P-value</b>
1	The cross-departmental communications of projects' tasks (as per the current situation) lead to <u>appropriate</u> decision-making and actions	3.35	0.597	66.94	-7.659	0.000
2	The cross-departmental communications of projects' tasks (as per the current situation) lead to <u>timely</u> decision-making and actions.	2.80	0.499	55.92	-16.886	0.000
3	The current communications practices directly support me in performing my projects-related tasks in a proper way.	2.53	0.544	50.61	-18.908	0.000
4	GFO Departments repeat mistakes that have been conducted in previous projects.	3.51	0.582	70.20	-5.894	0.000
5	I am frustrated from the current departmental practices for exchanging information and coordinating efforts.	3.84	0.590	76.73	-1.938	0.059

Cont.: Table 15 – Means and “t” test for the 1st Dimension’s Paragraphs

No.	Paragraph	Mean	Standard Deviation	Weighted Mean	t-value	P-value
6	UNRWA projects are subjected to undesirable consequences (that could be avoided) as a result of improper coordination and bad communications between the departments.	3.51	0.505	70.20	-6.788	0.000
7	Conflict of interests and power struggles between Departments are common in projects communications.	3.35	0.561	66.94	-8.150	0.000
	<b>Total</b>	2.64	0.343	52.77	-27.812	0.000
<p>– N.B: in calculating the average mean of the entire dimension, the rates for paragraph no. [4,5,6 &amp;7] have been inverted since these sentences indicate negative response (i.e. against the general trend of the whole questionnaire) . However, at the individual level per each sentence, the same rates provided by the respondents have been maintained and presented.</p>						

Analysis of the tested statements in the above table shows the following in regard to the first dimension:

- a. The means of all paragraphs (except paragraph no.5) in the first dimension are significantly different than the cut-point of [4].
- b. In paragraph No. (1), the weighted mean equals 66.94%" and p-value equal "0.000" which is less than 0.05. This means that in about 67% of the time, the cross-departmental communications of projects' tasks "as per the current situation" lead to appropriate decision-making and actions. This result (which is appeared to be positive) can be also interpreted as in 33% of the time; the cross-departmental communications of projects' tasks do not lead to appropriate decision-making and actions. This also means that there is a considerable gap of 33% compared to the perfect situation.
- c. In paragraph No. (2), the weighted mean equals 55.92%" and p-value equal " 0.000" which is less than 0.05. This means that in about 56% of the time, the cross-departmental communications of projects' tasks "as per the current situation" lead to

timely decision-making and actions. This can be also interpreted as in about 44% of the time; the cross-departmental communications of projects' tasks do not lead to timely decision-making and actions. This also means that there is a considerable gap of 44% compared to the perfect situation.

- d. In paragraph No. (3), the weighted mean equals 50.61%" and p-value equal "0.000" which is less than 0.05. This means that in about 49% of the time, the current communications practices do not help the involved staff in performing their projects-related tasks in a proper way.
- e. In paragraph No. (4), the weighted mean equals 70.20% and p-value is " 0.000" which is less than 0.05. This means that in about 70% of the time, GFO Departments repeat mistakes that have been conducted in previous projects. In terms of time frequency (or frequency of occurrences), the result obtained under this paragraph indicates a serious setback in the "Learning behavior"; where repetition of mistakes committed in several occasions reveals the lack of proper communication system to coordinate projects' efforts and hence the lack of the feedback cycle to build knowledge and benefit from previous experiences at the organizational level.
- f. In paragraph No. (6), the weighted mean equals 70.20%" and p-value equal " 0.000" which is less than 0.05. This means that in about 70% of the time, UNRWA projects are subjected to undesirable consequences "that could be avoided" as a result of improper coordination and bad communications between the departments). Every respondent was provided with written list of examples on such undesirable consequences; which are: project delay - cost overrun - fund withdrawal - considerable deviation from the original scope/ plan.
- g. In paragraph No. (7), the weighted mean equals 66.94% and p-value equal " 0.000" which is less than 0.05. This means that in about 67% of the time, conflict of interests and power struggles between Departments are common in projects communications. Every respondent was provided with written list of examples on such behaviors; which are: avoiding real cooperation or support unless there is a pressure from the top - retention of specific data/information by a division head to keep power of information ownership - dumping tasks on other divisions and departments.

As an overall evaluation for the first dimension "[Cross-Departmental] Projects Communications as Perceived by Key Staff", the average mean equals 2.64 and the weighted mean equals 52.77% and the p- value equal 0.000 which is less than 0.05. This means that the current Projects Communications Management can be much better as perceived by key staff involved in projects' tasks across the departments at UNRWA-GFO. To cross-check the results obtained, a multiple choice question was added to the first dimension; asking each respondent the following question:

“How would you evaluate the current level of efforts' coordination and exchange of data and information between the GFO departments in managing UNRWA Projects?” with five possible choices. Table No.16 summarizes the frequencies against each choice.

**Table 16 – Frequencies of the five choices rated by the participants in response to the overall evaluation**

Choice	Frequency	Percentage
Very poor	0	0.0%
Poor compared to what must be for an organization like UNRWA	11	22.4%
Good, but must be much better	36	73.5%
Very Good	2	4.1%
Almost Perfect	0	0.0%
<b>Total</b>	<b>49</b>	<b>100%</b>

The results show that 22.4% from the research population has evaluated the current level of efforts' coordination and exchange of data and information between the GFO departments in managing UNRWA Projects " as (Poor compared to what must be for an organization like UNRWA ) , and 73.5 % of them believes that the current situation is " Good, but must be much better " , while only 4.1% of the research population believes that the current situation is " Very Good " .

The results of this dimension come in line with the following previous studies:

- i. (Abuwarda, 2010) : this study aimed at identifying the impact of organizational communication on the work performance at UNRWA - Gaza. The study population consists of the whole staff working in the UNRWA Gaza Filed office (1014 employees) with a sample consisted of 449 staff members. The study proved that there are significant statistical correlations between the work performance as a “dependent variable “ and the following three “independent variables : media of organizational communication, organizational communication climate and the personal communication skills.
- ii. (Ammar, 2009) & (Bessiso, 2010): this study showed that UNRWA employees are in favor of applying electronic management solutions to cope with the increasing demand of tasks and their perceptions support the optimistic prediction of having the following success factors improved by applying the electronic management solutions : a- employees’ performance, b- productivity, c- mitigating business obstacles, d- organizing job tasks, e- reducing oversight and technical overhead costs, f- assigning clearer division of responsibilities, g- ensuring faster approach for exchanging information, h- ensuring more accurate approach for exchanging information, i-

reducing the rate of committing mistakes, j- enhanced mechanisms for storing and retrieving documents and information and k- the possibility of “Telecommuting” ; especially during emergencies which are common in Gaza Strip environment. The conclusions reached by the two researchers within UNRWA context support the results obtained under this study (in general) and under this dimension (in particular)-giving the fact that there is no centralized PMIS used by UNRWA to administer and manage its projects. The further dimensions (number two and three in particular) will handle the associated details.

- iii. (El-Aff, 2007); this study revealed that more than 85% of the Palestinian NGOs have severe problems in managing their projects; due to not adopting acceptable practices of projects management; particularly during the conceptualization and planning stage. The study also sheds the light on the severe impact on the projects’ success due to the mismatch between the organizational structures of the vast majority of these NGOs and a proper organizational structure that fit with an organization that heavily depends on funding its operations by donor-funded projects. The same analogy of this case study can be used for analyzing the issue at UNRWA. The further dimensions (number four and five in particular) will handle the associated details.
- iv. (Raymond & Bergeron, 2007) : This study sheds the light on the reluctance of project managers to report “bad news” on a project, and the subsequent effect it has on the accuracy of project reports and on the assessment of project success. Dimensions (number two and three) will handle the associated details.
- v. (Karim, 2011) : this study was initiated based on the fact that many of the projects that have been investigated at several industries (under this study) exceed the original cost, got cancelled prior to completion, and fail in terms of the delivered functionality. The study main focus was to highlight the significant contribution of managing the projects’ information in achieving effective and efficient decision-making throughout the various phases of the project’s life cycle. Dimensions (number two and three) will handle the associated details.
- vi. (El-Shikhdeeb, 2008) : this study revealed that there is a positive impact of business communication on the decision-making process .

#### **Fourth-Analyzing the Second Dimension**

The second dimension investigates the “Information System Quality”. The related results of this dimension are shown in Table No.17:



**Table 17 – Means and “t” test for the 2<sup>nd</sup> Dimension’s Paragraphs**

No.	Paragraph	Mean	Standard Deviation	Weighted Mean	t-value	P-value
1	In my department, there is a paper-based record / archive for every project.	3.82	1.167	76.33	-1.102	0.276
2	I can have most of my need of information/data by using the available paper-based records / archive	2.84	0.746	56.73	-10.919	0.000
3	The periodic reports issued from my department provide me with valued information in handling required tasks related to the projects.	2.73	0.638	54.69	-13.878	0.000
4	The periodic reports issued from other departments provide me with valued information in handling required tasks related to the projects.	1.76	0.630	35.10	-24.937	0.000
5	I have to maintain an electronic folder (all related electronic files) per each project as an electronic archive.	3.73	0.836	74.69	-2.221	0.031
6	I can have most of my need of information/data by using the available computerized databases / information systems	2.24	0.804	44.90	-15.273	0.000
7	The available databases and computerized information systems are linked to each other and well-integrated.	1.63	0.528	32.65	-31.378	0.000

Cont.: Table 17– Means and “t” test for the 2nd Dimension’s Paragraphs

No.	Paragraph	Mean	Standard Deviation	Weighted Mean	t-value	P-value
8	There are continuous improvements introduced to the available computerized databases/ information systems to meet the staff needs & suggestions	1.31	0.508	26.12	-37.089	0.000
	<b>Total</b>	2.32	0.259	46.48	-45.324	0.000
<p>– In calculating the average mean of the entire dimension, the rates for paragraph no. [5] have been inverted since this sentence indicate negative response (i.e. against the general trend of the whole questionnaire) . However, at the individual level for this sentence, the same rates provided by the respondents have been maintained and presented.</p>						

- a. In paragraph No. (2), the weighted mean equals 56.73% and p-value equal “0.000” which is less than 0.05. This means that in about 57% of the time, UNRWA staff can find most of their information/data needs by using the available paper-based records and archive. This alarming result reveals a huge gap in the actual benefit from the available paper-based records. During the discussions conducted while collecting the quantifiable data, the researcher noted that some of staff has complaints with regard to the completeness and organization of the records keeping (i.e. records are not organized to serve the purpose of facilitating the cross-departmental communications or decision-making).
- b. In paragraph No. (3), the weighted mean equals 54.69% and p-value equal “0.000” which is less than 0.05. This means that in only about 55% of the time, the periodic reports issued from the participant’s department provide him/her with valued information in handling required projects’ related tasks. Simply, the periodic reports issued by the departments are not produced and organized to serve the purpose of facilitating the cross-departmental communications or operational decision-making. Instead, departments issue such reports on monthly basis to brief the top management of milestone achievements and obstacles during the reporting period (usually a month). During the discussions conducted while collecting the quantifiable data, the researcher noted that some of staff has complaints with regard to the completeness and accuracy of such reports.

- c. In paragraph No. (4), the weighted mean equals 35.10% and p-value equal "0.000" which is less than 0.05. This means that in only about 35% of the time, the periodic reports issued from the various departments other than the participant's department provide him/her with valued information in handling required projects' related tasks. Following the same analogy and explanation provided for paragraph no.3 under this dimension, this result is logical in the absence of a unified direction to present and share information among the departments.
- d. In paragraph No. (5), the weighted mean equals 74.69% and p-value equal "0.031" which is less than 0.05. This means that in about 75% of the time, the participant has to maintain an electronic folder (all related electronic files) per each project as an electronic archive for his/her own use. This paragraph was designed to measure to what extent UNRWA staff are forced to have some sort of computer applications to arrange their data and information; where the higher reliance on such scattered arrangements indicate low level of information integration and sever lack of a unified computerized system.
- e. In paragraph No. (6), the weighted mean equals 44.90%" and p-value equal "0.000" which is less than 0.05. This means that in about 45% of the time, the participant can have most of his/her need of information/data by using the available computerized databases and information systems.
- f. In paragraph No. (7), the weighted mean equal 32.65%" and p-value equal "0.000" which is less than 0.05. This means that in about 33% of the time, the available computerized databases and information systems are linked to each other and well-integrated. This result can be read and analyzed in connection with the aforementioned paragraphs no.(5) & no.(6) under this dimension. In spite of the fact that there are mainly two [Agency-wide] computerized information systems that are used to manage essential information and business actions (namely FMS for Financial transactions and PMIS for procurement & logistics transactions); however, these systems are not integrated with each other in a beneficial manner. Additionally, as stated in paragraph no.(5) of this dimension, many staff at UNRWA are forced to develop their own computer applications (mainly using MS-Excel or MS-Access) to facilitate their tasks. Furthermore, some divisions/departments have established its own computerized information system (mainly using MS-Access) to be used mainly by the division/department's staff. These scattered and fragmented computerized applications have been established in complete absence of a comprehensive strategic direction or any holistic approach for a comprehensive Management Information System or an enterprise solution (Enterprise Resources Planning-ERP).
- g. In paragraph No. (8), the weighted mean equal 26.12%" and p-value equal "0.000" which is less than 0.05. This means that in only 26% of the time, there are continuous

improvements introduced to the available computerized databases/ information systems to meet the staff needs & suggestions.

As an overall evaluation for the second dimension “Quality of Information Systems”, the average mean equals 2.32 and the weighted mean equals 46.48%. The p- value equal 0.000 which is less than 0.05. This means that the available information systems don’t meet the key internal stakeholders’ requirements at ( $\alpha = 0.05$ ) significance level.

The results of this dimension come in line with the following previous studies:

- i. (Abuwarda, 2010) : the study showed that: 1- filing system at UNRWA-GFO is not well-organized , 2- it is not easy or always accessible to acquire documents required for performing tasks , and 3- it is not always attainable to exchange data files with colleagues from other departments.
- ii. (Raymond & Bergeron, 2007) : this study revealed that the use of a project management information system is in fact advantageous to project managers. Improvements in electiveness and efficiency in managerial tasks were observed in terms of better project planning, scheduling, monitoring, and control. Improvements in productivity were also observed in terms of timelier decision-making, improved budget control and more adherences to project deadlines as well as fulfilling technical specifications. The study proved that PMIS quality is a strong predictor of the quality of information to be obtained from the system - the system’s ease of use, flexibility, and system integration play an important role in producing quality information. The study also showed that in the case of a higher-quality PMIS, the information output is more available, reliable, precise, comprehensive, and secure. Conversely, a PMIS that produces information of poor quality would be a system that is more difficult to use, less flexible, and less integrated to other organizational information systems used by the project manager and other managers or employees. This means that project information quality requires sophisticated, well-serviced information systems.
- iii. (Karim, 2011) : The study simply proved the existence of strong and significant relationships between the [Effective & Efficient Project Management Decision Making] as a “dependent variable” and the following independent variables: Information Quality, Information System Quality, Communication Quality and Decision-Maker Quality.
- iv. (Botha & Boon, 2003) : this study attempted to find an answer to the question : Is it possible (and desirable) to get a globally standardized methodology for information auditing? . One of the study findings is that information audit has many common features and objectives that are almost typical or similar with those for Information System audit and communication audit. The study defines Information System Audit as an investigation of the way in which technological tools are used to manage information resources and assessing whether the available information systems are

fully integrated with each other and whether the available information systems provide the organization's users with their needs of information: 1-in full required details, 2-in timely conduct and 3- in easily accessible manner. The questions under the second dimension revealed that UNRWA has scattered, fragmented information systems (both: the manual and the computerized systems).

- v. (El-Shikhdeeb, 2008) : this study revealed that Modern Communications Technologies (MCTs) make attaining information easier and increase the efficiency.
- vi. (Deng et al, 2002) : this study describes an Internet-based project management system called . “Total Information Transfer System” TITS . TITS comprises six major functions including data exchange, information exchange, Internet chat, live video-cam, search engine and auxiliary services. It is found that the TITS system can handle information sharing efficiently between the various parties in a construction project. The system offers many benefits such as improved efficiency, better management and decision making, and enhanced performance to construction firms. However, one of the main research findings is that any PMIS needs to be developed to meet the specific requirements of the every individual organization and any PMIS has to be designed with flexibility even to meet the case project.
- vii. (Nash et al, 2002): The paper has investigated the development of IT enabling tools to improve communication and information sharing and exchange during the construction of a building. The test and evaluation of the system, compared with the paper-based system revealed that he performance assessment of the system shows a saving of more than 90% in man-hours, with estimated huge saving in cost. This result shows how the available IT facilities can be exploited to improve communication within the whole of the construction supply chain. The study concluded that optimum utilization of already available IT can clearly improve the construction processes with accrued benefits.
- viii. (Vanita et al, 2009): this Indian study assessed the factors that affect the [Information & Communication Technologies –ICT] in the construction industry. The study revealed that one of the essential managerial factors to be considered is that : “Available Information Systems must be periodically upgraded and linked to the users/customers need of information”. Unfortunately, it's obvious that UNRWA management (particularly the ISO at HQ) do not pay prompt and serious attention to the continuous development and there is no feedback mechanism to develop and upgrade existing systems.

## Fifth- Analyzing the Third Dimension

The third dimension investigates the “Information Quality”. The related results of this dimension are shown in Table No.18:

**Table 18 – Means and “t” test for the 3<sup>rd</sup> Dimension’s Paragraphs**

No.	Paragraph	Mean	Standard Deviation	Weighted Mean	t-value	P-value
1	Whenever I need a piece of information/data, I can find it .	3.33	0.516	66.53	-9.138	0.000
2	Whenever I need a piece of information/data, I can find it on time.	2.55	0.503	51.02	-20.183	0.000
3	Whenever I need a piece of information/data, I can find it at reasonable efforts (i.e. minimum required efforts)	1.96	0.498	39.18	-28.669	0.000
4	Whenever I need a piece of information/data, I can find it with high level of accuracy & trust.	2.84	0.514	56.73	-15.834	0.000
5	Every piece of data / information element is consistently defined and has unified meaning to all staff using it.	3.43	0.645	68.57	-6.197	0.000
6	Available data and information exactly meet the expectations in terms of completeness and details.	2.27	0.491	45.31	-24.753	0.000
	<b>Total</b>	2.73	0.276	54.56	-32.294	0.000

- a. In paragraph No. (1), the weighted mean equals 66.53%" and p-value equals "0.000" which is less than 0.05. This means that in about 67% of the time, the information seeker can find his/her need of information/data.
- b. In paragraph No. (2), the weighted mean equals 51.02%" and p-value equals "0.000" which is less than 0.05. This means that in about 51% of the time, the information seeker can find his/her need of information/data on time.
- c. In paragraph No. (3), the weighted mean equals 39.18%" and p-value equals "0.000" which is less than 0.05. This means that in about only 39% of the time, the information seeker can find his/her need of information/data at reasonable efforts (i.e. minimum required efforts).
- d. In paragraph No. (4), the weighted mean equals 56.73%" and p-value equals "0.000" which is less than 0.05. This means that in about 57% of the time, the information seeker can find his/her need of information/data with high level of accuracy & trust.
- e. In paragraph No. (5), the weighted mean equals 68.57%" and p-value equals "0.000" which is less than 0.05. This means that in about 69% of the time, every piece of data / information element is consistently defined and has unified meaning to all staff using it.
- f. In paragraph No. (6), the weighted mean equals 45.31%" and p-value equals "0.000" which is less than 0.05. This means that in about 45% of the time, the collected/available data and information meet the expectations in terms of completeness and details).

As an overall evaluation for the third dimension "Information Quality", the average mean equals 2.73 and the weighted mean equals 54.56%. The p- value equals 0.000 which is less than 0.05. This means that the current level of projects' information quality does not meet the key internal stakeholders' requirements at ( $\alpha = 0.05$ ) significance level.

To get better understanding on the obtained results, an order-ranking question was incorporated into the third dimension; asking each respondent to rank the major four obstacles in exchanging information across the departments from [1] to [4]; where 1 indicates the major obstacle and 4 indicates the minor obstacle. The participant was allowed to assign the same rank for more than one element and zero for what is considered by him/her as a non-obstacle. Table No.19 summarizes the frequencies against each item.

**Table 19– Ranks (in terms of occurrence) for the major obstacles associated with the exchange of Information across the departments**

<b>Obstacle</b>	<b>Weighted average of Ranks' Frequencies</b>	<b>Average Rank</b>
The inability to acquire required information / data <b><u>at least possible efforts</u></b>	1.33	<b><u>1</u></b>
The inability to acquire required information / data <b><u>on time</u></b>	1.88	<b><u>2</u></b>
The inability to acquire <b><u>accurate &amp; trustworthy</u></b> information / data	2.76	<b><u>3</u></b>
The inability to <b>acquire</b> required information / data	2.94	<b><u>4</u></b>

The results obtained in the ranking question are completely in line with the responses provided against paragraphs no. (1),(2),(3) and (4) under the third dimension; where the inability to acquire required information / data at least possible efforts occupied the first rank, the inability to acquire required information / data on time occupied the second rank, the inability to acquire accurate & trustworthy information / data occupied the third rank and the inability to acquire required information / data occupied the last rank in terms of occurrence as an obstacle.

The results of this dimension come in line with the following previous studies:

- i. (Abuwarda, 2010) : the study showed there is no complete trust in the information received from the supervisors, co-workers and subordinates.
- ii. (Raymond & Bergeron, 2007) : in the study, the quality of the PMIS was measured with eight items: accessibility, response time, flexibility, ease of use, querying ease, learning ease, systems integration and multi-project capability. The quality of information was measured with six items: availability, relevance, reliability, precision, comprehensiveness, and security.
- iii. (Botha & Boon, 2003) : this study attempted to find an answer to the question : Is it possible (and desirable) to get a globally standardized methodology for information auditing? . One of the study findings is that information audit has many common features and objectives that are almost typical or similar with those for Information System audit and communication audit. The study defines Information Audit as the systematic examination of the information resources, information use, information quality, information flows and the management of these in an organization. It involves the identification of users' information needs and how effectively (or not) these are being met. The study also sheds the light on the facts that the main aim of an information audit is specific to the environment in which it is performed. The researchers conclude that an information audit can contribute significantly to effective



information management, i.e. it can be regarded as a critically important information management tool. This is because the information audit provides detailed and accurate information of the organizational information environment as well as an understanding of the way in which the organization functions. The questions under the third dimension addressed one of the Information Audit themes (which is Information Quality) and it is revealed that Project's Information Quality at UNRWA is not satisfactory. It is worth mentioning that the whole dimensions addressed in this study are in line with the (Botha & Boon, 2003) definition for information audit.

- iv. (Scott et al, 2002): this study investigated the construction projects managers' and professionals perceptions on the main criteria that has to be used in assessing the functionalities of any centralized Construction Information Management System [CIMS]. The study revealed that the following factors in rank of importance order are the main criteria: 1- Ease of Use, 2-Integration with other available computerized systems, 3- Compatibility of input and output data with the "in-use" formats, 4- Incorporating proper Documents Management System [DMS], and 5- to be in line with the available communication channels and structures.
- v. (Lee et al, 2002): this study developed a comprehensive methodology to assess Information Quality [IQ] in connection with Management Information Systems [MIS] . The mode investigated the following factors : 1- Information is easily retrievable, 2- Information is easily accessible, 3- Information is easily obtainable, 4- Information is quickly accessible when needed, 5-Amount of Information is sufficient for the needs, 6- Information is trustworthy, 7- Information is complete, 8- Information is presented concisely, 9- Information is presented in a compact form and 10- Information is easy to aggregate.

## **Sixth- Analyzing the Fourth Dimension**

The fourth dimension investigates the impact of "organizational structure" on the flow and quality of exchanged information across the various departments involved in project administration. The related results of this dimension are shown in Table No.20:

**Table 20 – Means and “t” test for the 4<sup>th</sup> Dimension’s Paragraphs**

<b>No.</b>	<b>Paragraph</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Weighted Mean</b>	<b>t-value</b>	<b>P-value</b>
1	The available procedures (technical instructions and manuals) regulate every aspect required for the coordination of projects' efforts and decision-making between the various departments .	2.96	0.498	59.18	-14.621	0.000
2	For every project, there is a clear and consistent list of all employees from various departments who are involved in the project's tasks.	2.24	0.522	44.90	-23.552	0.000
3	For every project, there are clear & recognized lines of communications and exchange of information.	2.57	0.577	51.43	-17.321	0.000
4	Formal Projects communications with key staff across the departments are free flowing (not affected by the organizational structure and the associated bureaucratic procedures)	2.51	0.505	50.20	-20.648	0.000
5	Managers thoroughly understand the obstacles and problems faced by subordinates for project-related issues.	3.20	0.676	64.08	-8.237	0.000

Cont.: Table 20 – Means and “t” test for the 4th Dimension’s Paragraphs

No.	Paragraph	Mean	Standard Deviation	Weighted Mean	t-value	P-value
6	My ability to collect required information/data is not affected when the original source of information is temporarily absent or not working anymore in his/her original station.	2.20	0.499	44.08	-25.186	0.000
7	The current number of staff involved in project' administration matches with the requirements to attain high quality information (accurate , with sufficient details and on time) .	2.92	0.534	58.37	-14.186	0.000
	<b>Total</b>	2.66	0.262	53.18	-35.811	0.000

- a. In paragraph No. (1), the weighted mean equals 59.18%" and p-value equals " 0.000" which is less than 0.05. This means that in about 59% of the time, the available procedures (technical instructions and manuals) regulate aspects required for the coordination of projects' efforts and decision-making between the various departments.
- b. In paragraph No. (2), the weighted mean equals 44.90%" and p-value equals “0.000" which is less than 0.05. This means that in about only 45% of the time, there is clear and consistent list of all employees from various departments who are involved in the project's tasks.
- c. In paragraph No. (3), the weighted mean equals 51.43%" and p-value equals " 0.000" which is less than 0.05. This means that in about only 51% of the time, there are clear & recognized lines of communications and exchange of information for every project.
- d. In paragraph No. (4), the weighted mean equals 50.20%" and p-value equals “0.000" which is less than 0.05. This means that in about only 50% of the time, formal Projects communications with key staff across the departments are free flowing (i.e. are not negatively affected by the organizational structure and the associated bureaucratic procedures).

- e. In paragraph No. (5), the weighted mean equals 64.08%" and p-value equals " 0.000" which is less than 0.05. This means that in about 64% of the time, managers are able to thoroughly understand the obstacles and problems faced by their subordinates in administering/handling project-related issues.
- f. In paragraph No. (6), the weighted mean equals 44.08%" and p-value equals " 0.000" which is less than 0.05. This means that in about only 44% of the time, the staff's ability to collect required information/data is not affected when the original source of information is temporarily absent or not working anymore in his/her original station.).
- g. In paragraph No. (7), the weighted mean equals 58.37%" and p-value equals "0.000" which is less than 0.05. This means that in about 58% of the time, the number of staff involved in project' administration is sufficient for the requirements of attaining high quality information (i.e. accurate, with adequate details and on time).

As an overall evaluation for the fourth dimension "organizational structure", the average mean equals 2.66 and the weighted mean equals 53.18%. The p- value equals 0.000 which is less than 0.05. This means that the current organizational structure does not support the smooth flow of projects' information across the department at ( $\alpha=0.05$ ) significance level.

The results of this dimension come in line with the following previous studies:

- i. (Abuwarda, 2010) : the study revealed that: 1- the senior staff and supervisors at UNRWA do not understand or do not properly estimate the problems faced by their subordinates, 2- the subordinates cannot convey any information to their supervisors without hesitation, 3- UNRWA employees don't understand UNRWA's objectives and goals and 4- it is not always attainable to exchange data files with colleagues from other departments.
- ii. (Zeng et al, 2007) : In this study, three types of barriers to information flows were identified; 1- Organizational barriers: these are barriers due to the organizational structure of the organization involved in a construction project; include multi-level structure barriers and horizontal communication barriers, 2- Behavioral barriers: these are barriers mainly due to behavioral characteristics of related persons and posts; include un-compulsory liability and lack of incentive mechanism, 3-Technical barriers: these are barriers mainly due to the technical characteristics of information in construction projects and lack of information collaborative system .
- iii. (El-Saboni et al , 2008): this study (which addressed construction organizations at UAE) revealed the strong relationships between the application of PMIS and the subsequent organizational transformation trend from functional towards matrix and project structures. This, in turn, had led to better effective and efficient projects management.

- iv. (McComb et al, 2007) : This study examined the role of staff quality and teams' flexibility in attaining project's objectives effectively. Teams' flexibility (as per this study) is mainly about cross-departmental teams; where when team members represent all the functional expertise necessary to complete the project, they have the potential to devise flexible approaches for moving forward across all aspects of the project. Staffing quality (as per this study) is measured by the competencies the projects' staff have and the ability to work collaboratively in a team spirit. The study indicated that flexibility mediates the relationship between staffing quality and team performance (goal achievement and cohesion, but not project efficiency). Simply, because of the necessity of having a control body that regulate the communications between these teams' staff and be in command of the possible alternatives they are intending to consider. Thus, the more alternatives a team must consider, the stronger the negative relationship between flexibility and project efficiency is. This result also indicates the vital role of the Projects Management Offices in large organizations (where UNRWA is not an exception).

### Seventh- Analyzing the Fifth Dimension

The fifth and last dimension investigates the “communication flow”. The related results of this dimension are shown in Table No.21:

**Table 21 – Means and “t” test for the 5<sup>th</sup> Dimension’s Paragraphs**

No.	Paragraph	Mean	Standard Deviation	Weighted Mean	t-value	P-value
1	Upward communications to the managers end with timely feedback.	2.92	0.640	58.37	-11.827	0.000
2	Downward communications to the subordinates are properly followed-up .	3.16	0.590	63.27	-9.932	0.000

Cont.: Table 21 – Means and “t” test for the 5th Dimension’s Paragraphs

No.	Paragraph	Mean	Standard Deviation	Weighted Mean	t-value	P-value
3	For projects' tasks handled by me, there are decisions (for which I am not satisfied with) that are made without prior coordination with me.	3.02	0.661	60.41	-10.372	0.000
4	I cannot produce high quality information (accurate , with sufficient details and on time) because of the imposed unworkable time constraints.	3.98	0.520	79.59	-0.275	0.785
5	Some employees do not reply to the official written messages (e.g. e-mails) and don't provide any feedback or provide it too late.	2.86	0.645	57.14	-12.394	0.000
6	For projects' tasks handled by me, I am aware of all communications and I am copied in all related correspondences .	2.88	0.600	57.55	-13.101	0.000
7	Informal communications with other employees outside my department provide me with more detailed and comprehensive information compared to what obtained by the formal communications.	3.24	0.662	64.90	-7.980	0.000

Cont.: Table 21 – Means and “t” test for the 5th Dimension’s Paragraphs

No.	Paragraph	Mean	Standard Deviation	Weighted Mean	t-value	P-value
8	Informal communications with other employees outside my department provide me with faster approach to required information compared to what obtained by the formal communications.	4.12	0.564	82.45	1.520	0.135
9	Meetings with key staff from different departments involved in a project are scheduled systematically throughout the project’s life.	1.69	0.585	33.88	-27.610	0.000
	<b>Total</b>	2.60	0.247	52.06	-39.520	0.000
<p>- N.B: in calculating the average mean of the entire dimension, the rates for paragraph no. [3,4,5,7 &amp;8] have been inverted since these sentences indicate negative response (i.e. against the general trend of the whole questionnaire) . However, at the individual level per each sentence, the same rates provided by the respondents have been maintained and presented.</p>						

- a. In paragraph No. (1), the weighted mean equals 58.37%" and p-value equals “0.000” which is less than 0.05. This means that in about 58% only of the time, upward communications (e.g. asking for advice, raising issues and suggestions) to the managers do end with timely feedback.
- b. In paragraph No. (2), the weighted mean equals 63.27%" and p-value equals “0.000” which is less than 0.05. This means that in about 63% of the time, downward communications (e.g. instructions) to the subordinates are properly followed-up.
- c. In paragraph No. (3), the weighted mean equals 60.41%" and p-value equals “0.000” which is less than 0.05. This means that in about 63% of the time, there are projects-related decisions that are made without prior coordination with the concerned/involved staff and that are not convincing to them.
- d. In paragraph No. (5), the weighted mean equals 57.14%" and p-value equals “0.000” which is less than 0.05. This means that in about 57% of the time, some employees do

not reply to the official written messages (e.g. e-mails) and don't provide any feedback or provide it too late.

- e. In paragraph No. (6), the weighted mean equals 57.55%" and p-value equals " 0.000" which is less than 0.05. This means that in only about 58% of the time, the staff is aware of ALL communications and he/she is copied in all related correspondences for projects' tasks handled by him/her.
- f. In paragraph No. (7), the weighted mean equals 64.90%" and p-value equals "0.000" which is less than 0.05. This means that in about 65% of the time, informal communications with other employees from other departments provide more detailed and comprehensive information compared to what is obtained through the formal communications.
- g. In paragraph No. (9), the weighted mean equals 33.88%" and p-value equals "0.000" which is less than 0.05. This means that in only about 34% of the time, meetings with key staff from different departments involved in a project are scheduled systematically throughout the project's life.

As an overall evaluation for the fifth and last dimension "communication flow", the average mean equals 2.60 and the weighted mean equals 52.06%. The p- value equals 0.000 which is less than 0.05. This means that the current communication flow does not support effective flow of projects' information across the departments at ( $\alpha=0.05$ ) significance level.

To get better understanding on the obtained results associated with this dimension, and in order to ensure that any proposed intervention will maintain the existing assets (both tangible and intangible), one last question was provided. In this question, every participant was asked to assign a percentage against each of a four communication channels commonly used at UNRWA to reflect the frequency of usage in managing UNRWA projects; so that the total is 100%. Table No.22 summarizes the frequencies against each communication channel.

**Table 22 – Usage Frequency per each communication channel in administering UNRWA projects**

Communication Channel	Weighted average of Usage's Frequency	Average Rank
E-mails & attachments of electronic files (Scanned doc.-Excel-Words.. etc)	<b>68%</b>	<b><u>1</u></b>
Inter-personal communications (e.g. face-face , phone conversation ...etc)	<b>17%</b>	<b><u>2</u></b>
Formal printed memos / letters and hardcopy files	<b>9%</b>	<b><u>3</u></b>
Meetings	<b>6%</b>	<b><u>4</u></b>



The results obtained in the last question are completely in line with the qualitative data collected during the conduct of interviewer-administered questionnaire; where the e-mails and exchange of electronic files over the internet and intranet occupied the first rank in terms of usage frequency for exchanging information [68%], the inter-personal communications (e.g. face-face , phone conversation ...etc) occupied the second rank [17%], the formal printed memos / letters and hardcopy files occupied the third rank [9%] ; while the meetings occupied the last rank in terms of usage [6%].

The results of this dimension come in line with the following previous studies:

- i. (Abuwarda, 2010) : the study revealed that: 1- UNRWA's employees heavily rely on using the e-mail in communicating official information, 2- written communications are preferable over oral communications in exchanging information, 3- work meetings at UNRWA are not well-organized, 4- UNRWA employees do not feel appropriate recognition of their efforts and there is no performance management system.
- ii. (Ammar, 2009) : this study revealed that the prevailing organizational climate at UNRWA does not allow for actual participation from the employees in the process of setting objectives and programmes to invest in IT and having a modern electronic management system.

The results of this dimension are not in line with the following previous study:

- i. (Chen & Kamara, 2008): this study investigated the mechanisms of Information Communications on construction sites in an attempt to design a framework of applying an e-commuting solution. The study revealed that about 30% of the medium used to exchange information amongst the various internal stakeholders is through e-mail and intranet, about 22% through inter-personal communications, 17% through post, 21% through meetings, and 10% by faxes.

## **Eighth- Analyzing the Five Dimensions**

As an overall evaluation for the whole five dimensions, the Table No.23 shows that the average mean equals 2.55 and the weighted mean equals 51.04%. The p- value equals 0.000 which is less than 0.05. This means that the results of the “evaluation of the internal “cross-departmental” Projects Communications Management at UNRWA- Gaza Field Office within the construction & infrastructure sector” are below acceptable standards at ( $\alpha=0.05$ ) significance level.

**Table 23 – Means and “t” test for all Dimensions**

No.	Dimension	Mean	Standard Deviation	Weighted Mean	t-value	P-value
1	Projects Communications as Perceived by Key Staff	<b>2.64</b>	0.343	52.77	<b>-27.8</b>	<b>0.000</b>
2	Information System Quality	<b>2.32</b>	0.259	46.48	<b>-45.3</b>	<b>0.000</b>
3	Information Quality	<b>2.73</b>	0.276	54.56	<b>-32.2</b>	<b>0.000</b>
4	Organizational Structure	<b>2.66</b>	0.262	53.18	<b>-35.8</b>	<b>0.000</b>
5	Communication Flow	<b>2.60</b>	0.247	52.06	<b>-39.5</b>	<b>0.000</b>
	<b>Total</b>	<b>2.55</b>	0.169	<b>51.04</b>	<b>-59.9</b>	<b>0.000</b>

The results presented in Table No.23 show that the “Quality of available IS” has the minimum weighted mean among other dimensions’ means; which can be interpreted by stating that only in 46% of the time, the quality of IS meets the key internal stakeholders’ requirements for coordinating efforts and exchanging information across the departments. Similarly, it can be interpreted that only in less than 54% of the time; the current organizational structure and the prevailing communications flow meet the key internal stakeholders’ requirements for coordinating efforts and exchanging information across the departments. The “Quality of exchanged information” has the maximum weighted mean among other dimensions’ means; which can be interpreted by stating that in less than 55% of the time, the quality of exchanged information meets the key internal stakeholders’ requirements. As the aforementioned dimensions are all the research’s independent variables that have almost similar weighted means, it is not surprising to conclude that the current Projects’ communications management can be much better with a gap of more than 47% of the time to be filled to attain an ideal situation as perceived by key internal stakeholders.

### **Ninth- Analyzing Statistical Relationships**

In this section, the hypothesized relationships among the research variables will be investigated for significance-using [Pearson correlation coefficient] as the statistical analysis tool.

**Hypothesis 1:** There is a significant statistical relationship (at level  $\alpha = 0.05$ ) between the Projects Communications Management and the quality of the available information systems.

Table No.24 shows that the Pearson correlation coefficient between the Projects Communications Management and the quality of the available information systems equals 0.837 and the p-value (sig.) equals 0.000; which is less than 0.05. This means that there is a statistical relationship between the Projects Communications Management and the quality of the available information systems at significant level  $\alpha = 0.05$ .

**Table 24 – Correlation between the Projects Communications and the quality of information systems**

Dimension	Pearson Correlation Coefficient	P-value (Sig.)
Quality of available Information Systems	0.837	0.000

**Hypothesis 2:** There is a significant statistical relationship (at level  $\alpha = 0.05$ ) between the Projects Communications Management and the quality of exchanged information across the departments.

Table No.25 shows that the Pearson correlation coefficient between the Projects Communications Management and the Information Quality equals 0.809 and the p-value (sig.) equals 0.000; which is less than 0.05. This means that there is a statistical relationship between the Projects Communications Management and the information quality at significant level  $\alpha = 0.05$ .

**Table 25 – Correlation between the Projects Communications and the information quality**

Dimension	Pearson Correlation Coefficient	P-value (Sig.)
Information Quality	0.809	0.000

**Hypothesis 3:** There is a significant statistical relationship (at level  $\alpha = 0.05$ ) between the Projects Communications Management and the organizational structure.

Table No.26 shows that the Pearson correlation coefficient between the Projects Communications Management and the organizational structure equals 0.514 and the p-value (sig.) equals 0.000; which is less than 0.05. This means that there is a statistical relationship between the Projects Communications Management and the organizational structure at significant level  $\alpha = 0.05$ .

**Table 26 – Correlation between the Projects Communications and the Organizational Structure**

Dimension	Pearson Correlation Coefficient	P-value (Sig.)
Organizational Structure	0.514	0.000

**Hypothesis 4:** There is a significant statistical relationship (at level  $\alpha = 0.05$ ) between the Projects Communications Management and the organizational communication flow.

Table No.27 shows that the Pearson correlation coefficient between the Projects Communications Management and the organizational communication flow equals 0.547 and the p-value (sig.) equals 0.000; which is less than 0.05. This means that there is a statistical relationship between the Projects Communications Management and the organizational communication flow at significant level  $\alpha = 0.05$ .

**Table 27 – Correlation between the Projects Communications and the communication flow**

Dimension	Pearson Correlation Coefficient	P-value (Sig.)
Organizational Communication Flow	0.547	0.000

## **Tenth- Analyzing Potential Differences among Participants**

**Hypothesis 5:** There are significant differences of the population's individual's perceptions according to their personal and professional characteristic (age, education, experience, department and grade) at significant level  $\alpha = 0.05$ .

This hypothesis has been divided into eight sub-hypotheses as the following:

**Hypothesis 5.1:** There are significant differences of the population's individuals perceptions due to gender at significant level  $\alpha = 0.05$ .

To test this sub-hypothesis, independent t-test analysis was used and the results illustrated in Table No.28 show that the p-values for all dimensions are greater than 0.05. This means that there are no significant statistical differences of the population's individuals perceptions due to gender at significant level  $\alpha = 0.05$ .

**Table 28 – interdependent t-test for Gender**

No.	Dimension	Test Value	P-value
1	Projects Communications as Perceived by Key Staff	1.31	0.258
2	Information System Quality	2.22	0.143
3	Information Quality	1.89	0.176
4	Organizational Structure	1.29	0.26
5	Communication Flow	0.01	0.924

**Hypothesis 5.2:** There are significant differences of the population's individuals perceptions due to age at significant level  $\alpha = 0.05$ .

To test this sub-hypothesis, ANOVA analysis was used and the results illustrated in Table No.29 show that the p-value equals 0.457 which is greater than 0.05. This means that there are no significant statistical differences of the population's individuals perceptions due to age at significant level  $\alpha = 0.05$ .

**Table 29 – ANOVA test for Age**

Source	Sum of Squares	df	Mean Square	F value	Sig.(P-Value)
Between Groups	0.046	2	0.023	0.797	<b>0.457</b>
Within Groups	1.328	46	0.029		
Total	1.374	48			

**Hypothesis 5.3:** There are significant differences of the population's individuals perceptions due to qualification at significant level  $\alpha = 0.05$ .

To test this sub-hypothesis, ANOVA analysis was used and the results illustrated in Table No.30 show that the p-value equals 0.277 which is greater than 0.05. This means that there are no significant statistical differences of the population's individuals perceptions due to qualification at significant level  $\alpha = 0.05$ .

**Table 30 – ANOVA test for Qualifications**

Source	Sum of Squares	df	Mean Square	F value	Sig.(P-Value)
Between Groups	0.075	2	0.037	1.320	<b>0.277</b>
Within Groups	1.299	46	0.028		
Total	1.374	48			

**Hypothesis 5.4:** There are significant differences of the population's individuals perceptions due to the practical experience at UNRWA at significant level  $\alpha = 0.05$ .

To test this sub-hypothesis , ANOVA analysis was used and the results illustrated in Table No.31 show that the p-value equals 0.734 which is greater than 0.05 . This means that there are no significant statistical differences of the population's individuals perceptions due to education at significant level  $\alpha = 0.05$ .

**Table 31 – ANOVA test for Experience**

Source	Sum of Squares	df	Mean Square	F value	Sig.(P-Value)
Between Groups	0.038	3	0.013	0.428	<b>0.734</b>
Within Groups	1.336	45	0.030		
Total	1.374	48			

**Hypothesis 5.5:** There are significant differences of the population's individuals perceptions due to the working station (department) at significant level  $\alpha = 0.05$ .

To test this sub-hypothesis , ANOVA analysis was used and the results illustrated in Table No.32 show that the p-value equals 0.468 which is greater than 0.05 . This means that there are no significant statistical differences of the population’s individuals perceptions due to the different departments the employees work in - at significant level  $\alpha =0.05$ .

**Table 32 – ANOVA test for Department**

Source	Sum of Squares	df	Mean Square	F value	Sig.(P-Value)
Between Groups	0.195	7	0.028	0.966	<b>0.468</b>
Within Groups	1.179	41	0.029		
Total	1.374	48			

**Hypothesis 5.6:** There are significant differences of the population’s individuals perceptions due to the organizational level (grade) at significant level  $\alpha =0.5$ .

To test this sub-hypothesis, ANOVA analysis was used and the results illustrated in Table No.33 show that the p-value equals 0.26 which is greater than 0.05. This means that there are no significant statistical differences of the population’s individuals perceptions due to the employees’ grades at significant level  $\alpha =0.05$ .

**Table 33 – ANOVA test for Grade (organizational level)**

Source	Sum of Squares	df	Mean Square	F value	Sig.(P-Value)
Between Groups	0.078	2	0.039	1.388	<b>0.260</b>
Within Groups	1.296	46	0.028		
Total	1.374	48			

**Hypothesis 5.7:** There are significant differences of the population’s individuals perceptions due to the type of Involvement in Projects’ related tasks at significant level  $\alpha =0.5$ .

To test this sub-hypothesis, ANOVA analysis was used and the results illustrated in Table No.34 show that the p-value equals 0.412 which is greater than 0.05. This means that there are no significant statistical differences of the population’s individuals perceptions due to the

type of Involvement in Projects' related tasks (Technical / Administrative) at significant level  $\alpha = 0.05$ .

**Table 34 – ANOVA test for Type of Involvement [Technical/Administrative]**

Source	Sum of Squares	df	Mean Square	F value	Sig.(P-Value)
Between Groups	0.027	1	0.027	0.685	<b>0.412</b>
Within Groups	1.859	47	0.040		
Total	1.886	48			

**Hypothesis 5.8:** There are significant differences of the population's individuals perceptions due to the time-intensity Involvement in Projects' related tasks at significant level  $\alpha = 0.5$ .

To test this sub-hypothesis, ANOVA analysis was used and the results illustrated in Table No.35 show that the p-value equals 0.108 which is greater than 0.05. This means that there are no significant statistical differences of the population's individuals perceptions due to the time-intensity Involvement in projects' related tasks at significant level  $\alpha = 0.05$ .

**Table 35 – ANOVA test for Time-Intensity Involvement in Projects' related tasks**

Source	Sum of Squares	df	Mean Square	F value	Sig.(P-Value)
Between Groups	0.174	2	0.087	2.34	<b>0.108</b>
Within Groups	1.712	46	0.037		
Total	1.886	48			



## **Chapter 6. Conclusion & Recommendations**

### **CHAPTER OUTLINE**

- First: Conclusion
- Second: Recommendations
- Third: Proposed Future Studies

## Introduction

The aim of this research was to critically evaluate the internal “cross-departmental” project communications management at UNRWA-GFO within the construction & infrastructure sector. This chapter discusses the key findings and recommendations that the researcher suggests to enhance and promote the project communications management at UNRWA - GFO and to overcome the weakness in current system. This chapter is divided into three main sections: Conclusion, Recommendations and Proposed further studies.

## First-Conclusion

- A. The study revealed that there is a significant statistical relationship between the [cross-departmental] Projects Communications Management and the quality of available information systems; where the available information systems don't meet the key internal stakeholders' information requirements. The data compiled from the research population revealed the following:
- i. In less than 57% of the time, UNRWA staff can find their information/data needs by using the available paper-based records , archive and departmental periodic reports.
  - ii. In only 45% of the time, UNRWA staff can find their information/data needs by using the available computerized information systems. The available computerized databases and information systems are highly fragmented and are not properly integrated. The majority of staff has to restore to arranging their electronic files and data by themselves to make-up for the huge gap in information needs. Additionally, there are no continuous improvements introduced to the available computerized databases/ information systems to meet the staff needs and there is no mechanism at place to collect the feedback and suggestions from the users.
- B. The study revealed that there is a significant statistical relationship between the [cross-departmental] Projects Communications Management and the information quality; where the current level of projects' information quality does not meet the key internal stakeholders' requirements. The data compiled from the research population revealed the following:

- i. UNRWA employees believe that the inability to acquire required information / data at least possible efforts and on time are the major obstacles in exchanging information across the departments.
  - ii. UNRWA employees also suffer sometimes from the inability to acquire accurate & trustworthy information / data, and in some cases, they do suffer from the unavailability of required information and data.
  - iii. There is a considerable gap in having every piece of data / information element defined consistently with a unified meaning to all staff using it.
  - iv. There is a considerable gap in having the collected/available data and information met the expectations in terms of completeness and details.
- C. The study revealed that there is a significant statistical relationship between the [cross-departmental] Projects Communications Management and the organizational structure; where the current organizational structure (functional bureaucracy) does not support the smooth flow of projects' information across the departments. The data compiled from the research population revealed the following:
- i. The available procedures (technical instructions and manuals) do not comprehensively regulate all aspects required for the coordination of projects' efforts and decision-making between the various departments.
  - ii. Usually, there is no clear and consistent list of all employees from various departments who are involved in the project's tasks and hence, there are no clear & recognized lines of communications and exchange of information for every project.
  - iii. Formal Projects communications with key staff across the departments are negatively affected by the rigid organizational structure (functional bureaucracy).
  - iv. Managers and division heads are not always aware and able to understand the obstacles and problems faced by their subordinates in administering/handling project-related issues.
  - v. The number of staff involved in project' administration is not sufficient for the requirements of attaining high quality information (i.e. accurate, with adequate details and on time).

D. The study revealed that there is a significant statistical relationship between the [cross-departmental] Projects Communications Management and the organizational communication flow; where the current communication flow does not support effective flow of projects' information across the department. The data compiled from the research population revealed the following:

- i. Upward communications (e.g. asking for advice, raising issues and suggestions) to the managers do not always end with timely feedback and downward communications (e.g. instructions) to the subordinates are not always followed-up. Additionally, some employees do not reply to the official written messages (e.g. e-mails) and don't provide any feedback or provide it too late.
- ii. There are projects-related decisions that are made without prior coordination with the concerned/involved staff and that are not convincing to them. Additionally, the staffs are not always aware of all communications and correspondences related to the projects' tasks handled by them.
- iii. Meetings with key staff from different departments involved in a project are not scheduled systematically throughout the project's life.
- iv. Among the major four communication channels commonly used at UNRWA, the e-mails and exchange of electronic files over the internet and intranet occupied the first rank in terms of usage frequency for exchanging information [68% of the used medium], the inter-personal communications (e.g. face-face , phone conversation ...etc) occupied the second rank [17%], the formal printed memos / letters and hardcopy files occupied the third rank [9%] ; while the meetings occupied the last rank in terms of usage [6%].

E. There are no significant differences of the population's individual's perceptions according to their personal and professional characteristic (age, education, experience, department and grade).

## **Second-Recommendations**

In light of the aforementioned results the researcher recommends the following:

1. Establishing a central Projects Management Information System [PMIS] at the Field level to streamline the flow of exchanged information across the departments and to

emphasize accountability on information quality. Through the qualitative data collected during the questionnaire administration stage and through focus group discussion with the Field Projects Office, the researcher has suggested a PMIS model that is assumed to meet the key and most of the needs identified under this study. A separate annex to this study (Annex No. [1]) was allocated to present the rationale of the suggested system and another annex (Annex No.[2]) was allocated to present the suggested PMIS model; which was simplified by using the normal MS-Windows forms (designed by using the MS-Visio application). The following features are considered for the suggested PMIS model:

- a. The proposed system is in line with the project life cycle phases (i.e. Conceptualization and Fund-Raising, Project Launching and Planning, Project Implementation, and Project Closing). All required actions and data/information per each phase (as identified through the conduct of the research) have been incorporated in the proposed system.
  - b. The proposed system is built to enforce a proper communications channels and accountability among the various phases of the project life.
  - c. The proposed system is designed to benefit from all available information systems; including the manual systems (to be archived electronically through the Documents Management System) and the computerized systems (to benefit from possible integration and extraction of data).
  - d. The proposed system is built an attempt to build the internal capacity of key staff involved in Project Management/Administration.
2. Hiring additional human resources (on temporary basis) to cope with the increasing numbers and magnitude of funded projects; to be fully dedicated for the projects being implemented and/or administered by the departments. This is extremely important for the supporting departments.
  3. Producing a comprehensive Projects Management Manual at the Field level that addresses all required actions, process flow, records-keeping, information, communication channels, reporting & documentation requirements and accountability per each category of projects and per each phase of the project life cycle. This manual has to be built on the already available technical instructions and administrative procedures (as much as possible). The researcher believes that the Field Projects Office is in the best position to lead the associated efforts in coordination with the various Programmes and Departments. This of course, however, requires the top management support and must be in line with the adopted PMIS system.

4. Empowering the Field Projects Office to play a more effective role in managing UNRWA projects; particularly in terms of planning, monitoring and control – in addition to reporting. The following points have to be considered in this regard:
  - a. The role of the “Projects Office” must be thoroughly understood by the various programmes and departments; that is to basically “plan, monitor & control” and to coordinate associated internal communications (across the Field departments) and external communications (with HQ-departments and donors). In this regard, we have to distinguish between Project Administration (the Projects Office role) and Project Management (the implementing department role). To accomplish this, a new and comprehensive TOR (Terms of Reference) for the Field Projects Office has to be established and circulated among the Field departments.
  - b. Restructuring the Field Projects Office to expand in terms of number of staff and diversity of qualification and professional experience. The main criterion for restructuring has to be administering portfolio of projects. The portfolio has to be designed based on the project scope (e.g. construction projects, education projects, health projects ..etc). Additionally, a new position (database administrator) has to be established at the Field Projects Office to be responsible for the overall administration of the PMIS.
5. Enhancing the employees’ competencies in managing and administering UNRWA projects by implementing a comprehensive training programme for all key staff involved.
6. Issuing technical and administrative instructions to support all cross-departmental communications and avoid bad behaviors in exchanging information and coordinating efforts.
7. Adopting flexible temporary organizational structures (at the micro-level) to be tailored to the project and or matrix structure in order to overcome the obstacles embedded within the rigid functional bureaucracy. Departmental Focal Points for each project is the first step towards achieving this objective.

### **Third- Proposed Future Studies**

Future studies may need to consider:

1. A critical evaluation of the internal “cross-divisional” Projects Communications Management at UNRWA’s Infrastructure & Camp Improvements Programme - Gaza Field Office.
2. A critical evaluation of the internal “cross-departmental” Projects Communications Management at UNRWA- Gaza Field Office within other sectors; such as Education, Health and Relief & Social Services.
3. A critical evaluation of the external Projects Communications Management at UNRWA.
4. A proposed comprehensive model for implementing an Enterprise Resource Planning [ERP] at UNRWA.

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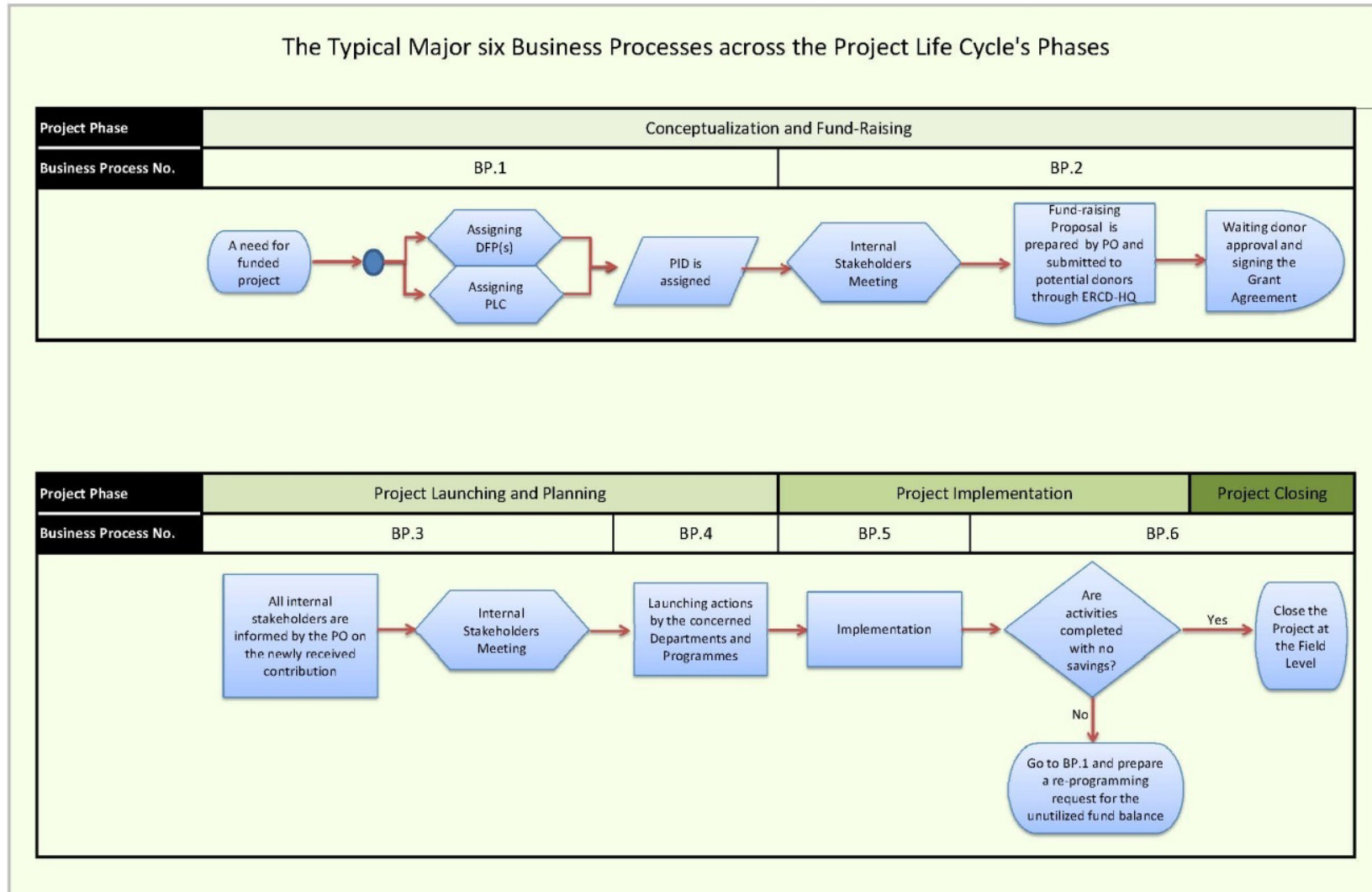
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## Annexes


Annex No. [1]	Rationale of PMIS Model
Annex No. [2]	PMIS Model (Schematic Diagrams)
Annex No. [3]	Validity and Reliability of the Questionnaire
Annex No. [4]	Final Questionnaire (in Arabic)
Annex No. [5]	The Questionnaire (in English)
Annex No. [6]	Referees Who Judged the questionnaire

### Annex No. [1] – Rationale of PMIS Model

The below flow chart was developed by the researcher to summarize the major six business processes across the project's life cycle.



Business Process No.	BP.1				
Project Phase	Conceptualization and Fund-Raising				
Sheet No.	1 / 1				
S.N	Required Action	Programme / Department	To be accomplished by	Role	Resulted Information
1	Based on Needs Assessment, a Need for a New Funded Project is declared	SP	Chief / Head	A	Note for a project need
2	Assigning a Department-based Focal Point for the project [DFP]	SP	Chief / Head	A	Name of the DFP (One Key staff from the department assigned officially as the Project Focal Point in his/her respective Department. )
3	Assigning a Department-based Project Committee [DPC] which will be led by the DFP	SP	Chief / Head	A	Names of the DPC (Team members from the same department who are officially assigned to support the DFP throughout the project life cycle's phases)
4	Assigning a unique Project Identity [PID] to the new project using the standard format of : [SP-PS-Year-Serial Number]. Example: For constructing a new school , the [PID] would be: [EDU-NCUF-2012-1]. Such Project ID will be generated automatically by the system.	PO	Head of Projects Office or one of his/her Assistants (Projects Portfolio Officer)	R	A unique Project ID that will be used by all departments throughout all phases of the project life cycle .
<b>Glossary &amp; Acronyms</b>					
✔	SP	Sponsoring Programme	✔	PO	Projects Office
✔	PS	Project Scope	✔	DPC	Department-based Project Committee
✔	PID	Project Unique Identity Code	✔	DFP	Department-based Focal Point
✔	A	Accountable Role	✔	R	Responsible Role

Business Process No.	BP.2				
Project Phase	Conceptualization and Fund-Raising				
Sheet No.	1 / 1				
S.N	Required Action	Programme / Department	To be accomplished by	Role	Resulted Information
1	Arranging for a meeting with DFP and his team (i.e. DPC) and headed by PO to guide the department efforts and discuss the project's requirements	PO	Projects Portfolio Officer	R	Action Plan for collecting and providing required information
2	Submitting the required information to the PO	SP	DFP	R	<input checked="" type="checkbox"/> Project Justification Statement <input checked="" type="checkbox"/> Current Indicators <input checked="" type="checkbox"/> Target Indicators <input checked="" type="checkbox"/> Intervention Requirements <input checked="" type="checkbox"/> Priority Level <input checked="" type="checkbox"/> Supporting Documents
3	<ul style="list-style-type: none"> <li>-Reviewing and verifying the received information.</li> <li>-Collecting required information from other departments.</li> <li>-Preparing a comprehensive fund-raising project proposal along with the associated annexes.</li> </ul>	PO	Projects Portfolio Officer	R	comprehensive fund-raising project proposal is reviewed and authorized by the top management.
4	<ul style="list-style-type: none"> <li>-Submitting the proposal to potential donors through the [ERCD-HQ].</li> <li>-Coordinating with field departments in response to queries raised from the HQ or donor side.</li> <li>-Producing revised versions of the proposal in line with the donor's request.</li> <li>-Reviewing the grant agreement before being officially endorsed.</li> </ul>	PO	Head of Projects Office	R	A signed project/grant agreement.
<u>Glossary &amp; Acronyms</u>					
	ERCD-HQ	UNRWA Headquarters-based External Relation & Communications Department			




Business Process No.	BP.3				
Project Phase	Project Luanching and Planning				
Sheet No.	1 / 1				
S.N	Required Action	Programme / Departmen	To be accomplished by	Role	Resulted Information
1	<p>-Informing the concerned departments of the receipt of project grant and declaring officially the launch of project's implementation.</p> <p>-Requesting Programmes' Chiefs and Departments' Heads to assign Focal Point per each Department.</p> <p>-Arranging for a collective meeting to set-up an action plan with time-frame for properly launching the project's activities</p>	PO	Projects Portfolio Officer	R	✓ Approved Budget Allocations
					✓ Approved Project Duration
					✓ Approved Project Scope
					✓ Publicity requirements
					✓ Specific Grant Conditions
					✓ Names od DFPs acroos Depts.
2	Distributing the discussed and agreed action-plan among the various internal stakeholders.	PO	Projects Portfolio Officer	R	✓ List of all DFP across the Departments who will be involved in the roject.
					✓ Role Responsibility per each DFP in every Department
					✓ List of activities to be completed by each Department within a specific duration.
					✓ Project's Communications Plan

Business Process No.	BP.4				
Project Phase	Project Luanching and Planning				
Sheet No.	1 / 1				
S.N	Required Action	Programme / Departmen	To be accomplished by	Role	Resulted Information
1	Revising the engineering design requirements with the [SP] and providing a more accurate cost estimate	ICIP	Head of Design Division	A	Confirmed / Revised Cost Estimate for the Construction Component
2	Revising the [Equipment, Furniture and Supplies] requirements with the [SP] and providing a more accurate cost estimate.	PLD	Procurement Officer (Goods & Supplies)	C	Confirmed / Revised Cost Estimate for the [Equipment, Furniture and Supplies] Component
3	Revising the [Project Staffing] requirements with the [HRMD] and providing a more accurate cost estimate.	SP	DFP	A	Confirmed / Revised Cost Estimate for the [Staffing] Component
4	Coordinating all prepartion effortsd and advising Field Finance Department [FFD] on the overall detailed budget breakdown in line with the chart of account	PO	Projects Portfolio Officer	R	Budget Lines required to allocate the individual components' budgets.
5	Advising on the approved Budget Allotment [BA]	FFD	Budget Officer	R	BA is shared with all concerned project team.
<u>Glossary &amp; Acronyms</u>					
<del>✗</del>	ICIP	Infrastructure & Camp improvement Programme			
<del>✗</del>	PLD	Procurement & Logistics Department	<del>✗</del>	FFD	Field Finance Department
<del>✗</del>	HRMD	Human Resources Management Dept.	<del>✗</del>	BA	Budget Allotment
<del>✗</del>	C	must be consulted with feedback			

Business Process No.	BP.5				
Project Phase	Project Implementation				
Sheet No.	1 / 3				
S.N	Required Action	Programme / Department	To be accomplished by	Role	Resulted Information
1	Preparing the detailed design along with tender documents and send complete package of tendering to PLD	ICIP	Head of Design Division	A	✓ Start and Finish Dates of Design Stage
				A	✓ Complete set of Design drawings
				A	✓ Agency Construction Cost Estimate
		PO	Projects Portfolio Officer	C	✓ Comments of the PO on the design and tender documents.
2	-Advertise the Tender -Collecting the bids -Evaluating the compliance of bids -Submitting the collected information to ICIP for technical evaluation	PLD	Procurement Officer (Infrastructure)	R	✓ Number of participants
					✓ Quotation Analysis
					✓ Financial Evaluation of Bids
					✓ Ensuring Bids compliance with requested documents
3	Preparing Technical Evaluation of the received bids and providing recommendation of awarding along with the requirements of budget allocations - in terms of overhead, supervision staffing and contingencies allocations	ICIP	Head Administration & Management Division	A	Complete Submission of construction contract proposal to be reviewed and authorized by the Agency's awarding authority.
4	-Informing the successful bidder and requesting required bonds & insurances. -Arranging for having the contract signed -Obligating the required amount through FFD. -Turning-over the signed contract to ICIP for commencement of construction.	PLD	Procurement Officer (Infrastructure)	R	✓ Start and Finish Dates of Tendering & Awarding Stage
					✓ Signed & Obligated Contract
					✓ Summary of the contract's conditions

Business Process No.	BP.5				
Project Phase	Project Implementation				
Sheet No.	2 / 3				
S.N	Required Action	Programme / Department	To be accomplished by	Role	Resulted Information
5	Requesting PLD to procure the approved list of furniture, equipment and supplies	SP	DFP	R	Submitting Lists of Requirements to be Purchased [LORs] .
6	-Requesting Request for Quotation [RFQ] from qualified suppliers and vendors -Recommending suitable offers and preparing Purchase Orders.	PLD	Procurement Officer (Goods & Supplies)	R	✓ Budget allocated against Purchase Orders.
					✓ Projected Delivery Dates
7	- Arranging for site handing-over to the construction contractors . -Reviewing and endorsing the detailed project programme [Time-Schedule and Method of Statement] submitted by the contractor . -Advising PO on actual start date and contractual completion dates of the construction activities ; along with the time schedule. -Arranging with PLD for importing required construction materials based on workable schedule .	ICIP	Head Construction & Maintenance Division + Project Construction Engineer	R	✓ Detailed project programme [Time-Schedule + Cash Flow]; including interim payments against contractual construction works and UNRWA overhaed
					✓ ctual start date and contractual completion dates of the construction activities
8	-Providing on monthly basis detailed progress reports - highlighting any issues or obstacles encountered during construction stage. -Advising PO on any varaitions to the agreed plan; such as cost overrun, potential savings, excessive delay ..etc	ICIP	Head Construction & Maintenance Division + Project Construction Engineer	A	✓ Monthly Progress Rate
					✓ Photos
					✓ Budget varaition vs. Plan
					✓ Time varaition vs. Plan
					✓ Issues and Obstacles

Business Process No.	BP.5				
Project Phase	Project Implementation				
Sheet No.	3 / 3				
S.N	Required Action	Programme / Department	To be accomplished by	Role	Resulted Information
9	-Providing on monthly basis detailed progress reports - highlighting any issues or obstacles encountered during procurement stage. -Advising PO on any variations to the agreed plan; such as cost overrun, potential savings, excessive delay ..etc	PLD	Procurement Officer (Goods & Supplies)	R	✓ Updated list of received items
					✓ Budget variation vs. Plan
		SP	Administrative Officer	C	✓ Time variation vs. Plan
					✓ Issues and Obstacles
10	Providing on monthly basis detailed progress reports - highlighting any issues or obstacles encountered during carrying-out required visibility measures	PIO	Assigned Staff	R	✓ Visibility Progress Reports
		PLD	Procurement Officer (Services)	C	✓ Budget & Time variation vs. Plan
11	-Ensuring that the project is progressing in line with the agreed plan. -Managing required inter-lines budget re-allocations ; in close coordination with Finance Department. -Preparing Monthly Monitoring Sheet; highlighting project's milestones achievements and issues. -Coordinating with ERCD-HQ on required information to be relayed to the donor. -Highlighting critical required decisions to the top management. -Arranging for collective meetings when needed.	PO	Head of Projects Office + Projects Portfolio Officer	R	✓ Progress reports and monitoring sheets are produced and archived on monthly basis.
					✓ Communications with Top Management and the donor on project issues
<u>Glossary &amp; Acronyms</u>					
✎	PIO	Public Information Office			

Business Process No.	BP.6				
Project Phase	Project Closing - "at the Field Level"				
Sheet No.	1/ 1				
S.N	Required Action	Programme / Departmen	To be accomplished by	Role	Resulted Information
1	Declaring officially the completion of construction stage and issuing the construction completion report along with the associated final payment & provisional acceptance of the works.				✓ Construction completion Report
					✓ Detailed list of overhead expenditures
					✓ Photos of completed
					✓ Issues and Obstacles
10	Providing on monthly basis detailed progress reports - highlighting any issues or obstacles encountered during carrying-out required visibility measures	PIO	Assigned Staff	R	✓ Visibility Progress Reports
		PLD	Procurement Officer (Services)	C	✓ Budget & Time variation vs. Plan
11	<ul style="list-style-type: none"> <li>-Ensuring that the project is progressing in line with the agreed plan.</li> <li>-Managing required inter-lines budget re-allocations ; in close coordination with Finance Department.</li> <li>-Preparing Monthly Monitoring Sheet; highlighting project's milestones achievements and issues.</li> <li>-Coordinating with ERCD-HQ on required information to be relayed to the donor.</li> <li>-Highlighting critical required decisions to the top management.</li> <li>-Arranging for collective meetings when needed.</li> </ul>	PO	Head of Projects Office + Projects Portfolio Officer	R	✓ Progress reports and monitoring sheets are produced and archived onmonthly basis.
					✓ Communications with Top Management and the donor on project issues
<u>Glossary &amp; Acronyms</u>					
	PIO	Public Information Office			



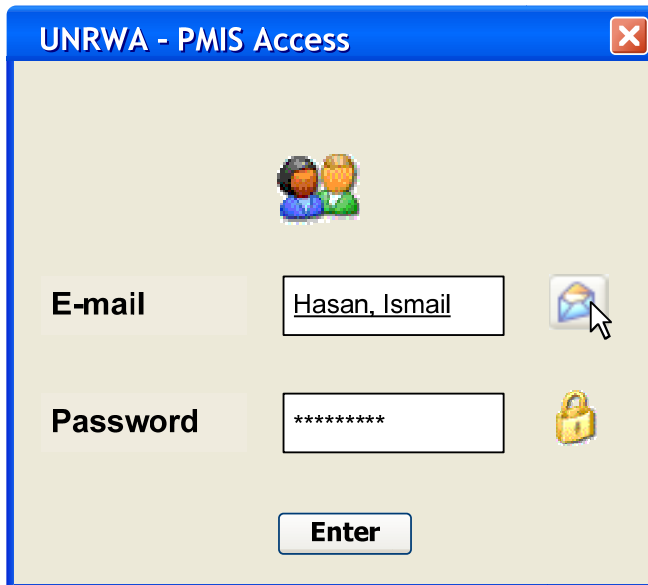
## Annex No. [2] – PMIS Model (Schematic Diagrams)

This annex sheds the light on the main features of the proposed PMIS model. The researcher does not claim by illustrating this annex that all aspects required for the establishment of PMIS are addressed; however, at least the provided schematic diagrams along with the associated explanation do address the key issues required for the PMIS.

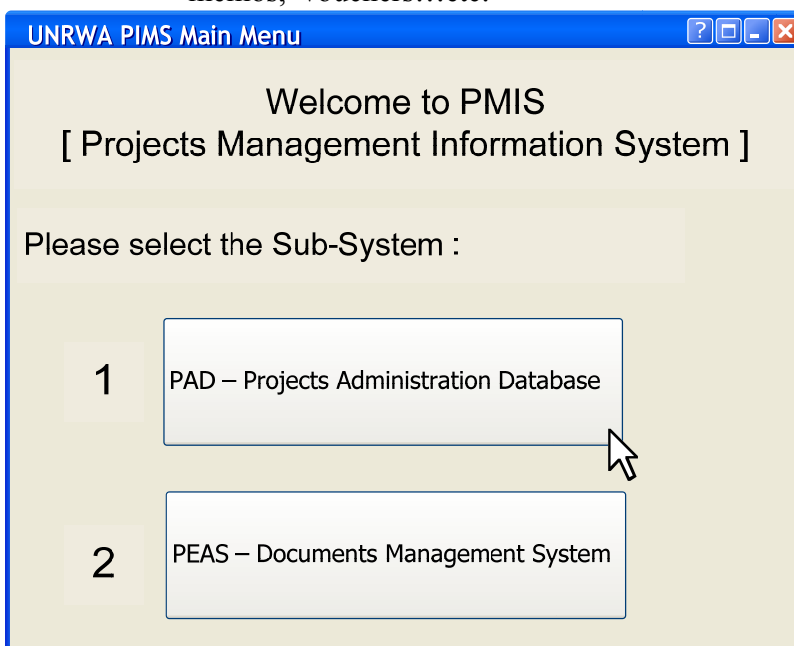
- The Project Management Information System [PMIS] will be only accessible for those who are authorized to have access by the Field Projects Office. Every authorized user will have a system username and password along with three level of access rights (privileges); as following:

Access Level No.	Allowed actions by the user	To be given to :
Level No.1	Establish a new project	<p style="text-align: center;"><u>Unlimited Rights:</u> All staff of Projects Office</p> <p style="text-align: center;"><u>Partial Rights:</u> Chief of Programmes\Head of Departments</p>
Level No.2	Add / amend information for an already established projects	<p style="text-align: center;"><u>Unlimited Rights:</u> All staff of Projects Office [Unlimited]</p> <p style="text-align: center;"><u>Partial Rights:</u> Chief of Programmes\Head of Departments Departmental Focal Points [DFPs]</p>
Level No.3	View information and print reports	<p style="text-align: center;"><u>Unlimited Rights:</u> All staff of Projects Office Chief of Programmes\Head of Departments Departmental Focal Points [DFPs] Project Launching Committee [PLC] Project Implementation Team [PIT] Top Management</p> <p style="text-align: center;">At least there is one access per each Programme/Department.</p>





- The Project Management Information System [PMIS] has two main sub-systems:
  - PAD; which is the Projects Administration Database
  - PEAS; which is the Projects Electronic Archiving System for all projects' documents; such as : project agreement, budget, vouchers, official letters, e-mails, memos, vouchers...etc.



- As the main module in PMIS is the “PAD” , all screens below pertain to PAD module. Every user will be asked whether :
  - The user is seeking to establish a new project (subject to accessibility level) or;

- The user is intending to [add\amend\update] specific data\information or;
- The user is looking for specific data\information. The last option will be accessible to all staff members from all departments [View & Print mode]; while the first two options will be accessible only those who are authorized to establish and update projects' status.

**PMIS - PAD - What do you want ?**

Establishing a new Project  
 Updating/Adding/Amending Information  
 Searching for specific information

**Next**

- To start with a new a project from scratch, the user has to select the first option “Establishing a new project”. As stated earlier, only specific users are allowed to establish a need for a new project; those are : Projects Office staff and the Chiefs of Programmes and Heads of Departments . The first step for establishing any new project is to assign a Departmental Focal Point for this project [DFP].

**Assigning DFP**

**Step No.1**

Please assign a staff member from your department who will be the Departmental Focal Point [DFP] for this project throughout all its phases.

First Name:

Family Name:

E-mail:

Mobile No.:

Telephone Ext.:

Programme / Department:

**Select from available DFPs**

**Assign**

- Once a Departmental Focal Point [DFP] is assigned, the next step will be completing the application of “Need for a new project”; where the sponsoring programme/implementing department will be responsible for providing initial information through the [DFP] . The First page (screen) in the application form is the Project Scope; which can have different scenarios; among which the followings are the most common ones:
  - Construction of Refugees’ Housing Units
  - Repair / Rehabilitation of Refugees’ Housing Units
  - Construction of a new UNRWA Facility
  - Construction & Equipping a new UNRWA Facility
  - Construction, Equipping & Staffing for a new UNRWA Facility
  - Maintenance / Upgrading of an existing UNRWA facility
  - Maintenance / Upgrading of an existing Public facility
  - Infrastructure civil works (e.g. roads, sewerage, water systems)

### Project Scope

#### Scope - Level 1

- UNRWA Facility (e.g. School, Health Center, Relief & Distribution Center ....etc)
- Public Facility (e.g. Masjid, Public Library, Community Center, Kindergarten ....etc)
- Refugees Housing Units (e.g. Shelters, Dwelling & Housing Units ....etc)
- Infrastructure Facilities (e.g. Sewerage, Drainage, Roads, Water Supply, Water wells, Electricity ...etc)
- Creating new community / Camp Improvement

#### Scope - Level 2

<input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Re-construction <input type="checkbox"/> Repair / Maintenance <input type="checkbox"/> Upgrading / Rehabilitation	<input checked="" type="checkbox"/> Equipping & Furnishing <input type="checkbox"/> Procurement of Supplies <input type="checkbox"/> Staffing (e.g. LDC, Fixed-Term, JCP ..etc) <input type="checkbox"/> Running Costs
--	---

#### Project Intervention Approach

- Direct Intervention by UNRWA through Contractors/Suppliers/Staff
- Cash Assistance to the beneficiaries – Self Help Apparoch
- Partnership with other Organozations

**Next**

- The next step will be determining the strategic direction of the new project (to be aligned with UNRWA strategic goals and objectives). UNRWA has set four strategic goals and each goal has its strategic objectives. The PMIS proposed application has considered this hierarchy as it is. Additional information on the Sponsoring Programme, type & priority of project will be also determined in this page of application.

### Conceptualization - Strategic & Programmatic Level

**Project's Strategic Goal**

1- Acquiring appropriate knowledge and skills

2- A Long & Healthy Life

3- A Decedent Standard of Living

4- Appropriate operational and administrative support

**Project's Strategic Objectives**

1.1-Provide universal access to and coverage of basic education  
1.2-Continue to enhance education quality and outcomes against set standards  
1.3-Enhance provision of vocational training, particularly to vulnerable persons  
1.4-Support special educational needs

-----

2.1-Ensure universal access to quality comprehensive primary health care  
2.2-Maintain and improve family health and mental health  
2.3-Control and prevent diseases by maintaining good environmental infrastructure.

-----

3.1-Reduce the poverty gap of the abject poor  
3.2-Mitigate the immediate effects of emergencies on individuals  
3.3-Improve coverage and strengthen targeted social protection services  
3.4-Support improved employability

-----

4.1-Improve urban environment & sustainable camp development  
4.2-Strengthen refugee capacity .

**Project's Sponsoring Programme**

Education

Health

Relief & Social Services

Infrastructure & Camp Improvement

UNRWA's Administration

Multi-Sector

**Project Type**

Regular / Development Project

Emergency Project

Special Initiative Project

GF Relieving

**Project Priority**

Urgent

High

Normal

**Next**

- After having the strategic direction of the new project determined, the DFP will be responsible for providing initial information on the new project; including: proposed name of the project, project justification, outcome Indicators and the project's components.

## Conceptualization - DRAFT Project OUTLINE

**Project's Name :** Construction and Equipping of an Elementary Boys School in Khan-Younis

**Project Justification / Problem Statement**

The western area of Khan-Younis (Al-Amal Neighborhood) is in bad need for an Educational Facility to accommodate the increasing number of elementary pupils in the area. Currently, it is estimated by the Area Education Officer (Mr. Ali Ali – see attached report ) that more than 750 students from the area have no choice but to walk everyday about 3 Km in order to reach to the nearest governmental school; which is already over-occupied with more than 52 students per classroom.

**Attachments**

<b>File No.1</b>	<input type="text" value="C:\Desktop\AEO_Report.docx"/>	<input type="button" value="Browse"/>	<p style="color: #0070C0; font-weight: bold; text-decoration: underline;">Brief Description on the Attached Files</p> <p>Report prepared by the Area Education Officer plus photos of a vacant plot of land that can be suitable for the project.</p>
<b>File No.2</b>	<input type="text"/>	<input type="button" value="Browse"/>	
<b>File No.3</b>	<input type="text"/>	<input type="button" value="Browse"/>	

**Outcome Target Indicators**

<b>Indicator No.1</b>	More than 750 refugee children in western Khan-Yuonis area are provided with well-built & equipped school during the next scholastic year 2012/2013
<b>Indicator No.2</b>	Occupancy rate per classroom is maintained at acceptable level of 35 students per classrooms. Overall Students- Teacher-ratio is reduced.
<b>Indicator No.3</b>	<input type="text"/>

**Intervention's Outputs (Components)**

<b>Component No.1</b>	Construction of a standard school with number of classrooms not less than 22
<b>Component No.2</b>	Procurement of required equipment & furniture to make the school operational
<b>Component No.3</b>	<input type="text"/>

- The whole initial submission of the project concept will be sent automatically (through e-mail) by the system to the Projects Office. The system will propose a tentative schedule for a meeting to discuss the further steps in project planning.

## Conceptualization - Request Submission

A Project Identity [PID] has been generated by the system; where the PID for this project is: **ED - 7 -2012**

The below table summarizes all DFPs from all Departments who will be involved in the project's administration during the Conceptualization and Planning phase

First Name	Family Name	Department	Mobile No.	Ext. No.	E-mail

The request has been automatically submitted through e-mail to the Projects Office. Please get ready for a collective meeting shortly to discuss the project's requirements with further details. The system has proposed the schedule of this meeting to be tentatively [ 27 May 2012 – 10:00 A.M ]. The exact time and place of the meeting will be arranged through the Projects Office. **Thank You**



Back to main menu

Exit the PMIS

- The below displays a sample of the automatically generated e-mail.

**From:** PMIS

**Sent:** Thursday, May 24, 2012 1:00 PM

**To:** Projects Office-Gaza Field

**Subject:** A call for a new project – PID # **ED – 07- 2012**

Please be informed that one of UNRWA programmes (Education) have just submitted a request for funding a new project; with the following summary information:

Project Name	Construction and Equipping of an Elementary Boys School in Khan-Younis
PID	ED - 07- 2012
Sponsoring Programme	Education
Assigned DFP	Mr. Ali Ali , E-mail: <a href="mailto:a.aly@unrwa.org">a.aly@unrwa.org</a> , Mobile:0599-2222
Strategic Goal	To ensure Palestine refugees acquire appropriate knowledge and skills
Strategic Objective	Continue to enhance education quality and outcomes against set standards
Project Type	Regular / Development Project
Project Priority	High
Project Scope	UNRWA Facility + New Construction + Equipping & Furnishing
Project's Component No.1	Construction of a standard school with number of classrooms not less than 22
Project's Component No.2	Procurement of required equipment & furniture to make the school operational

- Since every staff member at the Projects Office is responsible for administering specific portfolio of projects, the one who is responsible for construction of Educational Facilities (for instance) will be accountable for completing the process shown under this illustration. He/She will use the system to study the presented information, coordinate required efforts across the departments and head the subsequent meetings.

PMIS - PAD - What do you want ?

Establishing a new Project  
 Updating/Adding/Amending Information  
 Searching for specific information

Next

Project Phase

Please enter the Project Identity [PID]

---

Please select the project Phase

Conceptualization – Planning & Fund-Raising  
 Launching a funded project  
 Implementation  
 Completed

Next

- Once the above forms are completed, the user will be allowed to view all forms filled by the initiator (DFP/Chief of Programme). Amending these forms will be only allowed to Projects Office staff; where every amendment will be recorded and documented by the system by date and time in a special stored report. Additionally, the project's DFP will receive an automatically generated e-mail from the system summarizing all introduced amendments and asking for any comments (if any).
- Once the provided information are reviewed by the Projects Office, the PMIS will open a special coordination & arrangement form for the Projects Portfolio Officer who, in turn, will be responsible for fixing a date & time for the first meeting along with the agenda and participants' names.

## Planning & Fund Raising Phase - First Meeting Program

Meeting Date

May 2012						
Fr	Sa	Su	Mo	Tu	We	Th
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Meeting Time

Meeting Place

### Meeting Agenda

- 1
- 2
- 3
- 4
- 5

### Participants to be invited

	<u>Name</u>	<u>E-mail</u>	<u>Programme / Department</u>	<u>Mobile No.</u>
<input type="button" value="+"/>	<input type="text" value="Ismail Saleh"/>	<input type="text" value="i.hasan3@unrwa.org"/>	<input type="text" value="Projects Office"/>	<input type="text" value="0599-461071"/>
<input type="button" value="-"/>	<input type="text" value="Mahmoud Himdiat"/>	<input type="text" value="m.himdt@unrwa.org"/>	<input type="text" value="Education Programme"/>	<input type="text" value="0599-222222"/>
<input type="button" value="-"/>	<input type="text" value="Munir Manneh"/>	<input type="text" value="m.manh@unrwa.org"/>	<input type="text" value="ICIP"/>	<input type="text" value="0599-1212121"/>

**Send Invitations by E-mail & Ask for Confirmation**

- Every invited staff member will receive an automatically generated e-mail summarizing the main project's information, the date, time, invited participants and the agenda of the meeting. Usually the invited staff members will be either the Chief of Programmes or their deputies. The system will allow them to assign their DFP to attend the meetings and follow-up on all related matters on their behalves.
- Following the meeting, minutes of meeting along with table of action points and responsible staff member/Department will be published on the system by the Projects Office. The system will automatically circulate the minutes of meetings, the action points by responsibility and deadline to the appropriate staff.



## Planning & Fund Raising Phase - First Meeting Outcomes

Minutes of Meeting Document

C:\Desktop\MOM-1-PID-ED-07-2012.docx

Browse

Agreed Action Points



S.N	Action Point	Responsibility	Deadline
1	Preparing a rough cost estimate for construction works	ICIP- Head of Design	7 June 2012
2	Advising on the suitability of available plot of lands	Area Operations Officer	7 June 2012
3	Preparing Lists of Requirements (Furniture & Equipment)	DFP - Education	7 June 2012

Involved Staff members/ DFPs

Name	E-mail	Programme / Department	Mobile No.
Ismail Saleh	i.hasan3@unrwa.org	Projects Office	0599-461071
Ibrahim Ibrahim	i.ibrm@unrwa.org	Education Programme	0599-222222
Mohammad Uwani	m.uwni@unrwa.org	ICIP	0599-1212121

- Immediately following the circulation of the minutes of meeting, the Projects Portfolio Officer will create (through the system) special tabs for the Programmes/Departments that will be participating in the (planning phase) of the project; so that every participating Programme/Department will assign a DFP for this project. Additionally, the Projects Portfolio Officer will feed the system with the type of required information per each department – using a standardized list of fields. The DFP in each department, in turn, will be responsible for providing the information requested in his/her Department page; using the PID.

PMIS - PAD - What do you want ?

- Establishing a new Project
- Updating/Adding/Amending Information
- Searching for specific information

**Project Phase** ✕

Please enter the Project Identity [PID]

---

Please select the project Phase

- Conceptualization – Planning & Fund-Raising
- Launching a funded project
- Implementation
- Completed

**Planning & Fund Raising Phase - Programmes & Departments Input**

Education
**ICIP**
Procurement & Logistics
Projects Office
Finance Dept.

Please assign a staff member from your department who will be the Departmental Focal Point [DFP] for this project throughout all its phases.

<u>Name</u>	<u>E-mail</u>	<u>Mobile No.</u>	
Walid Siyam	A.rouby@unrwa.org	0599-121212	<b>Assign</b>

---

Construction Cost Estimate	US\$ 950,000
Technical overhead cost estimate	US\$ 5,000
Required Design Duration	2 months
Required Construction Duration	10 months
Minimum Required Land Size	50 m x 65 m

**Attachment**

- Once all departments' inputs are fed into the PMIS, the Projects Office will be responsible for reviewing these data and putting them together into a comprehensive project proposal for fund-raising. The project proposal along with its annexes has to be published in the PMIS. Additionally, on the "Projects Office" tab, there will be helpful information such as : when the proposal was submitted to ERCD-HQ and whether or not there is a good news.
- Every tab/page will be only accessible for editing to those who are authorized to do so. For example, the DFP from Education will be able to view the input made by the DFP from the ICIP; but in no case, he/she will be able to edit or modify.

### Planning & Fund Raising Phase - Programmes & Departments Input

Education
ICIP
Procurement & Logistics
Projects Office
Finance Dept.

The Projects Portfolio Officer who is responsible for administering this project is:

Name	E-mail	Mobile No.
Ismail Saleh	i.hasan3@unrwa.org	0599-461071

---

Has the Comprehensive Project Proposal been prepared?

Has the Comprehensive Project Proposal been submitted to ERCD-HQ?

When was the Comprehensive Project Proposal submitted to ERCD-HQ?

Is there any pledge from a donor towards the project?

---

Attachments

<b>File No.1</b>	C:\Desкто\ED-07-2012\Proposal.docx	Browse	<b>Attach</b>
<b>File No.2</b>		Browse	
<b>File No.3</b>		Browse	

- Once the project has a donor and the project/grant agreement is signed, the Projects Office will be responsible for launching the project in line with the agreement stipulation and donor's special requirements. The Projects Office will be the only department that has the privilege to launch any project.

**Project Phase**

Please enter the Project Identity [PID]

---

Please select the project Phase

Conceptualization – Planning & Fund-Raising

Launching a funded project

Implementation

Completed

**Next**

- Immediately following the activation of the “Launching a funded project stage”, the Projects Portfolio Officer will create (through the system) special tabs for the Programmes/Departments that will be participating in the (Launching stage) of the project. Additionally, the Projects Portfolio Officer will feed the system with the type of required information per each department – using a standardized list of fields. The DFP in each department, in turn, will be responsible for providing the information requested in his/her Department page; using the PID.

## Launching a Project - Programmes & Departments Input

The Projects Portfolio Officer who is responsible for administering this project is:

Name	E-mail	Mobile No.
Ismail Saleh	i.hasan3@unrwa.org	0599-461071

The Project/Grant Agreement was signed on	1-July-2012
The Project Start Date based on the Agreement	1-July-2012
The Project Completion Date based on the Agreement	1-October-2013
The Project Amount (as stated in the Agreement)	EUR 1,000,000
The Project Amount (in US\$)	US\$ 1,250,000
Donor official Name	USA

Project Title (Official Name)

### Budget Breakdown

Budget Component	Budget Amount	
Construction	US\$ 950,000	<input type="button" value="+"/>
Furniture & Equipment	US\$ 200,000	<input type="button" value="-"/>
Indirect Overhead & Support Costs	US\$ 100,000	

Project Fund Code

Has the Budget been allotted?

### Important Notes

1- No new financial obligations are allowed after the date of 1 June 2013.

2- All contracting & awarding procedures must be submitted to the donor before signing any contract with the contractors/suppliers

### Attachments

File No.1

File No.2

File No.3

### Brief Description

Signed Agreement

- The PMIS will automatically (through e-mail) inform the DFPs from all concerned departments on the inception of the new project. The system will propose a tentative schedule for a meeting to discuss the further steps in project launching.

**Launching a Project - Informing Internal Stakeholders**

The below table summarizes all DFPs from all Departments who will be involved in the project's administration during the Launching Phase

First Name	Family Name	Department	Mobile No.	Ext. No.	E-mail	
▼	▼	▼	▼	▼	▼	▼
						▼

**Circulate The Good News ! So every body is ready for the new Job**

Please get ready for a collective meeting shortly to discuss the project's requirements with further details. The system has proposed the schedule of this meeting to be tentatively [ 27 June 2012 – 10:00 A.M ]. The exact time and place of the meeting will be arranged through the Projects Office. **Thank You**

- The below displays a sample of the automatically generated e-mail.

**From:** PMIS  
**Sent:** Thursday, May 24, 2012 1:00 PM  
**To:** All Internal Stakeholders  
**Subject:** Inception of a newly funded / pledged project – PID # **ED – 07- 2012**

Please be informed that UNRWA has just received a donor approval on one of its call for new projects; namely: "Construction and Equipping of an Elementary Boys School in Khan-Younis". The following (in addition to the attached files) summarize the grant conditions:

Project Start Date	1-July-2012
Project End Date	1-October-2013
Project Amount	US\$ 1,250,000
Projects Portfolio Officer	Eng. Ismail Saleh , E-mail: <a href="mailto:i.hasan3@unrwa.org">i.hasan3@unrwa.org</a> , Mobile:0599-461071
Project Fund Code	PQ109
Donor	United States of America - USA
Important Notes	1- No new financial obligations are allowed after the date of 1 June 2013.  2- All contracting & awarding procedures must be submitted to the donor before signing any contract with the contractors/suppliers

- Following the meeting, minutes of meeting along with table of action points and responsible staff member/Department will be published on the system by the Projects Office. The system will automatically circulate the minutes of meetings, the action points by responsibility and deadline to the appropriate staff.

### Launching Phase - First Meeting Outcomes

Minutes of Meeting Document

Agreed Action Points

S.N	Action Point	Responsibility	Deadline
1	Preparing the detailed design along with Tender Documents	ICIP- Head of Design	15-August-2012
2	Raising Purchase Requests for Furniture & Equipment	DFP - Education	15-August-2012
3	Feeding the PMIS with information required for the Launching Phase	All DFPs – All Conncerened	30-August-2012

Involved Staff members/ DFPs

Name	E-mail	Programme / Department	Mobile No.
<input type="text" value="Ismail Saleh"/>	<input type="text" value="i.hasan3@unrwa.org"/>	<input type="text" value="Projects Office"/>	<input type="text" value="0599-461071"/>
<input type="text" value="Ibrahim Ibrahim"/>	<input type="text" value="i.librm@unrwa.org"/>	<input type="text" value="Education Programme"/>	<input type="text" value="0599-222222"/>
<input type="text" value="Mohammad Uwani"/>	<input type="text" value="m.uwni@unrwa.org"/>	<input type="text" value="ICIP"/>	<input type="text" value="0599-1212121"/>

- Immediately following the circulation of the minutes of meeting, the Projects Portfolio Officer will create (through the system) special tabs for the Programmes/Departments that will be participating in the (Launching phase) of the project; so that every participating Programme/Department will (through the assigned DFP ) feed the system with the required information– using a standardized list of fields.

### PMIS - PAD - What do you want ? ✕

Establishing a new Project  
 Updating/Adding/Amending Information  
 Searching for specific information

Project Phase ✕

Please enter the Project Identity [PID]

---

Please select the project Phase

- Conceptualization – Planning & Fund-Raising
- Launching a funded project
- Implementation
- Completed



## Project Launching Phase - Programmes & Departments Input



Education **ICIP** Procurement & Logistics Projects Office Finance Dept.

Please note that the Departmental Focal Point for this project during this stage from ICIP is:

Name	E-mail	Mobile No.	Assign
Walid Siyam	A.rouby@unrwa.org	0599-121212	<input type="button" value="Assign"/>

Design Starting Date  Actual / Planned   
 Actual Date   
 Planned Date

Design Finish Date  Actual / Planned

### Construction Cost Estimate

Construction Budget Component	Budget Amount	
Main Building	US\$ 770,000	<input type="button" value="+"/>
External Works	US\$ 50,000	
Salaries and Communications for Supervising Engineers	US\$ 35,000	<input type="button" value="-"/>

Construction Period

### Attachments

File No.	Browse	Brief Description
File No.1	<input type="text" value="C:\Desktop\AEO_Report.docx"/> <input type="button" value="Browse"/>	
File No.2	<input type="text"/> <input type="button" value="Browse"/>	AutoCAD Plans <input type="button" value="^"/>
File No.3	<input type="text"/> <input type="button" value="Browse"/>	<input type="button" value="v"/>



Education ICIP **Procurement & Logistics** Projects Office Finance Dept.

Please note that the DFP from FPLD for Procurement of Construction & Infrastructure is

Name	E-mail	Mobile No.	Assign
Alla'a El-Karriri	A.Kirir@unrwa.org	0599-121212	<input type="button" value="Assign"/>

Please note that the DFP from FPLD for Procurement of Equipment & Furnitures is

Name	E-mail	Mobile No.	Assign
Fawzi El-Madhoun	F.Mdhn@unrwa.org	0599-133312	<input type="button" value="Assign"/>

### Construction Procurement

Tender Advertised on	<input type="text" value="1-November-2012"/>
Bids received on	<input type="text" value="15-November-2012"/>
Tender Open Dates on	<input type="text" value="16-November-2012"/>
Recommended Bid Price	<input type="text" value="US\$ 850,000"/>
The contract proposal was recommended by LCP on	<input type="text" value="11-December-2012"/>
The contract proposal was approved by ACP on	<input type="text" value="20-December-2012"/>
The contract was signed on	<input type="text" value="1-January-2013"/>

### Attachments

File No.	File Path	Browse	Brief Description
File No.1	<input type="text" value="C:\Contract Proposal Submissi"/>	<input type="button" value="Browse"/>	<input type="text" value="Contract Proposal Submission"/>
File No.2	<input type="text"/>	<input type="button" value="Browse"/>	
File No.3	<input type="text"/>	<input type="button" value="Browse"/>	

### Procurement of Equipment and Furniture

The following table summarizes all items that are planned to be procured

Item	Quantity	Unit	Rate \$	Budget Amount	
Student Desk	970	No.	25	US\$ 24,250	<input type="button" value="+"/>
Science Lab. Table	10	No.	70	US\$ 700	<input type="button" value="-"/>
Stationery	1	L.S	1,000	US\$ 1,000	

Is the list of planned requests for purchase approved by PO?

Are the estimated costs in line with the Budget Allocation ?

### Attachments

File No.	File Path	Browse	Brief Description
File No.1	<input type="text" value="C:\List of LORs"/>	<input type="button" value="Browse"/>	<input type="text" value="List of LORs -Excel File"/>
File No.2	<input type="text"/>	<input type="button" value="Browse"/>	
File No.3	<input type="text"/>	<input type="button" value="Browse"/>	

## Project Launching Phase - Programmes & Departments Input



**Education**

ICIP

Procurement & Logistics

Projects Office

Finance Dept.

Please note that the DFP from Education Programme for this project is:

Name	E-mail	Mobile No.	Assign
Fadel El-Saloul	F.Salol@unrwa.org	0599-001201	

Please write in the below text box any comments or information you want to share

Please note in the attached files my new arrangements for the furniture at Computer Lab.

### Attachments

File No.	File Path	Browse	Brief Description
File No.1	I:\Fadel\New Config.bmp	Browse	
File No.2		Browse	Deployment Layout
File No.3		Browse	

Urgency level of the required actions: Urgent

Please select the addressee to whom you want to convey this message

i.hasan3@unrwa.org		i.hasan3@unrwa.org		+
				-

O.K

- Once all departments' inputs are fed into the PMIS, the Projects Office will be responsible for reviewing these data. The project's information for planning & launching phase along with its documents will be published by a report that will be generated automatically by PMIS. Additionally, the "Projects Office" will be responsible for activating the "Implementation Phase" ; where similar to the previous phases, every department will be responsible for feeding the PMIS and updating its content to reflect the project progress.

PMIS - PAD - What do you want ?

- Establishing a new Project
- Updating/Adding/Amending Information
- Searching for specific information

Next

Project Phase

Please enter the Project Identity [PID]

---

Please select the project Phase

- Conceptualization – Planning & Fund-Raising
- Launching a funded project
- Implementation
- Completed

Next

## Project Implementation Phase - Programmes & Departments Input



Education

**ICIP**

Procurement & Logistics

Projects Office

Finance Dept.

Construction work commenced on

Contractual Completion Date

Revised Forecasted Completion Date

% of Progress achieved during the month

% of Cumulative Progress to date

Delay (in days)

Brief Statement on the Progress achieved to date (and) encountered obstacles:

### Attachments

File No.1

D:\Photos.zip

Browse

File No.2

D:\Variation Orders

Browse

File No.3

Browse

Brief Description

- Photos on Progress during the month.  
-Financial Statement

Project Implementation Phase - Programmes & Departments Input



Education

ICIP

**Procurement & Logistics**

Projects Office

Finance Dept.

% of Purchase Requests raised

% of Purchase Orders attained

% of delivered items

Expected completion date

Delay (in days)

Brief Statement on the Progress achieved to date (and) encountered obstacles:

**Attachments**

File No.1

D:\Photos.zip

Browse

File No.2

D:\Variation Orders

Browse

File No.3

Browse

**Brief Description**

- Photos on Progress during the month.  
-Financial Statement

**Project Implementation Phase - Programmes & Departments Input**

Education | ICIP | Procurement & Logistics | **Projects Office** | Finance Dept.

Please write in the below text box any comments or information you want to share

Please note that there is an over-expenditures on the project ; resulting from contra-account for site engineers salaries for the month of March 2013. Finance Department has to take immediate corrective action .

**Attachments**

File No.	File Path	Browse	Brief Description
File No.1	I:\Ismail\PR743.pdf	Browse	
File No.2		Browse	Over-expenditures
File No.3		Browse	

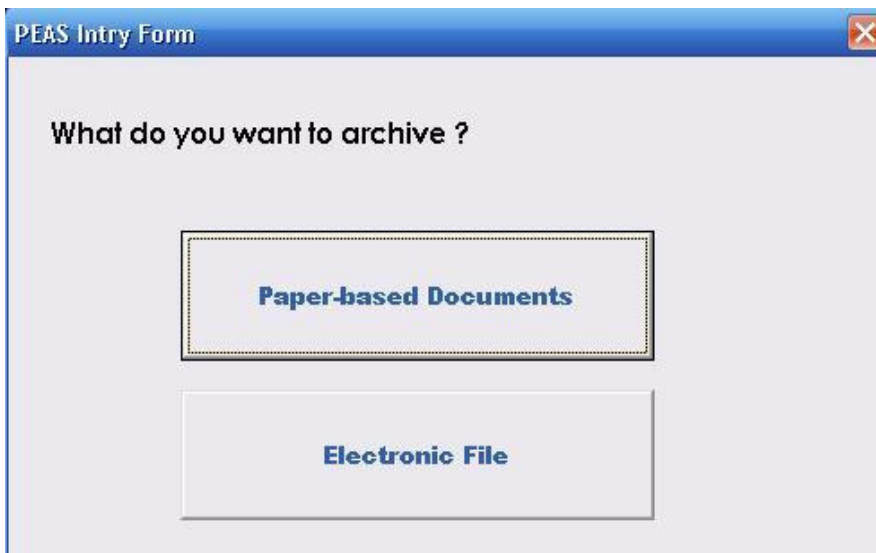
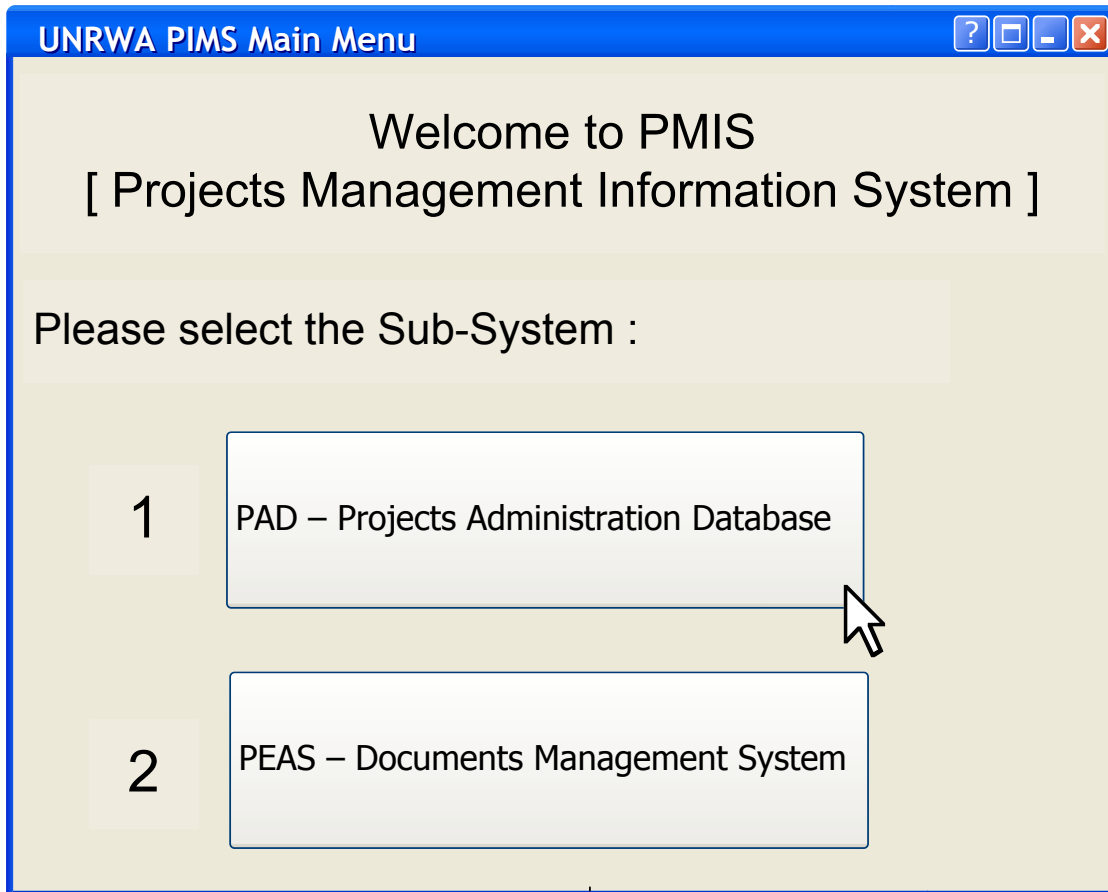
Urgency level of the required actions: Urgent

Please select the addressee to whom you want to convey this message

i.hasan3@unrwa.org | i.hasan3@unrwa.org

**O.K**

- Once all activities under the project is completed, the departments will be responsible for feeding the PMIS with all documents that prove that the activity has been completed; like the construction completion report, good receipt note for delivered goods, final payment for services' contractors and so on. A final meeting will be held collectively to prepare an evaluation report along with the lessons learned.
- The previous forms do all pertain to the [PAD] sub-system. As highlighted earlier, the PMIS also has another sub-system; which is the PEAS for Documents Management. The below screens show how the PEAS will be integrated within the PMIS.






**PEAS Intry Form for Archiving Paper-based Documents** ✕

Project Identity

**Start a Scanning Job**

32 Pages have been just scanned .... How many Categories do you have to sort these scanned pages ?

FROM Page	TO Page	Main Category	Sub-Category
<input type="text"/>	<input type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>
<input type="text"/>	<input type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>
<input type="text"/>	<input type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>
<input type="text"/>	<input type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>


**Done !** 

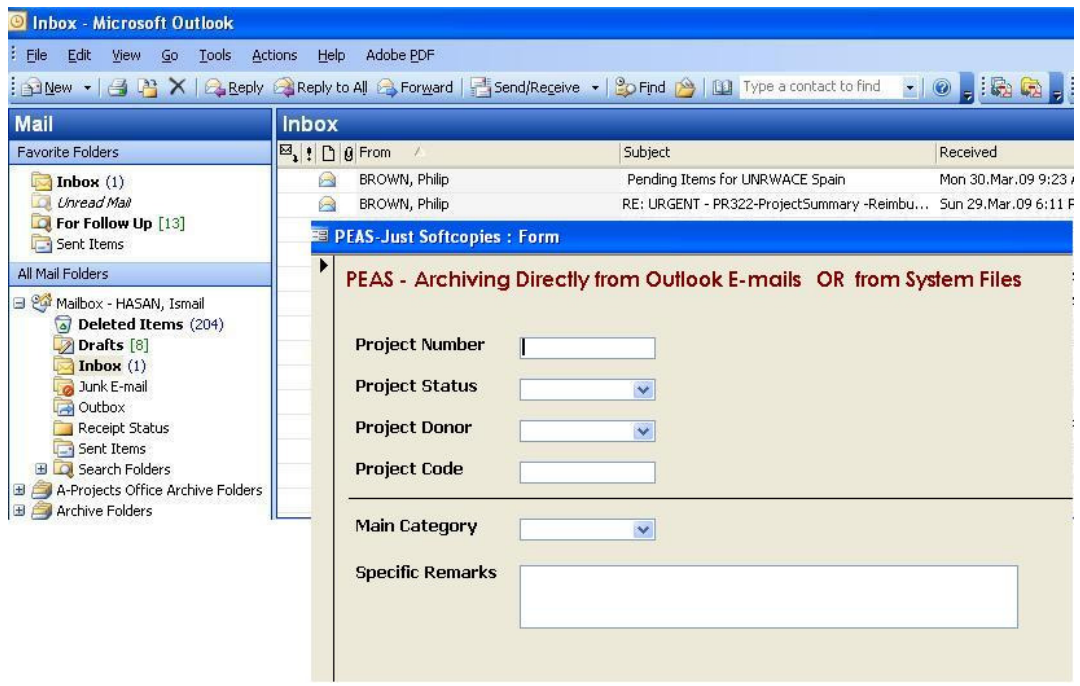
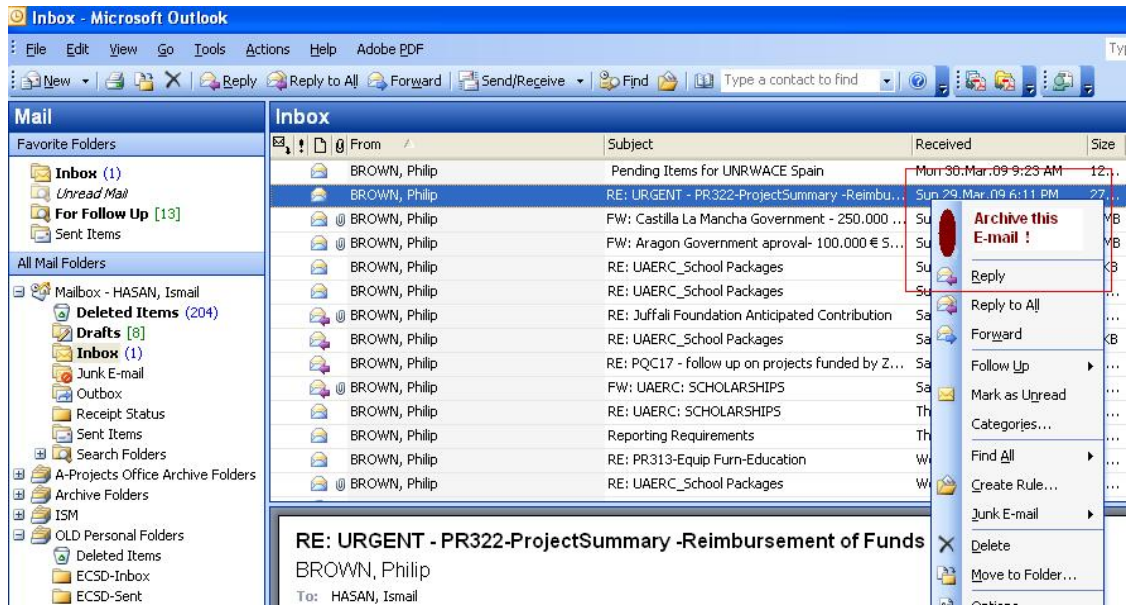
**PEAS Intry Form for Archiving e-files Documents** ✕

Project Identity

How many e-files do you have to be archived in the system under the subject project?

		Main Category	Sub-Category
Browse and Add File No.1	<input type="text"/> <input type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>
Browse and Add File No.2	<input type="text"/> <input type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>
Browse and Add File No.3	<input type="text"/> <input type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>
Browse and Add File No.4	<input type="text"/> <input type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>	<input style="border-bottom: 1px solid black;" type="text"/>

**Done !** 



**Main Menu for Enquiring Records** ✕

### Electronic Archiving System - UNRWA -Projects Office-Gaza

What are you looking for ?

**A Specific Single Project**

**A GROUP of Similar/Related Projects**

**Enquiring Documents & Information for a Specific Project** ✕

**By Project ID**  e.g. GS/07/03

**By Project Funding Code**  e.g. PR600

**By Multi Criteria**

Select A Project that meet (ALL of) the following criteria

Funding Category  ( **Regular - Emergency-PD-GR...etc**)

Project Scope  ( **Construction-Infrastructure-Equipment...etc**)

Project Status  ( **Proposed-Approved & Pledged-Ongoing.etc**)

Donor

Year of launching

Range of Funding FROM  TO

Implementing Dept.  ( **RSSP-ECSD-SEHP-FHP-FAO-FPO-FFO-MMD...etc**)

Client Dept.  ( **RSSP-ECSD-SEHP-FHP-FAO-FPO-FFO-MMD...etc**)

Location  ( **Overall GS- North-Middle-Khan Younis- Rafah**)

PROPOSAL | LAUNCHING | IMPLEMENTATION | MISCELLANEOUS | COMPLETION

What do you want to view

- Proposal & all relevant Attachments**
- Official Submission to the donor**
- Reasons & Justification for initiating the Project**

Please Show Me !

PROPOSAL | LAUNCHING | IMPLEMENTATION | MISCELLANEOUS | COMPLETION

What do you want to view

- Correspondances related to (Approval - Pledge) from the donor**
- Official Correspondances for informing the concerned department**
- Project Agreement**
- Reciet of Fund Notification**
- Original Budget Allocation**
- All Successive Budget Adjustments & Allocations**

Please Show Me !

PROPOSAL | LAUNCHING | IMPLEMENTATION | MISCELLANEOUS | COMPLETION

What do you want to view

- Progress Report No.  with all attachments
- Interim Financial Report (as of today- linked to FMS)
- Request for Extension of Time
- Request for Change of Scope

PROPOSAL | LAUNCHING | IMPLEMENTATION | MISCELLANEOUS | COMPLETION

What do you want to view

- All Communications with the Donor
- List of Beneficiaries (On going)
- Lists of Equipment-Furniture-Supplies (On going)
- Approved Construction Contract Proposals\Amended Open Job
- Requests of Purchases / Purchase Orders
- Construction Completion Reports
- Receipt Vouchers
- Miscellaneous Documents

What do you want to view

- Final Report with all Attachments
- Final List of Beneficiaries
- Final List of Activities
- Final Lists of Equipment-Furniture-Supplies
- Request for Re-programming of Savings
- Final Financial Statement

Please Show Me !

## Annex No. [3] – Validity and Reliability of the Questionnaire

### First - Pilot Study

A pilot study for the questionnaire was conducted before collecting the results of the sample. It provides a trial run for the questionnaire, which involves testing the wordings of question, identifying ambiguous questions, and testing the techniques that used to collect data. As illustrated earlier in the fourth chapter, successive stages were followed to pretest the questionnaire. The **first stage** was started by exploratory unstructured interviews with the most informant members of the study population (10 staff members across the various departments). This stage started on the 5<sup>th</sup> of February 2012 and concluded on 21<sup>st</sup> of the same month. The purpose of this stage was to investigate in-depth the main factors that affect the projects' communication and to formulate the structured questions that will be used in quantifying the research variables through the questionnaire. During the **second stage**, an initial list of the structured questions was discussed thoroughly through a focus group session [on the 4<sup>th</sup> of March 2012] with all staff member of the Field Projects Office (six in number). The main deliverable of this stage was a more tuned list of structured questions that can be easily interpreted and understood by every participant; in addition to having revised/new questions. In the **third stage**, the questionnaire was judged by referees (nine in number) from the Islamic University of Gaza and from UNRWA- all of them holds postgraduate degrees and have related experience. The questionnaire design has been also amended to meet the feedback provided by research experts (the referees) who examined the questionnaire for face validity. In the **fourth stage**, the questionnaires were not purely administered by the participants. Instead, the adopted approach was closer to the interviewer-administered questionnaire approach, where every participant received a copy of the questionnaire and answered its structured questions after receiving all required clarifications (when requested in a standard and unified way to avoid any bias in the collection stage). The researcher had discussed questions with the participant for probing and thorough understanding purposes. It's worth mentioning that the vast majority of the respondents expressed their appreciation to the straightforward, interesting and critical facts-finding questions (probably due to the relevance of the questionnaire content to the respondents' typical work and associated problems).

### Second- Validity of the Research

Validity refers to the degree to which an instrument measures what it is supposed to be measuring. Validity has a number of different aspects and assessment approaches. Statistical validity is used to evaluate instrument validity, which include criterion-related validity and

construct validity. High validity is the absence of systematic errors in the measuring instrument. When an instrument is valid; it truly reflects the concept it is supposed to measure.

Achieving good validity requires the care in the research design. The questionnaire was amended by the supervisor and other nine research experts who agreed that the questionnaire was valid and suitable enough to measure the purpose that the questionnaire designed for. This is called the content validity and it was conducted by consulting two groups of experts. The first was requested to evaluate and identify whether the questions are in line with the scope of the research and the extent to which these items reflect the concept of the research problem. The other was requested to evaluate that the instrument used is valid statistically and that the questionnaire was designed well enough to provide relations and tests between variables. The two groups of experts did agree that the questionnaire was valid and suitable enough to measure the concept of interest with some amendments.

To ensure the validity of the questionnaire, two statistical tests should be applied. The first test is Criterion-related validity test (Spearman test); which measures the correlation coefficient between each paragraph in one field and the whole field. The second test is structure validity test (Spearman test) that used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one field and all the fields of the questionnaire that have the same level of similar scale.

### **Third- Criterion Related Validity**

Internal consistency of the questionnaire is measured by a scouting sample (which is consisted of twenty five random questionnaires) to measure the correlation coefficients between each paragraph in one dimension and the whole dimension. The below tables show the correlation coefficient and p-value for each field's item. Since the p- values for all paragraphs are less than 0.05, the correlation coefficients of all related fields are significant at  $\alpha = 0.05$ , so it can be said that the all paragraphs under each of the five dimensions/fields are consistent and valid to measure what it was set for.



**Table 36 – correlation coefficient between each paragraph in the dimension and the whole dimension**

<b>1<sup>st</sup> Dimension : Internal [Cross-Departmental] Projects Communications Management as Perceived by Key Staff</b>			
<b>S.N</b>	<b>Paragraph</b>	<b>Pearson coefficient</b>	<b>p-value</b>
1	The cross-departmental communications of projects' tasks (as per the current situation) lead to appropriate decision-making and actions.	0.637	0.001
2	The cross-departmental communications of projects' tasks (as per the current situation) lead to timely decision-making and actions .	0.529	0.008
3	The current communications practices directly supporting me for performing my projects-related tasks perfectly.	0.512	0.011
4	GFO Departments repeat some mistakes that have been conducted in previous projects	0.598	0.002
5	I am frustrated from the current departmental practices for exchanging information and coordinating efforts.	0.698	0.000
6	UNRWA projects are subjected to undesirable consequences (that could be avoided) as a result of improper coordination and bad communications between the departments. <u>Examples</u> : Project Delay - Cost overrun - Fund withdrawal - considerable deviation from the original scope/ plan]	0.694	0.000
7	Conflict of interests and power struggles between Departments are common in projects communications. <u>Examples</u> : Avoiding real cooperation or support unless there is a pressure from the top - Retention of specific data/information by a division head to keep power of information ownership - Dumping tasks on other divisions and departments .	0.684	0.000
8	How would you evaluate the current level of efforts' coordination and exchange of data and information between the GFO departments in managing UNRWA Projects?	0.502	0.013

Cont.: Table 36 – correlation coefficient between each paragraph in the dimension and the whole dimension

<b>2<sup>nd</sup> Dimension : Information System Quality</b>			
<b>S.N</b>	<b>Paragraph</b>	<b>Pearson coefficient</b>	<b>p-value</b>
1	In my department, there is a paper-based record / archive for every project.	0.517	0.010
2	I can have most of my need of information/data by using the available paper-based records / archive	0.588	0.003
3	The periodic reports issued from my department provide me with valued information in handling required tasks related to the projects.	0.729	0.000
4	The periodic reports issued from other departments provide me with valued information in handling required tasks related to the projects.	0.735	0.000
5	I have to maintain an electronic folder (all related electronic files) per each project as an electronic archive.	0.789	0.000
6	I can have most of my need of information/data by using the available computerized databases / information systems	0.857	0.000
7	The available databases and computerized information systems are linked to each other and well-integrated.	0.520	0.011
8	There are continuous improvements introduced to the available computerized databases/ information systems to meet the staff needs & suggestions	0.873	0.000

Cont.: Table 36 – correlation coefficient between each paragraph in the dimension and the whole dimension

<b>3<sup>rd</sup> Dimension : Information Quality</b>			
<b>S.N</b>	<b>Paragraph</b>	<b>Pearson coefficient</b>	<b>p-value</b>
1	Whenever I need a piece of information/data, I can find it .	0.805	0.000
2	Whenever I need a piece of information/data, I can find it on time.	0.852	0.000
3	Whenever I need a piece of information/data, I can find it at reasonable efforts (i.e. minimum required efforts)	0.827	0.000
4	Whenever I need a piece of information/data, I can find it with high level of accuracy & trust.	0.557	0.001
5	Every piece of data / information element is consistently defined and has unified meaning to all staff using it.	0.641	0.000
6	Available data and information exactly meet the expectations in terms of completeness and details.	0.707	0.000

Cont.: Table 36 – correlation coefficient between each paragraph in the dimension and the whole dimension

<b>4<sup>th</sup> Dimension : Organizational Structure</b>			
<b>S.N</b>	<b>Paragraph</b>	<b>Pearson coefficient</b>	<b>p-value</b>
1	The available procedures (technical instructions and manuals) regulate every aspect required for the coordination of projects' efforts and decision-making between the various departments.	0.689	0.000
2	For every project, there is a clear and consistent list of all employees from various departments who are involved in the project's tasks.	0.593	0.002
3	For every project, there are clear & recognized lines of communications and exchange of information.	0.740	0.000
4	Formal Projects communications with key staff across the departments are free flowing (not affected by the organizational structure and the associated bureaucratic procedures)	0.572	0.003
5	Managers thoroughly understand the obstacles and problems faced by subordinates for project-related issues.	0.778	0.000
6	My ability to collect required information/data is not affected when the original source of information is temporarily absent or not working anymore in his/her original station.	0.689	0.000
7	The current number of staff involved in project' administration matches with the requirements to attain high quality information (accurate , with sufficient details and on time) .	0.720	0.000

Cont.: Table 36 – correlation coefficient between each paragraph in the dimension and the whole dimension

<b>5<sup>th</sup> Dimension : Communication Flow</b>			
<b>S.N</b>	<b>Paragraph</b>	<b>Pearson coefficient</b>	<b>p-value</b>
1	Upward communications (e.g. asking for advice, raising issues and suggestions) to the managers end with timely feedback.	0.534	0.002
2	Downward communications (e.g. instructions) to the subordinates are properly followed-up .	0.743	0.000
3	For projects' tasks handled by me, there are decisions (for which I am not satisfied with) that are made without prior coordination with me.	0.662	0.000
4	I cannot produce high quality information (accurate , with sufficient details and on time) because of the imposed unworkable time constraints.	0.577	0.001
5	Some employees do not reply to the official written messages (e.g. e-mails) and don't provide any feedback or provide it too late.	0.911	0.000
6	For projects' tasks handled by me, I am aware of all communications and I am copied in all related correspondences .	0.882	0.000
7	Informal communications with other employees outside my department provide me with more detailed and comprehensive information compared to what obtained by the formal communications.	0.798	0.000
8	Informal communications with other employees outside my department provide me with faster approach to required information compared to what obtained by the formal communications.	0.814	0.000
9	Meetings with key staff from different departments involved in a project are scheduled systematically throughout the project's life.	0.523	0.003

#### **Fourth- Structure Validity**

Structure validity is the second statistical test that used to test the validity of the questionnaire structure by testing the validity of each field (Dimension) and the validity of the whole questionnaire. It measures the correlation coefficient between one field and the entire fields of the questionnaire .

As shown in the below table, the significance values for all dimensions are less than 0.05, so the correlation coefficients of all the dimensions are significant at  $\alpha = 0.05$ , and it can be said that all the five dimensions are valid to measure what it was set for to achieve the main aim of the study.

**Table 37 – Structure validity of the questionnaire**

<b>S.N</b>	<b>Dimension</b>	<b>Pearson coefficient</b>	<b>p-value</b>
1	Projects Communications as Perceived by Key Staff	0.722	0.000
2	Information System Quality	0.837	0.000
3	Information Quality	0.809	0.000
4	Organizational Structure	0.514	0.003
5	Communication Flow	0.547	0.001

#### **Fifth- Reliability of the Research**

Reliability of an instrument is the degree of consistency with which it measures the attribute it is supposed to be measuring. The less variation an instrument produces in repeated measurements of an attribute, the higher its reliability. Reliability can be equated with the stability, consistency, or dependability of a measuring tool. The test is repeated to the same sample of people on two occasions and then compares the scores obtained by computing a reliability coefficient. The statistician's explained that, overcoming the distribution of the questionnaire twice to measure the reliability can be achieved by using Cronbach Alpha coefficient and Half Split Method through the SPSS software.

### A. Half Split Method

This method depends on finding Pearson correlation coefficient between the means of odd rank questions and even rank questions of each field of the questionnaire. Then, correcting the Pearson correlation coefficients can be done by using Spearman-Brown correlation coefficient of correction. The corrected correlation coefficient (consistency coefficient) is computed according to the following equation : Consistency coefficient =  $2r/(r+1)$ , where r is the Pearson correlation coefficient. The normal range of corrected correlation coefficient  $2r/(r+1)$  is between 0.0 and + 1.0. As shown in the below table, all the corrected correlation coefficients' values are between 0.7989 and 0.8962 and the general reliability for all items equal 0.8696, and the significant ( $\alpha$ ) is less than 0.05, so all the corrected correlation coefficients are significance at  $\alpha = 0.05$ . It can be said that according to the Half Split method, the dispute causes group are reliable.

**Table 38 – Split-Half Coefficient Method**

S.N	Dimension	person-correlation	Spearman-Brown Coefficient	Sig.
1	Projects Communications as Perceived by Key Staff	0.7283	0.8428	0.000
2	Information System Quality	0.7754	0.8735	0.000
3	Information Quality	0.8119	0.8962	0.000
4	Organizational Structure	0.6704	0.8027	0.000
5	Communication Flow	0.6651	0.7989	0.000
	<b>Total</b>	0.7693	0.8696	0.000

### B. Alpha's Cronbach Coefficient

This method is used to measure the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire. The normal range of Alpha-Cronbach coefficient value between 0.0 and + 1.0, and the higher values reflects a higher degree of internal consistency. As shown in the below table , the Alpha-Cronbach coefficient was calculated for each field of the questionnaire and the entire questionnaire. The results were in the range from

0.8295 and 0.9046, and the general reliability for all items equal 0.8885. This range is considered high; the result ensures the reliability of the questionnaire.

**Table 39 – Cronbach’s Alpha for each field of the questionnaire and for the entire fields**

<b>S.N</b>	<b>Dimension</b>	<b>No. of Items</b>	<b>Cronbach's Alpha</b>
1	Projects Communications as Perceived by Key Staff	8	0.8629
2	Information System Quality	8	0.8892
3	Information Quality	7	0.9046
4	Organizational Structure	7	0.8452
5	Communication Flow	10	0.8295
	Total	40	0.8885



## Annex No. [4] – Final Questionnaire (in Arabic)



الجامعة الإسلامية – غزة

الدراسات العليا – ماجستير إدارة الأعمال

يسرني أن أضع بين أيديكم استبانته لتقييم التنسيق و تبادل المعلومات بين كافة دوائر مكتب وكالة الغوث الدولية (الأثروا ) بغزة و المنخرطة في إدارة و متابعة مشاريع الإنشاءات و البنية التحتية من خلال تقييم أثر كلا من: جودة المعلومات المتبادلة ، جودة أنظمة المعلومات المتاحة، الهيكل التنظيمي للأثروا و التدفق التنظيمي للاتصالات .

صممت هذه الإستبانة من جزأين :

الجزء الأول: يشتمل على البيانات الشخصية و التي تضمن لك السرية التامة و حرية إبداء الرأي.

الجزء الثاني: يشتمل على البيانات المراد جمعها لإتمام هذه الدراسة من خلال خمسة محاور هي:

المحور الأول : "التنسيق و تبادل المعلومات بين دوائر الأثروا" من وجهة نظر الموظفين الأساسيين في مجال متابعة المشاريع.

المحور الثاني : جودة أنظمة المعلومات المتوفرة في مجال متابعة المشاريع

المحور الثالث : جودة المعلومات المتبادلة في مجال متابعة المشاريع

المحور الرابع : الهيكل التنظيمي

المحور الخامس : تنفق الاتصالات

زميلي العزيز... أختي الكريمة، أرجوا إبداء وجهة نظرك في الجمل المرفقة باستخدام الأرقام من 1 إلى 5 حيث:

مدى نسبة معدل الحدوث الزمني		
أكثر من 80% و حتى (100%) من الوقت	بالمجمل دائما	5
أكثر من 60% و حتى (80%) من الوقت	في معظم الأحيان	4
أكثر من 40% و حتى (60%) من الوقت	في بعض الأحيان	3
أكثر من 20% و حتى (40%) من الوقت	في قليل من الأحيان	2
من 0% و حتى (20%) فقط من الوقت	نادرا ما يحدث	1

تقبلوا فائق التقدير و الإحترام .... أحوكم الباحث : م. إسماعيل حسن صالح



الرجاء تقييم كل جملة من الجمل التالية من حيث مدى تكررها (معدل حدوثها) باستخدام مقياس من 1 إلى 5 ، حيث :

5	بالمجمل دائما
4	في معظم الأحيان
3	في بعض الأحيان
2	في قليل من الأحيان
1	نادرا ما يحدث

**المحور الأول : "التنسيق و تبادل المعلومات بين دوائر الأنروا" من وجهة نظر الموظفين الأساسيين في مجال متابعة المشاريع**

التقييم	الجملة
1	إن تنسيق الجهود و تبادل المعلومات اللازمة (ضمن الوضع الحالي) بين مختلف دوائر الأنروا في متابعة أي مشروع يثمر عن إتخاذ و تنفيذ القرارات الصحيحة.
2	إن تنسيق الجهود و تبادل المعلومات اللازمة (ضمن الوضع الحالي) بين مختلف دوائر الأنروا في متابعة أي مشروع يثمر عن إتخاذ و تنفيذ القرارات في الوقت المناسب .
3	إن تنسيق الجهود و تبادل المعلومات اللازمة بين مختلف دوائر الأنروا في متابعة أي مشروع (ضمن الوضع الحالي) يساعدني بشكل مباشر على القيام بمهامي المطلوبة على الوجه المطلوب.
4	تقوم الدوائر بتكرار بعض الأخطاء التي تمت مواجهتها في مشاريع سابقة
5	أشعر بالإحباط من الممارسات المتبعة بين الدوائر لتنسيق الجهود و تبادل المعلومات
6	تتعرض مشاريع الأنروا لمعوقات و مشاكل (كان بالإمكان تجنبها) بسبب سوء التنسيق بين المعنيين بتنفيذ المشروع من مختلف الدوائر. مثال ذلك : تأخر المشروع أو أحد مكوناته ، تكاليف إضافية ، سحب التمويل ، حدوث إنحراف معتبر عن الخطة الأصلية للمشروع و أهدافه.
7	يحدث تضارب في المصالح بين الدوائر أثناء تنسيق الجهود و تبادل المعلومات اللازمة لإدارة المشاريع ، و الذي يتطور إلى تنازع على القيام بالمهام أو التهرب منها مثال ذلك : الإمتناع عن التعاون أو الدعم إلا تحت ضغط الإدارة العليا - إحتكار مدير قسم لبعض المعلومات وإخفائها للتمكن من البقاء في موقع متميز أمام مروضيه - التصلب من القيام بأداء مهام ومحاولة إقناعها على كامل قسم أو دائرة أخرى.

8 ما هو تقييمك لمستوى تنسيق الجهود و تبادل المعلومات بين مختلف الدوائر في إدارة و تنفيذ المشاريع ؟

- a في غاية السوء
- b سيء مقارنة بما يتوجب أن يكون عليه الحال في مؤسسة كالأنروا
- c جيد ، ولكن يجب أن يكون أفضل مما هو عليه بكثير
- d جيد جدا
- e مثالي

**المحور الثاني : جودة أنظمة المعلومات المتوفرة في مجال متابعة المشاريع**

التقييم	الجملة
1	في دائرتي ، هناك سجل ورقي (أرشيفي) خاص لكل مشروع
2	أستطيع الحصول على إحتياجاتي من البيانات و المعلومات من خلال السجلات الورقية المتوفرة
3	التقارير الدورية التي تصدر من دائرتي توفر لي معلومات قيمة تمكنني من القيام بمهامي المتعلقة بمتابعة المشاريع
4	التقارير الدورية التي تصدر من الدوائر الأخرى توفر لي معلومات قيمة تمكنني من القيام بمهامي المتعلقة بمتابعة المشاريع
5	أحرص على وجود مجلد إلكتروني خاص لكل مشروع كأرشيف إلكتروني لتنظيم مهامي
6	أستطيع الحصول على معظم إحتياجاتي من البيانات و المعلومات من خلال قواعد البيانات و أنظمة المعلومات الإلكترونية المتوفرة لدى - "كنظام المالية مثلا"
7	إن قواعد البيانات و أنظمة المعلومات الإلكترونية المتوفرة في الأنروا مرتبطة مع بعضها البعض بشكل تكاملي و مفيد
8	هناك تحسينات مستمرة يتم إدخالها على قواعد البيانات و أنظمة المعلومات الإلكترونية المتوفرة لتلائم مع إحتياجاتنا و إقتراحاتنا

**المحور الثالث : جودة المعلومات المتبادلة في مجال متابعة المشاريع**

التقييم	الجملة
1	عندما أحتاج لأي معلومة ، فإنني أستطيع الحصول عليها .
2	عندما أحتاج لأي معلومة ، فإنني أستطيع الحصول عليها ضمن الوقت المطلوب
3	عندما أحتاج لأي معلومة ، فإنني أستطيع الحصول عليها بعد بذل أدنى جهد منطقي لازم
4	عندما أحتاج لأي معلومة ، فإنني أستطيع الحصول عليها وأنا على ثقة عالية بمصداقيتها و دقتها
5	كل معلومة لها تعريف ثابت و معنى متفق عليه بين موظفي الدوائر الذين يستخدمونها
6	البيانات و المعلومات التي يتم جمعها من الدوائر و الأقسام تكون كاملة من حيث المحتوى و التفاصيل المرجوة

7 رتب المعينات التالية (من 1 إلى 4) لإدارة ومتابعة مهام المشاريع ، حيث 1 تعني الأكثر معيقا و 4 الأقل معيقا ، علما بأنه يمكنك إسناد نفس الترتيب لأكثر من معيق إن إرتأيت ذلك

الترتيب	
a	عدم القدرة على الحصول على البيانات و المعلومات المطلوبة أصلا
b	عدم القدرة على الحصول على البيانات و المعلومات المطلوبة في الوقت المحدد
c	عدم القدرة على الحصول على البيانات و المعلومات المطلوبة بدون بذل جهد كبير
d	عدم القدرة على الحصول على بيانات و معلومات يمكن الوثوق بدقتها

## المحور الرابع : الهيكل التنظيمي

التقييم	الجملة
1	إن مجمل اللوائح الداخلية (توجيهات العمل الفنية و الإدارية) المتوفرة توضح النشاطات المطلوبة لتنسيق الجهود و تبادل المعلومات اللازمة بين مختلف دوائر الأتروا لإدارة المشاريع
2	لأي مشروع، تكون هناك قائمة واضحة و ثابتة بجميع الموظفين من كافة الدوائر و الذين يعملون مباشرة على المشروع أو أحد جزئياته.
3	في كل مشروع ، تكون قنوات الإتصال و تبادل المعلومات بين الدوائر واضحة و معروفة
4	تبادل المعلومات و المراسلات الرسمية مع الموظفين ذوي العلاقة من الدوائر الأخرى تتم بشكل سلس و بدون معوقات بيروقراطية أو تعقيدات تنظيمية
5	إن المدراء و المسؤولين على دراية كافية و شاملة بالمعوقات و المشاكل التي تواجه موظفيهم في متابعة و إدارة مشاريعهم
6	لا تتأثر قدرتي على جمع البيانات و المعلومات المطلوبة بشكل سلبي عند غياب أحد الموظفين الأساسيين أو إنتقاله من موقعه الوظيفي
7	يتناسب عدد الموظفين اللازمين لمتابعة المشاريع مع متطلبات الحصول على معلومات عالية الجودة (الدقة و الإلمام بكافة التفاصيل اللازمة ضمن الإطار الزمني المحدد)

## المحور الخامس : النظام الإداري لتدفق الإتصالات

التقييم	الجملة
1	إن الإتصالات الموجهة من المرؤسيين إلى المدراء (كتلك التي يقترح فيها الموظف على إدارته إقتراحات للعمل أو يطلب فيها إتخاذ قرار أو النصح و الإرشاد) يتم الرد عليها في الوقت الزمني المناسب.
2	إن الإتصالات الموجهة من المدراء إلى المرؤسيين (كالتعليمات و التوجيهات) تتم متابعة تنفيذها من قبل الإدارة.
3	يتم إتخاذ قرارات (لا أتفق معها) بدون التنسيق معي في مهام المشاريع التي أقوم بمتابعتها
4	لا أتمكن من إنتاج المعلومات اللازمة على درجة عالية من الجودة (الدقة و الإلمام بكافة التفاصيل اللازمة) بسبب فرض قيود زمنية ضيقة غير ملائمة لإكمال المهمة
5	بعض الموظفين يتجاهل الرد على المراسلات الرسمية المكتوبة (كالإيميل مثلا) أو إبداء أي تغذية راجعة أو يعتمد الرد بعد فوات الأوان
6	يتم إعلامي وإرسال نسخة لي بكل المراسلات و الإتصالات المتعلقة بمهام المشاريع التي أقوم بمتابعتها
7	تبادل المعلومات و المراسلات غير الرسمية ( تلك التي تعتمد بشكل أساسي على العلاقات الشخصية) مع موظفي الدوائر الأخرى تمدني بحصيلة من البيانات و المعلومات أكثر شمولية و تفصيلا من تلك التي أحصل عليها عبر القنوات الرسمية
8	تبادل المعلومات و المراسلات غير الرسمية ( تلك التي تعتمد بشكل أساسي على العلاقات الشخصية) مع موظفي الدوائر الأخرى تمدني بما أحتاج من بيانات و معلومات بشكل أسرع من تلك التي أحصل عليها عبر القنوات الرسمية
9	يتم عقد إجتماعات بشكل دوري مع كل الموظفين الأساسيين من كل الدوائر لمتابعة تنفيذ المشروع منذ بدايته و حتى نهايته
10	القائمة أدناه تحتوي أربع وسائل أساسية للإتصال و التنسيق و تبادل المعلومات بين دوائر الأتروا . الرجاء إسناد نسبة مئوية لكل و سيلة تشير إلى مدى الإعتماد عليها و كثرة إستخدامها في إدارة المشاريع - بشرط أن يكون مجموع النسب الأربعة 100%
	a. المراسلات الإلكترونية ( الإيميل و الملفات الإلكترونية المتبادلة عبر الشبكة) %
	b. المراسلات المطبوعة و الملفات الورقية %
	b. الإتصالات الشفهية (محادثة عبر الهاتف أو وجها لوجه ) %
	d. الإجتماعات الدورية أو الإرتجالية %

## Annex No. [5] – The Questionnaire (in English)

Islamic University – Gaza  
Dean of Postgraduate Studies  
Faculty of Commerce  
Business Administration Department



### Dear Colleague

The attached questionnaire is a tool of collecting data reference in order to conduct a study aims at critically evaluating the internal “cross-departmental” Projects Communications Management at UNRWA- Gaza Field Office within the construction & infrastructure sector. The study key objective is to measure the relationships between the dependent variable (cross-departmental Projects Communications Management) and the following independent variables: quality information, quality of available information systems, organizational structure and organizational communication flow.

This questionnaire is divided in two parts:

**Part one:** Include the personal information. You are kindly reminded that all submitted information will be treated as confidential and will be of major concern to us.

**Part two:** Include the five dimensions of the study, which are:

**1<sup>st</sup> Dimension:** [Cross-Departmental] Projects Communications as Perceived by Key Staff

**2<sup>nd</sup> Dimension:** Information System Quality

**3<sup>rd</sup> Dimension:** Information Quality

**4<sup>th</sup> Dimension:** Organizational Structure

**5<sup>th</sup> Dimension :** Communication Flow

Dear Colleague, I will appreciate your time and efforts in reading carefully each of the required statements and having each rated on a scale from [1] to [5]; where:

		Frequency Range with respect to time
5	Almost Always	More than [80%] and up to [100%]
4	Usually	More than [60%] and up to [80%]
3	Sometimes	More than [40%] and up to [60%]
2	Seldom	More than [20%] and up to [40%]
1	Almost Never "Once in great while"	From [0%] to [20%]

Thank you for your cooperation ... Researcher : Eng. Ismail Hasan Saleh

**1<sup>st</sup> Dimension: [Cross-Departmental] Projects Communications as Perceived by Key Staff**

S.N	Paragraph	Resp.
1	The cross-departmental communications of projects' tasks (as per the current situation) lead to appropriate decision-making and actions.	
2	The cross-departmental communications of projects' tasks (as per the current situation) lead to timely decision-making and actions.	
3	The current communications practices directly supporting me for performing my projects-related tasks perfectly.	
4	GFO Departments repeat some mistakes that have been conducted in previous projects	
5	I am frustrated from the current departmental practices for exchanging information and coordinating efforts.	
6	UNRWA projects are subjected to undesirable consequences (that could be avoided) as a result of improper coordination and bad communications between the departments. <u>Examples</u> : Project Delay - Cost overrun - Fund withdrawal - considerable deviation from the original scope/ plan]	
7	Conflict of interests and power struggles between Departments are common in projects communications. <u>Examples</u> : Avoiding real cooperation or support unless there is a pressure from the top - Retention of specific data/information by a division head to keep power of information ownership - Dumping tasks on other divisions and departments .	

**8** How would you evaluate the current level of efforts' coordination and exchange of data and information between the GFO departments in managing UNRWA Projects ?

- a  Very poor
- b  Poor compared to what must be for an organization like UNRWA
- c  Good, but must be much better
- d  Very Good
- e  Almost Perfect

## 2<sup>nd</sup> Dimension: Information System Quality

S.N	Paragraph	Resp.
1	In my department, there is a paper-based record / archive for every project.	
2	I can have most of my need of information/data by using the available paper-based records / archive	
3	The periodic reports issued from my department provide me with valued information in handling required tasks related to the projects.	
4	The periodic reports issued from other departments provide me with valued information in handling required tasks related to the projects.	
5	I have to maintain an electronic folder (all related electronic files) per each project as an electronic archive.	
6	I can have most of my need of information/data by using the available computerized databases / information systems	
7	The available databases and computerized information systems are linked to each other and well-integrated.	
8	There are continuous improvements introduced to the available computerized databases/ information systems to meet the staff needs & suggestions	



### 3<sup>rd</sup> Dimension: Information Quality

S.N	Paragraph	Resp.
1	Whenever I need a piece of information/data, I can find it .	
2	Whenever I need a piece of information/data, I can find it on time.	
3	Whenever I need a piece of information/data, I can find it at reasonable efforts (i.e. minimum required efforts)	
4	Whenever I need a piece of information/data, I can find it with high level of accuracy & trust.	
5	Every piece of data / information element is consistently defined and has unified meaning to all staff using it.	
6	Available data and information exactly meet the expectations in terms of completeness and details.	

7 Rank the following obstacles [From 1 to 4] in terms of intensity order ; where 1 means the major obstacle and 4 is the minor obstacle. You can assign the same rank for more than one element and zero for non-obstacle.

		Rank
a	The inability to acquire required information / data	
b	The inability to acquire required information / data <u>on time</u>	
c	The inability to acquire required information / data <u>at least possible efforts</u>	
d	The inability to acquire <u>accurate &amp; trustworthy</u> information / data	

#### 4<sup>th</sup> Dimension: Organizational Structure

S.N	Paragraph	Resp.
1	The available procedures (technical instructions and manuals) regulate every aspect required for the coordination of projects' efforts and decision-making between the various departments.	
2	For every project, there is a clear and consistent list of all employees from various departments who are involved in the project's tasks.	
3	For every project, there are clear & recognized lines of communications and exchange of information.	
4	Formal Projects communications with key staff across the departments are free flowing (not affected by the organizational structure and the associated bureaucratic procedures)	
5	Managers thoroughly understand the obstacles and problems faced by subordinates for project-related issues.	
6	My ability to collect required information/data is not affected when the original source of information is temporarily absent or not working anymore in his/her original station.	
7	The current number of staff involved in project' administration matches with the requirements to attain high quality information (accurate , with sufficient details and on time) .	

**5<sup>th</sup> Dimension: Communication Flow**

S.N	Paragraph	Resp.
1	Upward communications (e.g. asking for advice, raising issues and suggestions) to the managers end with timely feedback.	
2	Downward communications (e.g. instructions) to the subordinates are properly followed-up .	
3	For projects' tasks handled by me, there are decisions (for which I am not satisfied with) that are made without prior coordination with me.	
4	I cannot produce high quality information (accurate, with sufficient details and on time) because of the imposed unworkable time constraints.	
5	Some employees do not reply to the official written messages (e.g. e-mails) and don't provide any feedback or provide it too late.	
6	For projects' tasks handled by me, I am aware of all communications and I am copied in all related correspondences.	
7	Informal communications with other employees outside my department provide me with more detailed and comprehensive information compared to what obtained by the formal communications.	
8	Informal communications with other employees outside my department provide me with faster approach to required information compared to what obtained by the formal communications.	
9	Meetings with key staff from different departments involved in a project are scheduled systematically throughout the project's life.	

**10 Please assign a percentage against each of the following communication channels to reflect the frequency of usage in managing UNRWA projects; so that the total is 100%**

<b>a.</b> E-mails & attachments of electronic files (Scanned doc.-Excel-Words-Databases... etc)	%
<b>b.</b> Formal printed memos / letters and hardcopy files	%
<b>b.</b> Inter-personal communications (e.g. face-face , phone conversation ...etc)	%
<b>d.</b> Meetings	%

### **Annex No. [6] – Referees Who Judged the questionnaire**

- |                                      |   |
|--------------------------------------|---|
| <b>1. Professor. Majed AL- Farra</b> | The Islamic University of Gaza                  |
| <b>2. Dr. Issam El-Buhisi</b>        | The Islamic University of Gaza                  |
| <b>3. Dr. Nabil El-Sawlhi</b>        | Islamic University & ex-Senior Officer at UNRWA |
| <b>4. Dr. Sami Abu El Rooss</b>      | The Islamic University of Gaza                  |
| <b>5. Dr. Wasim El-Habil</b>         | The Islamic University of Gaza                  |
| <b>6. Dr. Samir Safi</b>             | The Islamic University of Gaza                  |
| <b>7. Dr. Nafez Barakat</b>          | The Islamic University of Gaza                  |
| <b>8. Dr. Rushdi Wadi</b>            | The Islamic University of Gaza                  |
| <b>9. Mr. Mohammad Bessiso</b>       | UNRWA – GFO – Researcher & Statistician         |