

ABSTRACT

Title of Document: TOWARD DEVELOPMENT OF STANDARDS FOR WEB-BASED PROJECT MANAGEMENT SYSTEMS

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Web-based Project Management Systems (WPMS) are based on extranet applications for project management. Currently, WPMS software vendors are offering WPMS products on the e-business market. Because of lacking WPMS standards, users lack uniform tools to decide whether the available systems have relevant capabilities to meet their requirements. This research defines an initial approach to the creation of a WPMS standard. Such a standard can provide WPMS users with a rationale for WPMS selection mechanism. The research proposes an outline of an approach to future WPMS standard design.

TOWARD DEVELOPMENT OF STANDARDS
FOR WEB-BASED PROJECT MANAGEMENT SYSTEMS

By
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1 Introduction

This introductory chapter presents the research motivation, the objective, and the main expected results. An overview of the thesis is also presented.

1.1 Motivation

A project manager must develop one's own project management style and personalized style of management (Alshawi and Ingirige 2003). With web-based computer technology applications being routine in the workplace, a new family of web-based project management systems (WPMS) has become a viable alternative to traditional project management tools installed on office computer equipment.

WPMS applications are used in the construction industry for improving architectural design, increasing efficiency and accuracy of project data distribution, and enhancing project management in project scenarios where an Internet-based and/or Extranet network environment is available to project stakeholders. Consequently, PM software vendors realizing the benefits of WPMS have begun to develop and market WPMS as a viable management tool for construction project management (Nitithamyong and Skibniewski 2004). Such vendors developed distinctive strategies for their products. Some of these applications support only project time; others support only project procurement management; still some products support a combination of a wide array of project management functions. Thus, there is diversity of WPMS in the market. However, the common ultimate objective of all systems is customer satisfaction and market dominance. In this context, it is important for developers and project-based businesses to use a common standard.

Standards have shown to be beneficial in many industries. An example is the existing project management standards—such as the PMI PMBOK[®], the IPMA Competence Baseline—which provide a common communication platform among project managers, projects and companies (Vargas 2009). A standard for WPMS can be beneficial to a developing company that is pursuing the development of a new WPMS application. Web-developers can have a guideline for implementing and developing the WPMS, which includes features and functionalities of construction management in a single package solution.

From the consumer's point of view, because of a standard design, a particular WPMS compatible with the standard will show the compilation of WPMS best practices; all customers who get service from this system will have all functionalities defined in the standard. Also, a better cost-effective solution is expected, as the customer will pay for one system with all the standard project management functionalities, and not have to pay for a set of systems that each one providing possibly a single functionality. The overall cost reduction is in paying for a software solution solely as a replacement for multiple software from a variety of vendors, which is specially relevant in times of business recession (Hamdy 2009).

A standard is also significant for organizational migration contexts. If a current system is standardized, a migration to a new system can be viable and cost effective if the new system is also standardized. The main issue here is integration of the new system with other organizational systems. Because of the standard compliance of both systems, this is a less consumer project in terms of cost and time.

Moreover, the WPMS standard can establish dependability and assure to construction company customers of the reliability and quality of the production. People usually have more confidence in companies that follow standards.

The main question related to this research is: how can the construction of firms and WPMS vendors benefit from an increasing number of such systems? Standardization is the approach used in this work to help find a possible answer to this question.

1.2 Objective

In the context of an increasing use of WPMS in the industry and the existence of a diversity of current WPMS applications and vendors, the objective of this thesis is to present an idea which can help in the design of a standard for WPMS while also offering a description of the appropriate features and functionalities.

1.3 Expected Results

In achieving the objective of the thesis, the following results are expected:

- An outline of a WPMS standard, which serves as a starting point for developing a full standard, which can be used by industry.
- A list of desired features and functionalities for WPMS, which can be used as an input for a full standard. The list can also be used as it is for WPMS assessment purposes.
- Examples of WPMS software available on the market.

1.4 Dissertation Overview

Besides this introductory chapter, the dissertation is organized as follows:

Chapter 2. Literature Review: Project Management Standards and Web-based Project Management Systems. Core issues of current project management

standards that have a vital influence on understanding of project management are presented. In addition, the WPMS applications and core issues are covered.

Chapter 3. Research Methodology and Data Analysis. The research methodology is presented. Features of WPMS and desired functionalities from the PMBOK® are also identified.

Chapter 4. Proposed WPMS Standard Outline. Based on features and functionalities identified in Chapter 3, an outline for the design of a WPMS standard is presented.

Chapter 5. Conclusions and Future Research. The main contributions of the research, the limitations of research, and suggestions for further study are identified.

2 Literature Review: Project Management Standards and Web-based Project Management Systems

This chapter presents the research literature review. Such a review was based on two aspects which are important in the process of establishment a standard for WPMS.

The chapter starts with a presentation of the main standards for project management. In the sequence a well-known WPMS is, including some description of high-level functionalities of these systems. Finally, the chapter ends with a discussion on how those two aspects will be incorporated to the proposed standard outline.

2.1 Project Management Standards

This section presents an overview of well-known project management standards. These standards have been used widely by many industries, including the construction industry. Thus, it is expected that WPMS applications are designed and implemented based on such standards.

2.1.1 PMI Project Management Body of Knowledge

The Project Management Institute (PMI¹) published a project management standard called PMBOK[®] – Project Management Body of Knowledge, which introduces project management fundamentals for project management processes. Project managers as well as project participants may apply these processes to manage their projects during a whole project life cycle, so as to increase project management practices and productivity (PMI 2008). PMBOK[®] has been used not only in the United States of America, but also worldwide (Haughey 2008).

¹ PMI web site: www.pmi.org.

PMBOK® Guide Fourth Edition (PMI 2008) is organized in four sections:

- Section I: The Project Management Framework
- Section II: The Standard for Project Management of a Project
- Section III: The Project Management Knowledge Areas
- Section IV: Appendices and Glossary

Section II introduces five project management process groups (PMI 2008):

- Initiating Process Group
- Planning Process Group
- Monitoring & Controlling Process Group
- Executing Process Group, and
- Closing Process Group.

Section III introduces the nine areas of knowledge for project management. Each knowledge area is defined as a set of processes. The knowledge areas are:

- Project Integration Management
- Project Scope Management
- Project Time Management
- Project Cost Management
- Project Quality Management
- Project Human Resource Management
- Project Communication Management
- Project Risk Management, and

- Project Procurement Management

The nine knowledge areas will be briefly presented in their original sequence as published in PMBOK®.

2.1.1.1 Project Integration Management

According to the PMBOK® Project Integration Management initially identifies activities and processes within the project management process groups: initiating, planning, executing, monitoring and controlling, and closing. In addition, a change management process is also integrated in this knowledge area. The processes defined for the Project Integration Management are:

- **Develop Project Charter.** The Project Charter document implements in the initiation process identifying the project statement of work of the project, e.g., project objective, high level risks, summary of project schedule and budgets, etc. (PMI 2008).
- **Develop the Project Management Plan.** The Project Management Plan defines all project plans of every project management area from the Scope management plan to the Procurement management plan (PMI 2008).
- **Direct and Manage Project Execution.** In order to pull off project accomplishment in the construction process, there are many activities that need to be approved and performed, such as project product (deliverables), change requests, a project management plan and updated documents (PMI 2008).
- **Monitor and Control Project Work.** Unexpected events can occur during the construction process; as a result, all activities identified in the

project management plan should be carefully controlled and monitored to avoid risks or changes.

- **Perform Integrated Change Control.** In this process, change requests, which are approved and accepted by project key persons and follow a lawsuit, will be managed and controlled; otherwise, it will be rejected (PMI 2008).
- **Close Project or Phase.** To make sure that products or services of project management satisfy customer needs, the Close Project process is performed. A project manager will review all works identified in the project management plan to make sure that there are no mistaken activities. In addition, project lessons learned can be kept to use in the future project.

2.1.1.2 Project Scope Management

According to the PMBOK, to ensure the project meets the requirements and is completed within the project's time and budget, a project manager utilizes the "Project Scope Management" methodology. At the very first of the project life cycle, the owner, with A/E firm consulting and expert judgment analytics, assigns the project scope, and then develops it to the project plan in order to define, verify, and give direction to the contractor. In addition, when any problems, uncertain circumstances, or law issues occur during the project process, the project scope statement can be a baseline for all project participants to review their activities. There are five processes of Project Scope management identified in the PMBOK®:

- **Collect Requirements, Define and Verify Scope.** Datum of project requirements collected from the customers' interviews, the focus group, or project group discussion, including surveys or the questionnaires can be facilitated at the first step of the project scope management, collecting requirements (PMI 2008). The interviewing, or survey form can be sent to the project customers or sponsors to complete. The gathered information is kept in the database in word document patterns or the required Traceability Matrix (PMI 2008). When a project starts, the owner, with architect or engineer consultants, will retrieve the data, and then implement the project scope statement in the form of the word or any text document patterns, which is called the "Project charter." When a project charter is approved, the scope is verified and the product deliverables will be primarily clarified, and the customer and sponsor again guarantee that they accept a scope product.
- **Create Work Breakdown Structure.** The Work Breakdown Structure (WBS) is an excellent structure to clarify each organization function and stakeholder, and subdivided works in the scheme of a WBS diagram. In addition, it gives details of both organization function and stakeholders, and works as a WBS dictionary including in the project's scope of a project (Fichtner 2009). The WBS, diagram showing the subdividing work, cost, schedule, or resources, can be created as a simple diagram by MS Word or any other text document application. A detailed description of each hierarchy will be explained by the WBS dictionary, which is created at the same time as creating the WBS documents. As well as a project

charter, but more specific, the WBS can be shown to all stakeholders to understand the working processes, and subdivided project deliverables.

- **Control Scope.** During a construction process, a project manager uses the scope statement in controlling and monitoring a project. He can get details from the project database. If there is any scope change, the change control process will be developed by negotiation between the owner and contractor. When the new scope agreement is committed, it will be put in the database as a new scope management and can be distributed to any stakeholders to utilize it again. The scope change can be a result consequently from the administrative process of the Procurement Management in the administer process aspect. As a result, the Scope Management and the Procurement Management can interact with each other in their document works when circumstances of the project change .

2.1.1.3 Project Time Management

In construction management, a project manager monitors and controls the time of the project activities via project scheduling by using Gantt charts, a network diagram, a critical path method (CPM), or even an activity list. Nowadays there are many well-known software for tracking project schedules such as Microsoft Project, Primavera P6, @task, etc. However, according to the PMBOK® Guide, Fourth Edition, the Project Time Management should involve six processes:

- **Defines Activities.** All project activities in every process should meet project goals. The Work Breakdown Structure can be used to show the activities hierarchy of each activity group.

- **Sequence Activities.** The Sequence Activities show relationships among activities in the same group from the first activity to the last activity. General forms of activities order are created in the diagram scheme such as Critical Path Methodology (CPM).
- **Estimate Activity Resources.** This process is to examine quantity and cost of materials, people, and equipment needed in project performance (PMI 2008).
- **Estimate Activity Durations.** This process determines the time period of each project activity in the diagram Scheme such as a Gantt chart or a Bar chart.
- **Develop Schedule.** When all activities are determined in the Estimate Activity Resources process and Estimate Activity Durations process, a project time schedule will be developed. During the construction processes, the project schedule presents the times of all activities. Most of project managers use the time schedule to analyze and measure project performance in the controlling process.
- **Control Schedule.** All activities in a project time schedule are monitored and controlled. A project manager is the key person who plays these roles.

2.1.1.4 Project Cost Management

Project cost can be divided into two components: Initial capital cost such as planning and feasibility studies, insurance and tax, construction (materials, equipment, project participants), etc., and operation and maintenance cost such area rental. According to the PMBOK[®], the Project Cost Management is the methodology by which project key

players such as architects, engineers, and project managers, plan, monitor, and control project budgets. The processes defined in this knowledge area are:

- Estimate Costs.
- Determine Budgets.
- Control Costs.

2.1.1.5 Project Quality Management

According to the PMBOK®, Project Quality Management identifies all project processes, which determines and follows up on project quality. Typically, general projects are concerned about the ISO 9000 (Project Quality Management) and the ISO14000 (Project Environmental Management) to ensure project's quality. The PMBOK® defines three processes for Project Quality Management:

- Plan Quality.
- Perform Quality Assurance.
- Perform Quality Control.

2.1.1.6 Project Human Resource Management

All project participants play important roles in helping effectively reach a project goal. A standard way of Human Resource Management in PMBOK® is the processes a project management team uses to settle on an ideal project team, and improve and develop team performance. Team development can be described step by step as development stages; Forming, Norming, Storming, and Performing (Whetten and Cameron 2007). The project manager is the key person for team development. He needs not only his self-effectiveness in his leadership skill, but he sometimes needs tools to help him during the team development process. Giving knowledge about leadership improvement, which all project

players especially a project manager can utilize to establish SMART goals (Whetten and Cameron 2007) are the excellent ideas in project human developing.

The PMBOK® includes the following processes to characterize Project Human Resource Management:

- Develop Human Resources Plan.
- Acquire Project Team.
- Develop Project Team.
- Management Project Team

2.1.1.7 Project Communication Management

It is very crucial to be clarified and approved by all parties of the communication plan in a project (Gould and Joyce 2009). Sixty percent of a project fails because of a lack of good, organized communication management (Cable 2008). Obviously, projects having poor communication among project participants always fail to meet their aim or purpose, which can be due to overrun costs, and/or being late with delivery. As a result, project communication management is one solution that can be used to accomplish this project goal. A smart project manager should know how to build an effective communication plan.

A great benefit of good communication is that it helps to save time during the project process. First, when the project participants are faced with problems during their tasks they immediately know who to contact for help in solving their problems. Second, nowadays, there are many effective communication methods and collaborative communication tools that serve stakeholders to contact one another quickly conveniently.

Typically, there will be problems during project work. Whenever confronting problems, a foreman or a superintendent will contact the project manager or contractor to help him solve that problem directly. For example, if they have a problem about the engineer drawing, they know who they can contact, when it is convenient time to contact them, and whether to contact them by phone or meet them in person. Similarly, the engineer who was contacted can prepare himself well.

The PMBOK® introduces five processes for project communication management which are:

- Identify Stakeholders.
- Plan Communications.
- Distribute information.
- Manage Stakeholder Expectation.
- Report Performance.

2.1.1.8 Project Risk Management

In a construction project, an owner should not have doubts with any serious situation he may face, as any mistakes can happen that can make the project fail and be unsuccessful. As a result, an ideal owner should have a great plan to prevent any unpredictable events before it is too late. According to the PMBOK® the Project Risk Management identifies the following processes:

- Plan Risk Management.
- Identify Risks.
- Perform Qualitative Risk Analysis.
- Perform Quantitative Risk Analysis.

- Plan Risk Response.
- Monitor and Control Risk.

2.1.1.9 Project Procurement Management

Procurement Management involves two activities: to find and purchase ideal materials from vendors/sellers for the construction project, and to hire the best contractors/subcontractors including bidding and contracting activities (Gould and Joyce 2009). In addition to the contract management, the contract activity process also includes the change control, which makes a crucial change not only in the contract issues, but also in the project scope. Moreover, this change can affect every aspect of the project management system, such as time management, cost management, or quality management. As a result, the contract activity should be accurate, deliberate, and very fair to the people on both sides, who are each making a contract agreement.

According to the PMBOK® Guide, the Fourth Edition, the Procurement Management is divided into four processes:

- Plan Procurements.
- Conduct Procurements.
- Administer Procurements.
- Close Procurements.

2.1.2 ISO Guide to Project Management

The International Organization for Standardization (ISO) is developing the Guide to Project Management – ISO 21500, which defines project management guidelines and increases ideas, valuable knowledge and mutual understanding of project management for professionals (Thomson 2009).

The ISO21500 standard will have seven main sections:

- Introduction
- Clause 1: Scope
- Clause 2: Normative References
- Clause 3: Terms and Definitions
- Clause 4: Project Management Concepts
- Clause 5: Project Management Process
- Informative Annexes (Thomson 2009)

However, the ISO 21500 standard is still being developed and it is expected to be published in August 2012.

2.1.3 IPMA Competence Baseline

International Project Management Association (IPMA²) was first founded in Sweden in 1965. Nowadays, there are about 40,000 members in over 40 countries around the world joining in this network aiming to develop certification and help lead the project management into the future. Up until now, IPMA issued the International Project Management Association Competence Baseline Version 3.0 (ICB V3.0) as the basis for certificate and develop project management skills for all members.

The ICB V3.0 (Caupin and Knoepfel 2006) defines and assesses the competence required for project management using a four-level certification system (levels A to D) that consists of:

- Level A – Certified Projects Director. To get certified, a project director should have advance knowledge and experience in program strategy, methodologies and tools.
- Level B – Certified Senior Project Manager. To get certified, a senior project manager should be able not only leading team but also emphasize in managing in complex project such as sub-project.
- Level C – Certified Project Manager. To get certified, a project manager should be able to implement his project management knowledge and skill in a project of limited complexity.
- Level D – Certified Project Management Associate. To get certified, a person should be able to apply and use a common knowledge and capacity in project management at a satisfaction level.

² IPMA web site: www.ipma.ch. (accessed on April 4, 2008).

The ICB performed the integration of all elements of project management through its eye of competence as shown in Figure 2-1. The eye symbolizes the clarity and vision of the project manager when he evaluates any specific project.

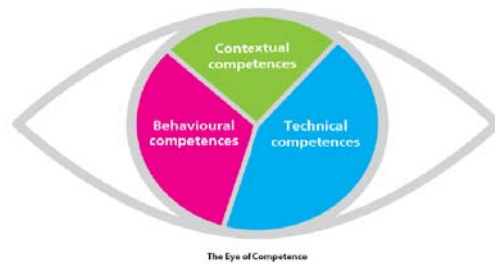


Figure 2-1 IPMA Eye of Competence for project management
from the web site <http://www.ipma.ch>. (image copyright of IPMA).

The three competence elements grouped in the eye can be described as follows:

- **Technical Competence Elements.** This element includes the common project management knowledge and skills which a project manager uses to manage a project: Project Management Success; Interested Parties; Project Requirements & Objectives; Risk & Opportunity; Quality; Project Organization; Teamwork; Problem Resolution; Project Structures; Scope & Deliverables; Time & Project Phases; Resources; Cost & Finance; Procurement & Contract; Changes; Control & Reports; Information and Documentation; Communication; Start-up; and Close-out.
- **Behavioral Competence Elements.** These includes all morals, behavior, and attitude that a project manager needs for managing the project effectively: Leadership; Engagement & Motivation; Self-Control; Assertiveness; Relaxation; Openness; Creativity; Results Orientation; Efficiency; Consultation; Negotiation; Conflict & Crisis; Reliability; Values Appreciation; and Ethics.

- **Contextual Competence Elements.** This competence element group includes relationship between the concept of project, program, portfolio and the organization. Understanding this group competence is the most significant step for the assessment of project progress: Project Orientation; Program Orientation; Portfolio Orientation; Project, Program & Portfolio Implementation; Permanent Organization; Business; Systems, Products & Technology; Personnel Management; Health, Security, Safety & Environment; Finance; Legal.

2.1.4 PMAJ Project & Program Management for Enterprise Innovation

Project & Program Management for Enterprise Innovation (P2M) is a standard guidebook developed by the Project Management Association of Japan (PMAJ³), with the cooperation of the committee for Innovative Project Management Model Development headed by Professor Shigenobu Ohara. Because social changes in Japan,, P2M has been implemented to help professionals develop human resources viewpoints and experience, to solve complicated problems, and enable them to attain greater knowledge of the construction industry, economic growth, and the changing environment.

P2M is a principle framework to improve an enterprise value in the strategy of project and program management. The point of view of P2M is for project management is expressed as a combination of 11 templates:

- Project Strategy Management.
- Project Finance Management.
- Project Systems Management.

³ PMAJ web site: www.pmaj.or.jp. (accessed in April 6, 2008).

- Project Organization Management.
- Project Objectives Management.
- Project Resources Management.
- Project Risk Management.
- Information Technology Management.
- Project Relationships Management.
- Value Management.
- Project Communications Management.

2.2 Web-based Project Management Applications

Web-based Project Management Systems (WPMS) are well known as being new and efficient extranet applications in the domain of project management for the complete project life cycle or for specific phases of project life cycle (Nitithamyong and Skibniewski 2004).

Figure 2-2 shows an illustration of a WPMS and the PMBOK[®] project processes group (adapted from PMBOK[®]). It is expected that a WPMS supports all project processes during the whole project life cycle.

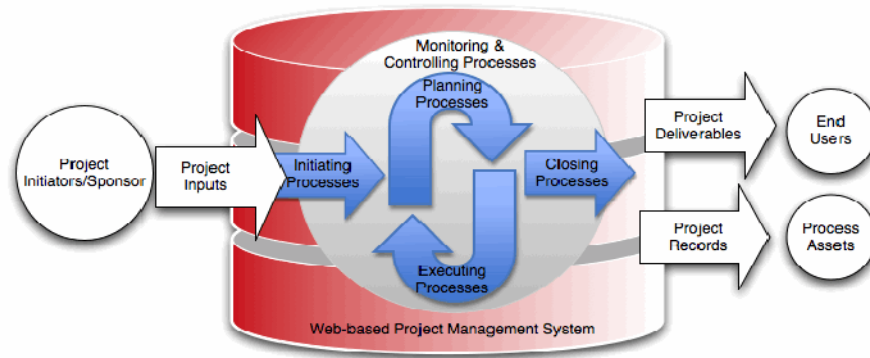


Figure 2-2 WPMS and project management processes (adapted from PMBOK[®])

A WPMS involves mainly four components (Skibniewski 2009):

1. The Database engine components.
2. The User/Interface components.
3. The System Administration components.
4. The Programming API's for customization components (Skibniewski 2009).

There are hundreds of WPMS nowadays in project-based businesses. (Nitithamyong and Skibniewski 2004). Each software company has its unique strategy in software development. The numbers of WPMS software have risen (Nitithamyong and Skibniewski 2004). New knowledge and computer technology such as Internet or extranet increase the competition among software companies, and this is a good advantage for customers who utilize these systems. However, this emerging increase of systems causes some problems, too. Varieties and differences in software development facilitate incompatibility of computer hardware and software (Alshawi and Ingirige 2003). In addition, there are not enough excellent project management standards to

organize, manage, and control all project processes and information (Alshawi and Ingirige 2003). As a result, a WPMS Standard platform should be developed (Nitithamyong and Skibniewski 2004). A WPMS Standard software not only requires resolving an incompatible computer system, but also can be simultaneously integrated to external systems such as an Enterprise Resource Planning system—ERP, a Supply Chain Management system—SCM or even a Building Information Model—BIM.

Table 2-1 shows a list of WPMS currently used in the construction industry. The list was obtained by a combination of three methods: (a) some systems were derived from the WPMS literature (articles); (b) others were obtained from a detailed web search; and (c) others from direct contact with the vendors (including classroom demonstrations).

Product Name	Company	URL
4Projects	4Projects Ltd.	http://www.4projects.com
Aconex	Aconex Ltd.	http://www.aconex.com/
Asite Solution	Asite Solution Ltd.	http://asite.com
BIW Technologies	BIW Technologies Ltd.	http://www.biwtech.com
Business Collaborator	Business Collaborator Ltd.	http://groupbc.com
Build Topia	Build Topia	http://www.buildtopia.com
BuilderTREND	BuilderTREND	http://www.softwareadvice.com
BuildSoft	BuildSoft Pro	http://www.buildsoft.com
CadWeb.net	Cadweb Ltd.	http://cadweb.net/
Causeway ECM	Causeway & Open Text	http://causeway.com/
CMiC	CMiC	http://www.cmic.ca/
ComputerEase	ComputerEase	http://construction-software.com
ConEst	ConEst Software Systems	http://www.conest.com/
ConstructJob	Accubid	http://www.accubid.com/
Constructware	Autodesk	http://usa.autodesk.com
Corecon	Corecon	http://www.corecon.com/
CTSpace Solutions	CTSpace Ltd.	http://www.sword-ctspace.com/
EADOC	EADOC LLC	http://www.eadocsoftware.com/
e-Builder	e-Builder	http://www.e-builder.net/
HotProject	Hot Project Ltd.	http://hotproject.com/
IFS	IFS	http://www.ifsworld.com/
Paskr	Paskr	http://www.paskr.com/
Primavera P6	Oracle	http://www.oracle.com/
Procore	Procore	http://www.procore.com/
Viecon ProjectWise	Bentley	http://www.bentley.com/
Prolog	Meridian Systems	http://www.meridiansystems.com/
Viewpoint	Viewpoint Construction Software	http://viewpointcs.com/
VISTA 2020	Market Street Technologies	http://www.marketstreet.com/

Table 2-1 Examples of WPMS software available on the market

The systems present a diversity of functionalities and formats. For example, there are many project schedule formats: from the simple tabular form such as a Gantt chart or Bar chart, to the graphical schedule, especially created by well-known software such as Oracle Primavera P6 (Figure 2-3) or @Task system from @Task.

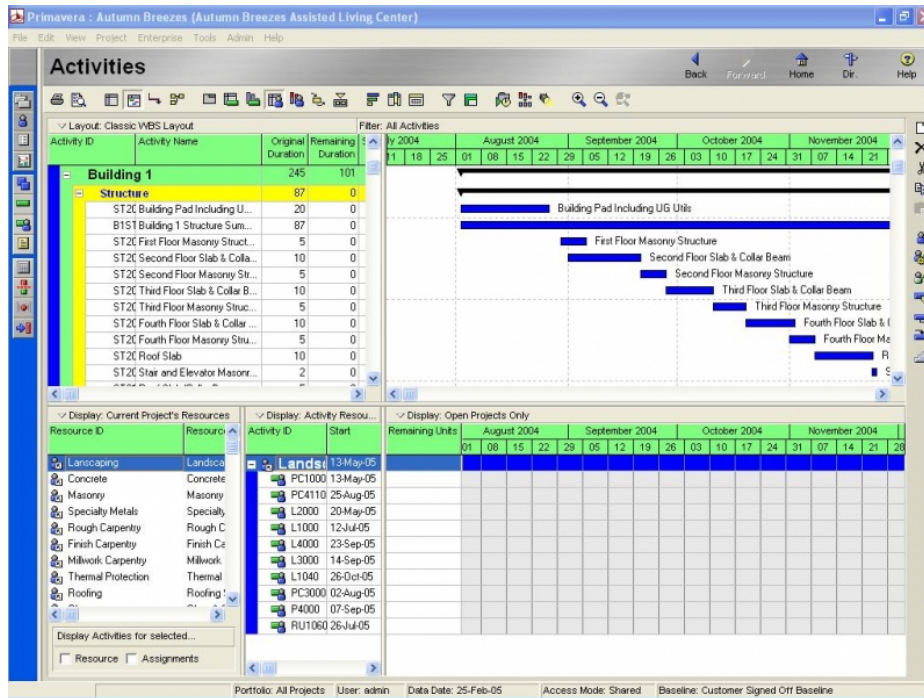


Figure 2-3 Example of project time schedule developed by Oracle Primavera P6 derived from the web site http://down.cd/info_2894.html (image copyright of Oracle Corporation).

2.3 Discussion

An analysis of the current WPMS and its relationship with PMBOK® knowledge areas was conducted. The aim was to verify how the systems support the knowledge areas; the analysis served as an indication of coverage and completeness of the systems. Table 2-2a and 2-2b show the results.

WPMS Software	PMBOK Knowledge Areas									
	Integration Management	Scope Management	Time Management	Cost Management	Quality Management	Human Resource Management	Communication Management	Risk Management	Procurement Management	Proportion of coverd
4Projects	x	x	x	x	x	x	x		x	8/9
Aconex	x	x	x	x			x		x	6/9
Asite Solution	x	x					x		x	4/9
BIW Technologies	x	x	x	x	x		x		x	7/9
Business Collaborator	x	x	x				x		x	5/9
Build Topia	x	x	x	x			x		x	6/9
Builder TREND	x	x	x				x			4/9
BuildSoft	x	x	x	x			x			5/9
CadWeb.net	x	x			x		x		x	5/9
Causeway ECM	x	x	x	x		x	x		x	7/9
CMiC	x	x	x	x		x	x	x	x	8/9
ComputerEase	x	x	x	x			x		x	6/9
ConEst	x	x	x	x			x		x	6/9
ConstructJob	x	x	x	x			x		x	6/9

Table 2-2a WPMS current systems and PMBOK® knowledge areas mapping.

WPMS Software	PMBOK Knowledge Areas									
	Integration Management	Scope Management	Time Management	Cost Management	Quality Management	Human Resource Management	Communication Management	Risk Management	Procurement Management	Proportion of covered
Corecon	x	x	x	x	x		x		x	7/9
CTSpace Solutions	x	x		x	x		x		x	6/9
EADOC	x	x	x	x	x		x	x	x	8/9
e-Builder	x	x	x	x			x		x	6/9
HotProject	x	x	x	x			x			5/9
IFS	x	x	x	x	x	x	x			7/9
Paskr	x	x	x	x			x		x	6/9
Primavera P6	x	x	x	x	x	x	x		x	8/9
Procore	x	x	x	x	x		x		x	7/9
Viecon ProjectWise	x	x	x	x	x	x	x	x	x	9/9
Prolog	x	x	x	x			x		x	6/9
Viewpoint	x	x	x	x			x		x	6/9
VISTA 2020	x	x	x	x			x		x	6/9

Table 2-2b WPMS current systems and PMBOK® knowledge areas mapping.

All the PMBOK® knowledge areas are covered by current WPMS. All current systems support integration, scope, and communication project management functions. Quality, human resource and risk project management functions receive the least amount of coverage by current systems.

In this research, ideas about a standard for WPMS are presented. A main idea is to design a WPMS standard driven by PMI project management standard (PMBOK®). In addition, features and functionalities of WPMS are included in the proposed standard outline.

These are presented in the next chapter.

3 Research Methodology and Data Analysis

Defining a new industry-wide standard is a very time consuming endeavor. A lot of different stakeholders' interests and visions (people, firms, private and public organizations) have to be discussed and taken into account (or not) in the new standard. Also, different methodologies have to be used, such as a combination of qualitative analysis (interviews) and quantitative analysis (surveys) in the standard definition process. In this context, this thesis presents an *outline* (structure and some ideas) of a proposed standard for WPMS. The proposed standard will be named *WPMS Standard Outline* in this document.

3.1 Methodology

The proposed WPMS Standard Outline was obtained using the following steps:

1. Identification of features of WPMS based on existing systems and existing literature.
2. Identification of a project management standard and extract from it desired functionalities. The PMI PMBOK[®] was chosen as a project management standard in this work.
3. Mapping PMBOK[®] inputs and outputs to features of WPMS. The PMBOK[®] inputs and outputs were mapped to features of WPMS.
4. Analysis of the mapping (results) and outcomes from other studies to obtain the proposed WPMS Standard Outline.

This chapter covers steps 1, 2 and 3. The next chapter will present the proposed WPMS Standard Outline (Step 4).

3.2 Identification of Features and Functionalities of WPMS

Before making a mapping between the PMBOK[®] processes inputs/outputs and the WPMS features, features of WPMS available in the literature were identified.

3.2.1 WPMS Features

Document management and collaborative communication management tools are the main features and functions of WPMS (Skibniewski 2009). Today, Information Technology evolution and changes enable WPMS developers to develop WPMS with more features, e.g., organization features (security settings, user administration), and management features (workflow management /team management) (Wilkinson 2005).

A set of features for WPMS were grouped into four: document management, communication tools and add-ons, system administration, and workflow management (Liu and Kagioglu 2008). In the sequel each group is presented together with its features.

Features Associated with Document Management

Most WPMS in the construction industry are involved in documents and drawings. (Skibniewski 2009) The document management system has three characteristics: first, it is an electronic document management (EDM); second, all documents are processed in the internet work-based system via a web browser; third, the system is in the enterprise level, (Skibniewski 2009). In addition, document file sharing is the main function of WPMS (Liu and Kagioglu 2008)

According to the function concepts described above, the Document Management function can be associated with 13 features. Table 3-1 shows those features and their descriptions for the Document Management function (Liu and Kagioglu 2008).

Features	Description
File upload/download	Projects files can be uploaded/ downloaded between extranets and users' computers
File encryption	Files are stored and exchanged with the protection of encryption technologies, e.g. SSL (Secure Socket Layer)
File sharing, publishing	Extranets provide repository for the team members to store and share project files. Members can access the published files at their authentication
Remote viewing	With suitable plug-ins, files can be viewed remotely without having to download to the local computers.
Mark-up/ revise	Authorized team members can mark-up, revise, audit, sign-for, distribute files. Digital signatures is needed to acknowledge the rights and for future reference.
Notification	When new files are added, or files/ directories are changed, team members will receive message notifying this change.
Search tools	Like search engine, it enables team member to find files in the whole database by title, author, date, category, etc. It saves users' time to locate the files
Track record and history	It allows team members to track who accessed the system, used the file, edited documents.
Printing-out	Team members can send the online document through extranet systems to their printing centre in workplaces.
Multi-format files support	It enables users to read multiple format of documents, e.g. CAD drawings, MS Office documents, PDF files. On same conditions, it allows the users convert files to compatible formats.
File storage and archival	It allows team members to back-up project files online and offline. Upon completion of project, files are copied and archived to storage media.
Workflow Integration	It provides interface to Workflow management, allowing team members exchange data to and from project calendar, schedule, event management, etc.
Disaster protection	Extranets can be accessed 7/24, providing stable, reliable and responsible services. Daily maintenance and other technical measures are required to avoid the disconnection and crash of server.

Table 3-1 Features Associated with Document Management (Liu and Kagioglou 2008).

Features Associated with Communication Tools plus Add-ons

Conversations or formal information by the communication management field need to be documented in the document management system (Gould and Joyce 2009). A smart project manager should know how to use appropriate communication technology in his project so as to save costs and time. Examples of communication tools in project management are video conference technology, e-mail, instant message, web-camera sets, etc.

According to the function concepts described above, the Communication Tools plus Add-ons function can be associated with seven features. Table 3-2 shows features and descriptions of the Communication Tools plus Add-ons function (Liu and Kagioglu 2008).

Features	Description
E-mail	Common methods for team members to informal communication. Members participated in project can use their standard software or web-based messaging system to send message to any or all team members
Instant Messenger	Instant messaging provides the convenience of instant discussion among concurrently online users.
Discussion forum	Team members can post questions, responded and comments about a particular issue. The discussions and decision processing procedure are recorded and stored for reference.
Audio/ Video conferencing	Online group meeting and even daily communication can be done by using NetMeeting, VOIP calling.
Web-cam facility	It allows team members to monitor project in real-time remotely using web-camera. Live images can be snapshotted, transferred and stored.
e-Tendering	IT streamlines tender issue and promotes communication with bidders. The bidders can enquire, view, download, submit and track online.
Healthy & Safety file	It allow involved participants to create and configure healthy & safety files while projects is going. It gives immediate, easy access to documents required by law.

Table 3-2 Features Associated with Communication Tools (Liu and Kagioglou 2008).

Features Associated with System Administration

In WPMS, a System Administration module works as the organizing or controlling module with three distinctive features: security settings, user administration and information administration (Wilkinson 2005). Project data types, e.g. industry data, project data, user data, are flown safely, accurately, and stably according to function of this feature. For example, a security feature named “secure login” will manage the project team members’ login names and passwords, which should be kept in secure. For user administration feature, a feature named “user directory” functions as the feature that manages project participants’ information according to their project roles and

responsibilities. Moreover, the system administration features have functions that allow users to create websites by themselves that are both highly navigable and attractive.

According to the function concepts described above, the System Administration function can be associated with 12 features. Table 3-3 shows those features and their descriptions for the System Administration function (Liu and Kagioglu 2008).

Features Associated with System Administration	
Features	Description
User Profiling	Team members are classified hierarchically and allocated suitable user name and passwords. Only the authorized users can access the extranet system and files according to the rights they are assigned
User Directory	Team members are listed in online directory, allowing other users to find names, jobs, titles, company details, addresses, telephone numbers, email address, etc.
Project Panel	Users arrive the project panel once they sign in. It show a summary of all activities of project and provides the user shortcuts to access the details.
Multi-project Support	It enables the users to manage multiple projects in a single extranet product. The users can change their use from one project to another
Customization	Extranets can be customized by the users. The color, style, company's logo can be adjusted to their preferences.
Project Inbox	It works like an email inbox for notifying and posting things like contact reports, meeting minutes, website drafts, confirmation requests, etc.
Project Template	Template allows users to set-up their own project web easily and efficiently. Standardized files/ directories can be generated automatically.
Access control/ Monitor	It enables the users to control the access to extranet system and monitor the system's health, daily operation and maintenance, etc.
Handheld device support	Extranets provide proper interface for the users to access and operate on PDA, mobile phone, etc.
Security	Measures, either software or hardware, are adopted in extranet systems, to protect system's safety, document's safety, users' privacy, etc.
Localization	System's default language can be changed to meet local users' needs. Multiple language are supported for the international markets.
Client-end software	It enables the users have a dedicated software in their computer systems.

Table 3-3 Features Associated with System Administration (Liu and Kagioglou 2008).

Features Associated with Workflow Management

All automatic tasks that users are reminded of or those retrieved from the system automatically are results directed from the Workflow Management functionalities such as the “Project Calendar” feature, this feature reminds users of project events by the Calendar platform created in the WPMS. According to the function concepts described above, the System Administration function can be associated with six features. Table 3-4 shows those features and their descriptions for the Workflow Management function (Liu and Kagioglu 2008).

Features	Description
E-mail	Common methods for team members to informal communication. Members participated in project can use their standard software or web-based messaging system to send message to any or all team members
Instant Messenger	Instant messaging provides the convenience of instant discussion among concurrently online users.
Discussion forum	Team members can post questions, responded and comments about a particular issue. The discussions and decision processing procedure are recorded and stored for reference.
Audio/ Video conferencing	Online group meeting and even daily communication can be done by using NetMeeting, VOIP calling.
Web-cam facility	It allows team members to monitor project in real-time remotely using web-camera. Live images can be snapshotted, transferred and stored.
e-Tendering	IT streamlines tender issue and promotes communication with bidders. The bidders can enquire, view, download, submit and track online.
Healthy & Safety file	It allow involved participants to create and configure healthy & safety files while projects is going. It gives immediate, easy access to documents required by law.

Table 3-4 Features Associated with Workflow Management (Liu and Kagioglou, 2008).

3.3 Identification of a Project Management Standard Desired Functionalities

The PMI PMBOK® (PMI 2008) was chosen as the project management standard to drive the definition of the proposed WPMS Standard outline. The PMBOK® was chosen because it is used worldwide in the project management field and is a recognized project management standard. It defines a body of knowledge, which any industry can build their specific best practices for its application area. Each knowledge area in the PMBOK® identifies processes (*high level*) and inputs/outputs (*specific level*).

The description of each process can be understood as a desired WPMS *high-level functionality*. Examples of a desired WPMS *high-level functionality* are shown below.

1.1 Develop Project Charter—WPMS supports the development of a project charter.

1.4 Monitor and Control Project Work—WPMS offers functionalities for monitoring and controlling project works.

The description of inputs and outputs can be understood as a desired WPMS *specific-level functionality*. Examples of a desired WPMS *specific functionality* are shown below.

1.1.1.1 Project Statement of Work—WPMS provides functionalities for creating, updating, transferring, etc. project statement of work file(s).

1.3.1.3 Enterprise environmental factors—WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).

Appendix A shows the complete set of desired functionalities for WPMS based on the PMBOK® processes and input/output artifacts.

3.4 Mapping PMBOK[®] Inputs –Outputs to WPMS Features

The mapping process between the WPMS features and all inputs/outputs of the PMBOK[®] constitutes other relevant idea of the research. The result of this integration can answer the question: what appropriate WPMS features are adequate to establish a WPMS standard? In addition, results from the research study of Nan Liu and Michail Kagioglu (2008) that classified the appropriate features of WPMS in the market can be used in the definition of the proposed standard. It also can answer a question “which WPMS in the market today are the closest to a desired standard?”

Most WPMS involves Document Management and Collaborative Communication technologies (Skibniewski 2009) so the mapping process will present only two tables (mappings): *Document Management Features*, and *Communication Tools plus Add-ons Features*.

Also, the *System Administration Features* and *Workflow Management Features* do not aim to be project management features, but are concerned with organizing and managing web-based system features to increase project participants’ pleasure and needs, e.g., safety, convenience, and aesthetics appearance.

However, because of the importance of System Administration features and Workflow Management features (Liu and Kagioglou 2008), which each identify the needs of System Administration features and Workflow Management features in a WPMS, the two sets of features are also considered in the proposed WPMS Standard Outline.

The PMBOK[®] processes inputs and outputs were mapped to the features presented by Nan Liu and Michail Kagioglu (2008). The resulting mapping is presented in Appendix B.

Each cell of table in Appendix B was filled with the following labels: “1”, “0”, and “N/A”. The meaning of each label is described as follows.

- Label “1” means the processes’ input/output needs that feature in a proposed WPM Standard.
- Label “0” means the processes input/output do not need that feature in a proposed WPMS Standard.
- Label “N/A” means the processes’ input/output have no relationship or cannot be matched to any features.

Table in Appendix B was filling using the author experience and perception about WPMS and project management.

After finishing the mapping process, the results were translated into a percentage figure for each feature, which was obtained by the sum of all labels divided by the total number of processes input/output considered. A feature greater or equal to 60% (based on the author perception) can be a feature to be considered in the developing of the proposed WPMS Standard Outline.

4 Proposed WPMS Standard Outline

This chapter presents the main result of the thesis a proposed WPMS Standard Outline.

The proposed WPMS Standard Outline structure is show in Figure 4-1.

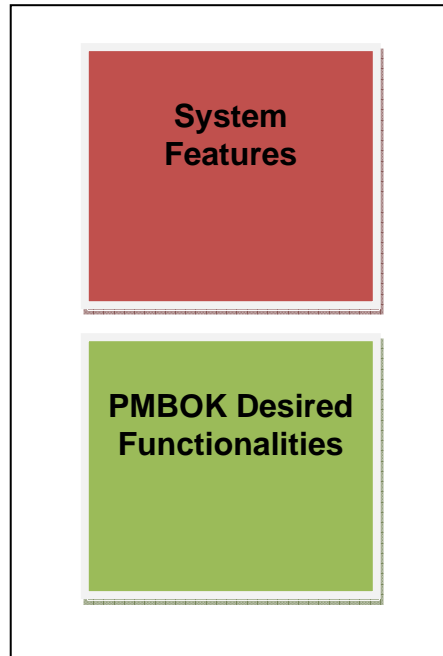


Figure 4-1 WPMS Standard Outline structure.

Analyzing the desired functionalities of WPMS obtained from the PMBOK® processes' inputs and outputs (Table A-1), together with the mapping (Table B-1), the following WPMS Standard is proposed.

4.1.1 WPMS System Features

Based on the resulting mapping (Appendix B) the following features are proposed.

Document Management Features

Figure 4-2 shows the result of the mapping for each feature of the Document Management function.

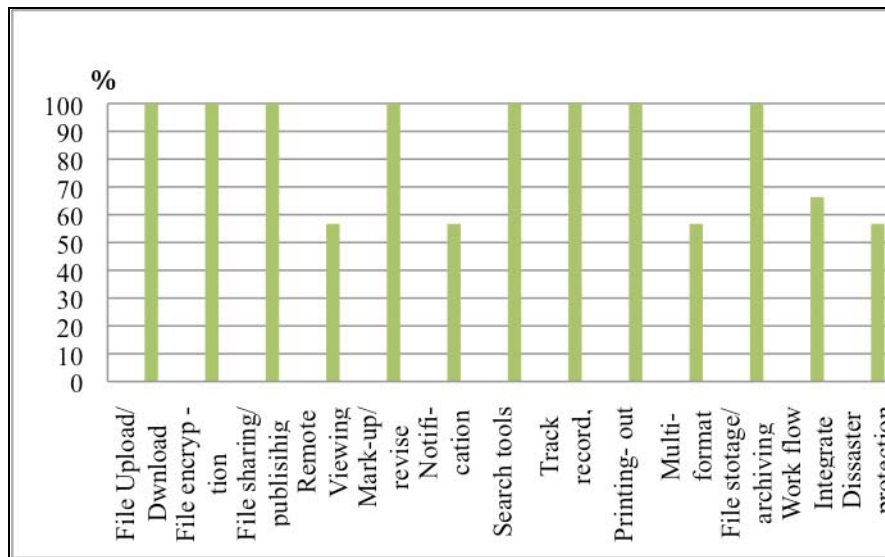


Figure 4-2 PMBOK® and WPMS Document Management Features result.

There are nine document management features needed to develop WPMS, which are listed below.

1. File upload/ download
2. File encryption
3. File sharing/publishing
4. Mark-up/Revise
5. Search Tools

6. Track Record and history
7. Printing-out
8. File storage and archival
9. Workflow Integration

Communication Tools plus Add-ons Features

Figure 4-3 shows the result of the mapping for each feature of the Communication Tools plus Add-ons function.

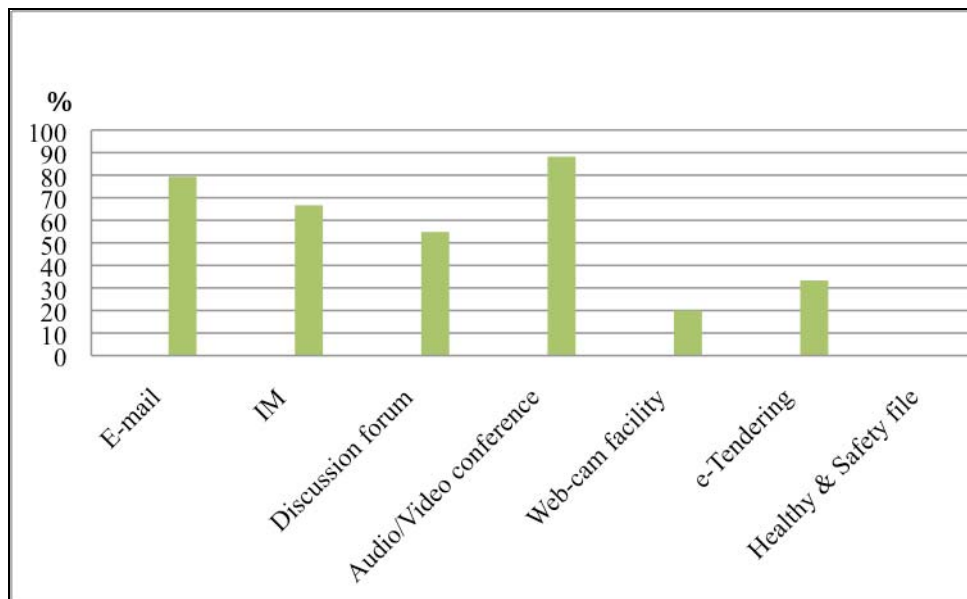


Figure 4-3 PMBOK® and WPMS Communication Tools plus Add-ons Features result.

There are four communication tools plus add-ons features needed to develop WPMS, and they are listed below.

1. Email
2. Instant Message
3. Audio/ Video Conference
4. Audio/ Video Conference

System Administration Management Features

Figure 4-4 shows the result of the mapping for each feature of the System Administration function.

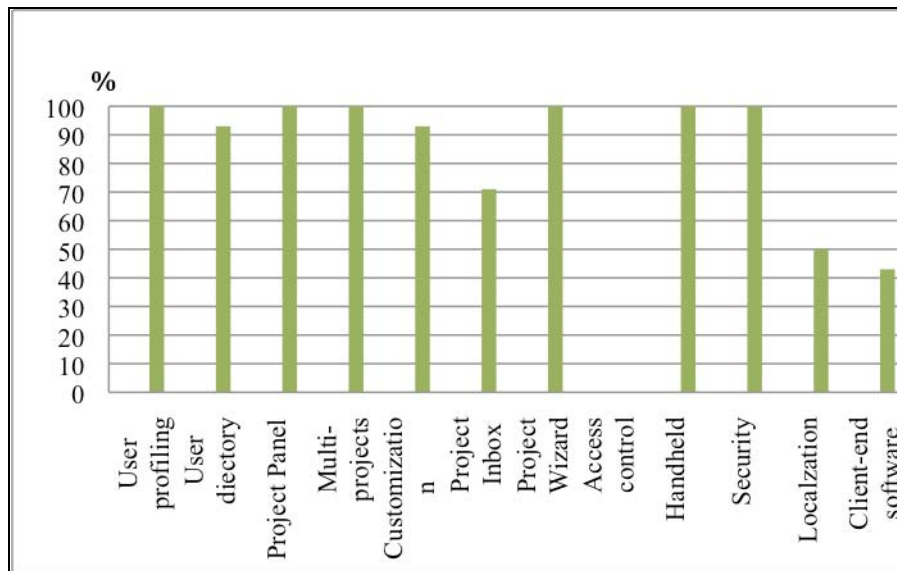


Figure 4-4 PMBOK® and WPMS System Administration Features result

There are nine system administration management features needed to develop WPMS listed below.

1. User Profiling
2. User directory

3. Project Panel
4. Multi project support
5. Customization of Project Web
6. Project Inbox
7. Access control and monitor
8. Security
9. Project Wizard/ template

Workflow Management Features

Figure 4-5 shows the result of the mapping for each feature of the Workflow Management function.

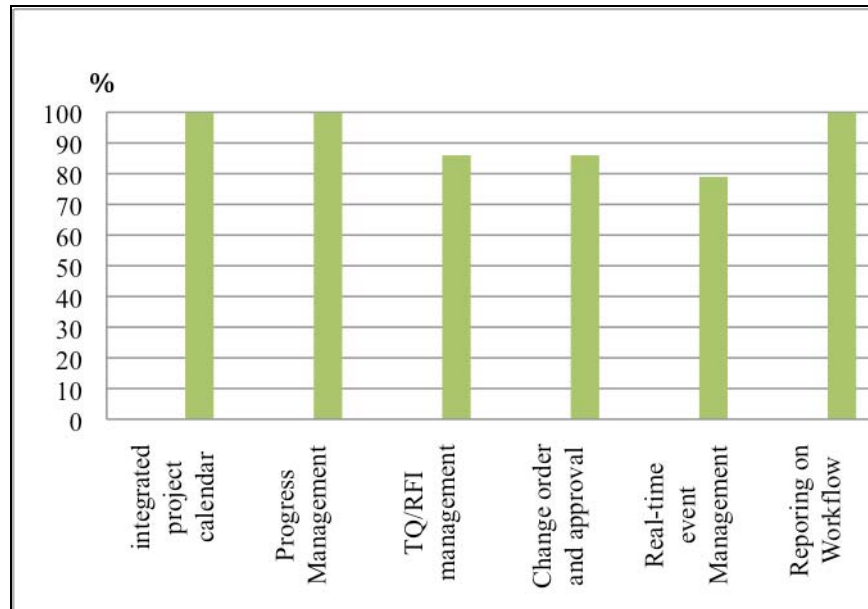


Figure 4-5 PMBOK® and WPMS Workflow Management Features result.

Six workflow management features are needed to develop WPMS, and are listed below.

1. Integrated project calendar
2. Progress management
3. Reporting on workflow
4. TQ, RFI management
5. Change order and approval
6. Real Time event management

4.1.2 PMBOK® Desired Functionalities

Besides the identified features presented in the previous section, the proposed WPMS Standard Outline also includes the identified PMBOK® desired functionalities. Those functionalities are shown in Appendix A (Table A-1).

A total of 42 high level functionalities are proposed together with 336 specific functionalities related with PMBOK®'s processes' inputs and outputs artifacts. Examples of such functionalities are given below.

High Level Functionalities:

- 1.1 Develop Project Charter: WPMS supports the development of a Project Charter.
- 1.3 Direct and Manage Project Execution: WPMS offers functionalities for directing and managing the project work.
- 1.4 Monitor and Control Project Work: WPMS offers functionalities for monitoring and controlling the project work.

Specific Functionalities:

1.1.2.1 Project Charter: WPMS provides functionalities for creating, updating, transferring, etc., project charter file(s).

1.2.1.2 Outputs from planning processes: WPMS provides functionalities for retrieving output file(s) (from planning processes).

1.2.1.3 Enterprise environmental factors: WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors' file(s).

1.3.1.2 Approved Change Requests: WPMS provides functionalities for project change management.

5 Conclusion and Future Research

This chapter summarizes the main contributions of the research, its limitations, and points out opportunities for further developments.

5.1 Main Contributions

The main contributions of the research are as follows:

1. Mapping of PMI's PMBOK[®] project management areas of knowledge to the existing WPMS functional features.
2. An updated list of current WPMS in the market. Twenty-eight WPMS solutions were identified in the research work and a PMBOK[®] coverage analysis was conducted.
3. A WPMS Standard Outline was proposed, including descriptions of its structure system features, and project management functionalities.

As an additional contribution, the proposed WPMS Standard Outline can be used for comparison analysis purposes in a better way than the work presented in (Liu and Kagioglou 2008). The justification for that is that the system features presented in the WPMS Standard Outline were deeply analyzed (using the mapping step in our methodology – Step 3) and are highly desirable (according to the researcher analysis and experience).

5.2 Research Limitations

As mentioned above, the WPMS Standard Outline was created by the researcher's personal analysis, so it is recommended that a validation process should be done in the next research step to find out the real features desired in a WPMS Standard. A survey or

other methodology could be used for this validation process. Once the validation process is done, one could have a legitimate standard that can be used for comparison purposes in an acquisition process.

This research result cannot be used as a model to create an industry WPMS Standard prototype, as the definition of a standard requires a great deal of effort. With the limited time and nature of a master's thesis study, the results can only be the outline of WPMS Standard as a first step towards a full WPMS Standard in the future. The work can be the first step towards the implementation of prototype software compatible with a future WPMS Standard. Figure 4-1 shows the basic functional scheme of a proposed compatible system, including the User Interface and desired features modules.

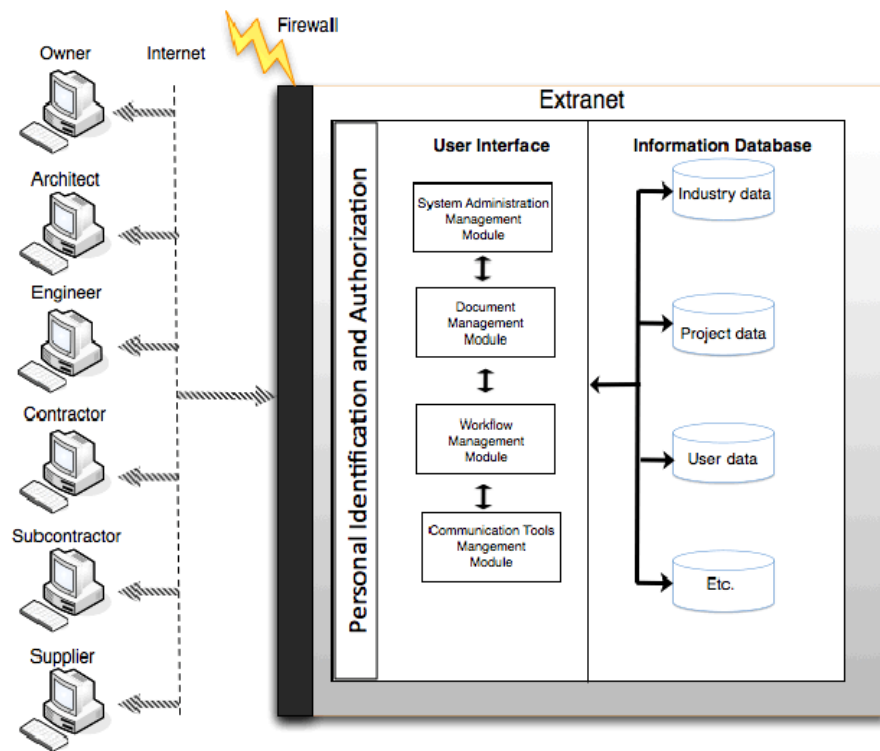


Figure 5-1 Basic functional structure of a WPMS compatible system (adapted from (Nitithamyong and Skibniewski 2004))

5.3 Further Research

The research work pointed out some possibilities for new lines of studies and new opportunities for improvements.

5.3.1 Validation of the Proposed WPMS Standard Outline

Further research will draw on this structure in the development and administration of new interviews, new surveys, or other methodologies for both customers and service providers. New results, in addition to a final patent search, will solidify an abstract definition of what the appropriate WPMS features and functionalities for success and failure are that may be used in future modeling and evaluation of services specific to a given project.

5.3.2 Integration Features

To increase capability and reliability of the WPMS, the integration process between WPMS Standard and/or the Supply Chain Management, the Customer Requirement Management, the Enterprise Resource Planning System, or the Building Information Modeling BIM, etc. could be considered. However, the success or failure of WPMS depends on such as the customer concerns about cost and ease of use of a product, System Stability and Security, and Sustainability. These are the next step to consider in approaching WPMS Standards.

5.3.3 Create prototypes and data/object model of WPMS Standards

The long-term plan for developing a standards program needs to be spread out over several phases, which include research, concept development, prototyping, beta deployment, production and education programming.

5.3.4 Changeability of Standards

To increase the WPMS Standard efficiency in the future, other project management standards, e.g., ICB V 3.0, P2M, or even the under developing ISO 21500, which are globally used and recognized project management professional as well as the PMBOK® can be considered.

Appendix A

PMBOK Desired Functionalities – Integration Management

PMBOK® Processes	WPMS desired functionality
1.1 Develop Project Charter .1 Inputs .1 Project statement of work .2 Business case .3 Contract .4 Enterprise environmental factors .5 Organizational process assets .2 Outputs .1 Project Charter	WPMS supports the development of a Project Charter. WPMS provides functionalities for creating, updating, transferring, etc. project statement of work file(s) WPMS provides functionalities for creating, updating, transferring, etc. Business case file(s). WPMS provides functionalities for creating, updating, transferring, etc. contract file(s). WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s). WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s). WPMS provides functionalities for creating, updating, transferring, etc. project charter file(s).
1.2 Develop Project Management Plan .1 Inputs .1 Project Charter .2 Outputs from planning processes .3 Enterprise environmental factors .4 Organizational process assets .2 Outputs .1 Project Management plan	WPMS supports the development of a Project Management Plan. Functionalities 1.1.2.1 WPMS provides functionalities for output (from planning processes) file(s) transferring. WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s). WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s). WPMS provides functionalities for creating, updating, transferring, etc. project charter file(s).
1.3 Direct and Manage Project Execution .1 Inputs .1 Project management plan .2 Approved change requests	WPMS offers functionalities for directing and managing the project work. Functionalities 1.1.2.1 WPMS provides functionalities for project change management.

PMBOK® Processes	WPMS desired functionality
.3 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.4 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Deliverables	WPMS provides functionalities for creating, updating, transferring, etc. project deliverables information file(s)
.2 Work Performance Information	WPMS provides functionalities for creating, updating, transferring, etc. Work Performance Information file(s).
.3 Change Requests	WPMS provides functionalities for change requests management.
1.4 Monitor and Control Project Work	WPMS offers functionalities for monitoring and controlling project work.
.1 Inputs	
.1 Project management plan	Functionalities 1.1.2.1
.2 Performance reports	WPMS provides functionalities for creating, updating, transferring, etc. Performance reports file(s).
.3 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.4 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Change requests	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.2 Project management plan updates	WPMS provides functionalities for creating, updating, transferring, etc. project management plan file(s).
.3 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
1.5 Perform Integrated Change Control	WPMS offers functionalities for performing integrated change control.
.1 Inputs	
.1 Project management plan	Functionalities 1.2.2.1
.2 Work performance information	Functionalities 1.3.2.2
.3 Change requests	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.4 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.5 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Change requests status updates	WPMS provides functionalities for change requests management.

PMBOK® Processes	WPMS desired functionality
.2 Project management plan updates	WPMS provides functionalities for creating, updating, transferring, etc. project management plan file(s).
.3 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
1.6 Close Project or Phase	WPMS offers functionalities for monitoring and controlling project work.
.1 Inputs	
.1 Project management plan	WPMS provides functionalities for creating, updating, transferring, etc. project management plan file(s).
.2 Accepted deliverables	WPMS provides functionalities for creating, updating, transferring, etc. project deliverables information file(s)
.3 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Final product, service, or Result Transition	WPMS provides functionalities for creating, updating, transferring, etc. final product file(s).
.2 Organizational process assets updates	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).

PMBOK Desired Functionalities – Scope Management

PMBOK® Processes	WPMS desired functionality
2.1 Collect Requirements	WPMS offers functionalities for collecting requirements.
.1 Inputs	
.1 Project Charter	Functionalities 1.1.2.1
.2 Stakeholder register	WPMS provides functionalities for creating, updating, transferring, etc., stakeholder register file(s)
.2 Outputs	
.1 Requirements documentation	WPMS provides functionalities for creating, updating, transferring, etc., requirements documentation file(s)
.2 Requirement management plan	WPMS provides functionalities for creating, updating, transferring, etc., requirements management plan file(s)
.3 Requirements traceability matrix	WPMS provides functionalities for creating, updating, transferring, etc., requirements traceability matrix file(s)
2.2 Define Scope	WPMS offers functionalities for defining project scope.
.1 Inputs	
.1 Project Charter	Functionalities 1.1.2.1
.2 Requirements documentation	Functionalities 2.1.2.1
.3 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Project scope management	WPMS provides functionalities for creating, updating, transferring, etc., project scope management file(s)
.2 Project documentation updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
2.3 Create WBS	WPMS offers functionalities for creating Work Break down Structure (WBS).
.1 Inputs	
.1 Project scope management	Functionalities 2.2.2.1
.2 Requirements documentation	Functionalities 2.1.2.1
.3 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 WBS	WPMS provides functionalities for creating, updating, transferring, etc. WBS file(s).
.2 WBS Dictionary	WPMS provides functionalities for creating, updating, transferring, etc. WBS dictionary(s).

PMBOK® Processes**WPMS desired functionality**

.3 Scope Baseline	WPMS provides functionalities for creating, updating, transferring, etc. scope baseline file(s).
.4 Project documentation updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
2.4 Verify Scope	WPMS offers functionalities for verifying scope (WBS).
.1 Inputs	
.1 Project management plan	WPMS provides functionalities for creating, updating, transferring, etc. project management plan file(s).
.2 Requirements documentation	Functionalities 2.1.2.1
.3 Requirements traceability matrix	Functionalities 2.1.2.2
.4 Validated Deliverables	Retrieve from 5.3 (Perform Quality Control)
.2 Outputs	
.1 Accepted deliverables	WPMS provides functionalities for creating, updating, transferring, etc. project deliverables information file(s)
.2 Change requests	WPMS provides functionalities for change requests management.
.3 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
2.5 Control Scope	WPMS offers functionalities for controlling scope (WBS).
.1 Inputs	
.1 Project management plan	Functionalities 1.2.2.1
.2 Work performance information	WPMS provides functionalities for creating, updating, transferring, etc. work performance information file(s).
.3 Requirements documentation	Functionalities 2.1.2.1
.4 Requirements traceability matrix	Functionalities 2.1.2.3
.5 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Work performance measurements	WPMS provides functionalities for creating, updating, transferring, etc. work performance measurement(s).
.2 Organizational process assets updates	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.3 Change requests	WPMS provides functionalities for change requests management.
.4 Project management plan updates	WPMS provides functionalities for creating, updating, transferring, etc. work performance plan file(s).
.5 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).

PMBOK Desired Functionalities – Time Management

PMBOK® Processes	WPMS desired functionality
3.1 Define Activities	WPMS offers functionalities for defining project activities.
.1 Inputs	
.1 Scope Baseline	Functionalities 2.3.2.3
.2 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.3 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Activity list	WPMS provides functionalities for creating, updating, transferring, etc. project activity file(s).
.2 Activity attributes	WPMS provides functionalities for creating, updating, transferring, etc. project activity file(s).
.3 Milestone list	WPMS provides functionalities for creating, updating, transferring, etc. project activity file(s).
3.2 Sequence Activities	WPMS offers functionalities sequencing activities.
.1 Inputs	
.1 Activity list	Functionalities 3.1.2.1
.2 Activity attributes	Functionalities 3.1.2.2
.3 Milestone list	Functionalities 3.1.2.3
.4 Project scope statement	WPMS provides functionalities for creating, updating, transferring, etc., project scope management file(s)
.5 Organizational Process Assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Project schedule network diagrams	WPMS provides functionalities for creating, updating, transferring, etc. project schedule.
.2 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
3.3 Estimate Activity Resource	WPMS offers functionalities for estimating activity resource.
.1 Inputs	
.1 Activity list	Functionalities 3.1.2.1
.2 Activity attributes	Functionalities 3.1.2.2
.3 Resource calendars	Functionalities from 6.2.2.2 (Project Human Resource Management) and 9.2.2.3 (Project Procurement Management)

PMBOK® Processes	WPMS desired functionality
.4 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.5 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Activity resource requirements	WPMS provides functionalities for creating, updating, transferring, etc. activity resource requirements file(s).
.2 Resource breakdown structure	WPMS provides functionalities for creating, updating, transferring, etc. resource breakdown structure file(s).
.3 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
3.4 Estimate Activity Durations	WPMS offers functionalities for estimating activity durations.
.1 Inputs	
.1 Activity list	Functionalities 3.1.2.1
.2 Activity attributes	Functionalities 3.1.2.2
.3 Activity resource requirements	Functionalities 3.3.2.1
.4 Resource calendars	Functionalities from 3.3.1.3 and 6.2.2.2
.5 Project scope statement	Functionalities 3.2.1.4
.6 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.7 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Activity duration estimates	WPMS provides functionalities for creating, updating, transferring, etc. project schedule.
.2 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
3.5 Develop Schedule	WPMS offers functionalities for developing schedule.
.1 Inputs	
.1 Activity list	Functionalities 3.1.2.1
.2 Activity attributes	Functionalities 3.1.2.2
.3 Project schedule network diagrams	Functionalities 3.2.2.1
.4 Activity resource requirements	Functionalities 3.3.2.1

PMBOK® Processes	WPMS desired functionality
.5 Resource calendars	Functionalities 3.3.1.3
.6 Activity duration estimates	Functionalities 3.4.2.1
.7 Project scope statement	Functionalities from 3.2.1.4
.8 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.9 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Project schedule	WPMS provides functionalities for creating, updating, transferring, etc. project schedule.
.2 Schedule baseline	WPMS provides functionalities for creating, updating, transferring, etc. project schedule.
.3 Schedule data	WPMS provides functionalities for creating, updating, transferring, etc. project schedule.
.4 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
3.6 Control Schedule	
WPMS offers functionalities for controlling schedule.	
.1 Inputs	
.1 Project management plan	Functionalities 1.2.2.1
.2 Project schedule	Functionalities 3.5.2.1
.3 Work performance information	WPMS provides functionalities for creating, updating, transferring, etc. work performance information file(s).
.4 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Work performance measurements	WPMS provides functionalities for creating, updating, transferring, etc. work performance measurement(s).
.2 Organizational process assets updates	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.3 Change requests	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.4 Project management plan updates	WPMS provides functionalities for creating, updating, transferring, etc. project management plan file(s).
.5 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).

PMBOK Desired Functionalities – Cost Management

PMBOK® Processes	WPMS desired functionality
4.1 Estimates Costs	WPMS offers functionalities for costs estimating.
.1 Inputs	
.1 Scope baseline	Functionalities 2.2.2.1, Functionalities 2.3.2.1, and Functionalities 2.3.2.2
.2 Project schedule	Functionalities 3.3, and Functionalities 3.4.2.1
.3 Human resource plan	Functionalities 6.1.2.1
.4 Risk register	Functionalities 8.2.2.1
.5 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.6 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Activity cost estimates	WPMS provides functionalities for creating, updating, transferring, etc. activity cost estimating file(s).
.2 Basis estimates	WPMS provides functionalities for creating, updating, transferring, etc. basis estimating file(s).
.3 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
4.2 Determine Budget	WPMS offers functionalities for determining budgets.
.1 Inputs	
.1 Activity cost estimates	Functionalities 4.1.2.1
.2 Basis estimates	Functionalities 4.1.2.2
.3 Scope baseline	WPMS provides functionalities for creating, updating, transferring, etc. project scope baseline file(s).
.4 Project schedule	Functionalities 3.5.2.1
.5 Resource calendars	WPMS provides functionalities for creating, updating, transferring, etc. resource file(s).
.6 Contracts	Functionalities 9.2.2.2
.7 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Cost performance baseline	WPMS provides functionalities for creating, updating, transferring, etc. cost performance baseline file(s).

PMBOK® Processes**WPMS desired functionality**

.2 Project funding requirements	WPMS provides functionalities for creating, updating, transferring, etc. cost performance baseline file(s).
.3 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. cost performance baseline file(s).
4.3 Control Costs	WPMS offers functionalities for controlling costs.
.1 Inputs	
.1 Project management plan	Functionalities 1.2.2.1
.2 Project funding requirements	Functionalities 4.2.2.2
.3 Work performance information	WPMS provides functionalities for creating, updating, transferring, etc. work performance plan file(s).
.4 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Work performance measurements	WPMS provides functionalities for creating, updating, transferring, etc. work performance plan file(s).
.2 Budget forecasts	WPMS provides functionalities for creating, updating, transferring, etc budget forecasting file(s).
.3 Organizational process assets updates	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.4 Change requests	WPMS provides functionalities for creating, updating, transferring, etc. project change management.
.5 Project management plan updates	WPMS provides functionalities for creating, updating, transferring, etc. work performance plan file(s).
.6 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).

PMBOK Desired Functionalities – Quality Management

PMBOK® Processes	WPMS desired functionality
5.1 Plan Quality	WPMS offers functionalities for quality plan
.1 Inputs	
.1 Scope baseline	Functionalities 2.2.2.1, Functionalities 2.3.2.1, and Functionalities 2.3.2.2
.2 Stakeholder register	Functionalities 7.1.3.
.3 Cost performance baseline	Functionalities 4.2.2.1
.4 Schedule baseline	Functionalities 3.5.2.2
.5 Risk register	Functionalities 8.2.2.1
.6 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.7 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Quality management plan	WPMS provides functionalities for creating, updating, transferring, etc. quality management plan
.2 Quality metrics	WPMS provides functionalities for creating, updating, transferring, etc. quality metrics file (s).
.3 Quality checklists	WPMS provides functionalities for creating, updating, transferring, etc. quality checklists file(s).
.4 Project improvement plan	WPMS provides functionalities for creating, updating, transferring, etc. project improvement plan file(s).
.5 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
5.2 Perform Quality Assurance	WPMS offers functionalities for performing quality assurance.
.1 Inputs	
.1 Project management plan	Functionalities 1.2.2.1
.2 Quality metrics	Functionalities 5.1.2.2
.3 Work performance information	WPMS provides functionalities for creating, updating, transferring, etc. work performance plan file(s).
.4 Quality control measurements	WPMS provides functionalities for creating, updating, transferring, etc. quality control measurement plan file(s).
.2 Outputs	
.1 Organizational process assets updates	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Change requests	WPMS provides functionalities for creating, updating, transferring, etc. project change management

PMBOK® Processes	WPMS desired functionality
.4 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s)
5.3 Perform Quality Control	WPMS offers functionalities for performing quality control.
.1 Inputs	
.1 Project management plan	Functionalities 1.2.2.1
.2 Quality metrics	Functionalities 5.1.2.2
.3 Quality checklists	Functionalities 5.1.2.3
.4 Work performance measurements	WPMS provides functionalities for creating, updating, transferring, etc. work performance plan file(s).
.5 Approved change requests	WPMS provides functionalities for creating, updating, transferring, etc. project change management
.6 Deliverables	Functionalities 1.3.2.1
.7 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Quality control measurements	WPMS provides functionalities for creating, updating, transferring, etc. project quality control measurements file(s).
.2 Validated changes	WPMS provides functionalities for creating, updating, transferring, etc. project change management
.3 Validated deliverables	WPMS provides functionalities for creating, updating, transferring, etc. project validated deliverables file(s).
.4 Organizational process assets updates	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.5 Change requests	WPMS provides functionalities for creating, updating, transferring, etc. project validated deliverables file(s).
.6 Project Management plan updates	WPMS provides functionalities for creating, updating, transferring, etc. project management plan file(s).
.7 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).

PMBOK Desired Functionalities – Human Resources Management

PMBOK® Processes	WPMS desired functionality
6.1 Develop Human Resource Plan	WPMS offers functionalities for developing human resource plan.
.1 Inputs	
.1 Activity resource requirements	Functionalities 3.3.2.1
.2 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.3 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Human resource plan	WPMS provides functionalities for creating, updating, transferring, etc. project human resource plan file(s).
6.2 Acquire Project Team	PMS offers functionalities for acquiring project team.
.1 Inputs	
.1 Project Management plan	Functionalities 1.2.2.1
.2 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.3 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Project staff assignments	WPMS provides functionalities for creating, updating, transferring, etc. project staff assignment file(s).
.2 Resource calendars	WPMS provides functionalities for creating, updating, transferring, etc. resource calendars file(s).
.3 Project management plan updates	The Project Management Plan from 1.2.2.1 is updated. Instant IM or e-mail tools is used once communication is needed. (e.g. Human resources plan)
6.3 Develop Project Team	WPMS offers functionalities for developing project team.
.1 Inputs	
.1 Project staff assignments	Functionalities 6.2.2.1
.2 Project management plan	Functionalities 1.2.2.1 and 6.1.2.1
.3 Resource calendars	WPMS provides functionalities for creating, updating, transferring, etc. resource calendars file(s).
.2 Outputs	
.1 Team performance assessments	WPMS provides functionalities for creating, updating, transferring, etc. team assignment file(s).
.2 Enterprise environmental factors updates	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).

PMBOK® Processes	WPMS desired functionality
6.4 Management Project Team	WPMS offers functionalities for managing project team.
.1 Inputs	
.1 Project staff assignments	Functionalities 6.2.2.1
.2 Project management plan	Functionalities 1.2.2.1 and 6.1.2.1
.3 Team performance assessments	Functionalities 1.2.2.1 and 6.3.2.1
.4 Performance reports	WPMS provides functionalities for creating, updating, transferring, etc performance reports file(s).
.5 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Enterprise environmental factors updates	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.2 Organizational process assets updates	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.3 Change requests	WPMS provides functionalities for creating, updating, transferring, etc. change management
.4 Project management plan updates	WPMS provides functionalities for creating, updating, transferring, etc. project management plan file(s)

PMBOK Desired Functionalities – Communication Management

PMBOK® Processes	WPMS desired functionality
7.1 Identify Stakeholders	WPMS offers functionalities for identifying stakeholders
.1 Inputs	
.1 Project charter	Functionalities 1.1.2.1
.2 Procurement documents	Functionalities 9.1.3.4
.3 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s)
.4 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Stakeholder register	WPMS provides functionalities for creating, updating, transferring, etc. stakeholder register file(s)
.2 Stakeholder management strategy	WPMS provides functionalities for creating, updating, transferring, etc. stakeholder management strategy file(s).
7.2 Plan Communications	WPMS offers functionalities for planning project communication.
.1 Inputs	
.1 Stakeholder register	Functionalities 7.1.2.1
.2 Stakeholder management strategy	Functionalities 7.1.2.2
.3 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.4 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Communications management plan	WPMS provides functionalities for creating, updating, transferring, etc. project communication plan file(s).
.2 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
7.3 Distribute Information	WPMS offers functionalities for distributing information.
.1 Inputs	
.1 Project management plan	Functionalities 1.2.2.1 and 7.2.2.1
.2 Performance reports	WPMS provides functionalities for creating, updating, transferring, etc. project performance report file(s).
.3 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).
.2 Outputs	
.1 Organizational process assets updated	WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).

PMBOK® Processes**WPMS desired functionality**

7.4 Manage Stakeholders Expectations

WPMS offers functionalities for managing stakeholders expectations.

.1 Inputs**.1 Stakeholder register**

Functionalities 7.1.2.1

.2 Stakeholder management strategy

Functionalities 7.1.2.2

.3 Project management plan

Functionalities 1.2.2.1 and 7.2.2.1

.4 Issue log

WPMS provides functionalities for creating, updating, transferring, etc. issue log file(s).

.5 Change log

WPMS provides functionalities for creating, updating, transferring, etc. change log file(s).

.6 Organizational process assets

WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).

.2 Outputs**.1 Organizational process assets updates**

WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).

.2 Change requests

WPMS provides functionalities for creating, updating, transferring, etc. change management.

.3 Project management plan updates

The Project Management Plan from 1.2.2.1 is updated. Instant Messenger or e-mail tools is used once communication is needed. (e.g. A Communication management plan)

.4 Project document updates

WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).

7.5 Report Performance

WPMS supports the reporting performance

.1 Inputs**.1 Project management plan**

Functionalities 1.2.2.1 and 7.2.2.1

.2 Work performance information

WPMS provides functionalities for creating, updating, transferring, etc. work performance information file(s).

.3 Work performance measurements

WPMS provides functionalities for creating, updating, transferring, etc. work performance measurements file(s)

.4 Budget forecasts

Functionalities 4.3.2.2

.5 Organizational process assets

WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).

.2 Outputs**.1 Performance reports**

WPMS provides functionalities for creating, updating, transferring, etc. performance reports file(s).

.2 Organizational process assets updates

WPMS provides functionalities for creating, updating, transferring, etc. organizational process assets file(s).

.3 Change requests

WPMS provides functionalities for creating, updating, transferring, etc. change management.

PMBOK Desired Functionalities – Risk Management

PMBOK® Processes	WPMS desired functionality
8.1 Plan Risk Management	WPMS offers functionalities planning risk management.
.1 Inputs	
.1 Project scope management	Functionalities 2.2.2.1
.2 Cost management plan	WPMS provides functionalities for creating, updating, transferring, etc. cost management plan file(s).
.3 Schedule management plan	Retrieve from 3.0 (Project Time Management)
.4 Communication management plan	Functionalities 7.2.2.1
.5 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.6 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc organizational process assets file(s).
.2 Outputs	
.1 Risk management plan	WPMS provides functionalities for creating, updating, transferring, etc. risk management plan file(s).
8.2 Identify Risks	WPMS offers functionalities for identifying risks.
.1 Inputs	
.1 Risk management plan	Functionalities 8.1.2.1
.2 Activity cost estimates	Functionalities 4.1.2.1
.3 Activity duration estimates	Functionalities 3.4.2.1
.4 Scope baseline	Functionalities 2.2.2.1
.5 Stakeholder register	Functionalities 7.1.3.1
.6 Cost management plan	Functionalities 8.1.1.2
.7 Schedule management plan	Functionalities 3.0 (Project Time Management)
.8 Quality management plan	Functionalities 5.1.2.1
.9 Project documents	WPMS provides functionalities for creating, updating, transferring, etc. project documents file(s).
.10 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.11 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc organizational process assets file(s).

PMBOK® Processes**WPMS desired functionality**

.2 Outputs**.1 Risk register**

WPMS provides functionalities for creating, updating, transferring, etc risk register file(s).

8.3 Performance Qualitative Risk Analysis

WPMS offers functionalities for performance qualitative risk analysis.

.1 Inputs**.1 Risk register**

Functionalities 8.2.2.1

.2 Risk management plan

Functionalities 8.1.2.1

.3 Project scope statement

Functionalities 2.2.2.1

.4 Organizational process assets

WPMS provides functionalities for creating, updating, transferring, etc organizational process assets file(s).

.2 Outputs**.1 Risk register updates**

WPMS provides functionalities for creating, updating, transferring, etc risk register file(s).

8.4 Perform Quantitative Risk Analysis

WPMS offers functionalities for performing quantitative risk analysis

.1 Inputs**.1 Risk register**

Functionalities 8.2.2.1

.2 Risk management plan

Functionalities 8.1.2.1

.3 Cost management plan

Functionalities 8.1.1.2

.4 Schedule management plan

Functionalities 3.0 (Project Time Management)

.5 Organizational process assets

WPMS provides functionalities for creating, updating, transferring, etc organizational process assets file(s).

.2 Outputs**.1 Risk register updates**

WPMS provides functionalities for creating, updating, transferring, etc risk register file(s).

8.5 Plan Risk Response

WPMS offers functionalities for planning risk response.

.1 Inputs**.1 Risk register**

Functionalities 8.2.2.1

.2 Risk management plan

Functionalities 8.1.2.1

.2 Outputs**.1 Risk register updates**

WPMS provides functionalities for creating, updating, transferring, etc risk register file(s)

.2 Risk-related contract decisions

WPMS provides functionalities for creating, updating, transferring, etc risk related contract decisions file(s).

PMBOK® Processes	WPMS desired functionality
.3 Project management plan updates	WPMS provides functionalities for creating, updating, transferring, etc project management plan file(s).
.4 Project document updates	WPMS provides functionalities for creating, updating, transferring, project documents file(s).
8.6 Monitor and Control Risks	WPMS offers functionalities for monitoring and controlling risks.
.1 Inputs	
.1 Risk register	Functionalities 8.2.2.1
.2 Project management plan	Functionalities 1.2.2.1 and 8.5.2.3
.3 Work performance information	WPMS provides functionalities for creating, updating, transferring, etc work performance information file(s).
.4 Performance reports	Functionalities 7.5.2.1
.2 Outputs	
.1 Risk register updates	WPMS provides functionalities for creating, updating, transferring, etc risk register file(s).
.2 Organizational process assets updates	WPMS provides functionalities for creating, updating, transferring, etc organizational process assets file(s).
.3 Change requests	WPMS provides functionalities for creating, updating, transferring, etc change management
.4 Project management plan updates	WPMS provides functionalities for creating, updating, transferring, etc project management plan file(s).
.5 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).

PMBOK Desired Functionalities – Procurement Management

PMBOK® Processes	WPMS desired functionality
9.1 Plan Procurements	WPMS offers functionalities for planning procurements
.1 Inputs	
.1 Scope baseline	Functionalities 2.3.2.3
.2 Requirements documentation	WPMS provides functionalities for creating, updating, transferring, etc requirements documents.
.3 Teaming agreements	WPMS provides functionalities for creating, updating, transferring, etc teaming agreement file(s).
.4 Risk register plan	Functionalities 8.2.2.1
.5 Risk-related contract decisions	Functionalities 8.5.2.2
.6 Activity resource requirements	Functionalities 3.3.2.1
.7 Project schedule	Functionalities 3.5.2.1
.8 Activity cost estimates	Functionalities 4.1.2.1
.9 Cost performance baseline	Functionalities 4.2.2.1
.10 Enterprise environmental factors	WPMS provides functionalities for creating, updating, transferring, etc. enterprise environmental factors file(s).
.11 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc organizational process assets file(s).
.2 Outputs	
.1 Procurement management plan	WPMS provides functionalities for creating, updating, transferring, etc procurement management file(s).
.2 Procurement statements of work	WPMS provides functionalities for creating, updating, transferring, etc procurement statement of work file(s).
.3 Make-or-buy decisions	WPMS provides functionalities for creating, updating, transferring, etc make-or-buy decisions file(s).
.4 Procurement documents	WPMS provides functionalities for creating, updating, transferring, etc procurement management file(s).
.5 Source selection criteria	WPMS provides functionalities for creating, updating, transferring, etc source selection criteria file(s).
.6 Change requests	WPMS provides functionalities for creating, updating, transferring, etc change requests file(s).
9.2 Conduct Procurements	WPMS offers functionalities for conducting procurements.
.1 Inputs	
.1 Project management plan	Functionalities 1.2.3.1
.2 Procurement documents	Functionalities 9.1.2.4

PMBOK® Processes	WPMS desired functionality
.3 Source selection criteria	Functionalities 9.1.2.5
.4 Qualified seller list	WPMS provides functionalities for creating, updating, transferring, etc qualified seller list file(s).
.5 Seller proposals	WPMS provides functionalities for creating, updating, transferring, etc seller proposals file(s).
.6 Project documents	Functionalities 8.5.1.1 and 8.5.2.2
.7 Make-or-buy decisions	Functionalities 9.1.2.3
.8 Teaming agreements	Functionalities 9.1.1.3
.9 Organizational process assets	WPMS provides functionalities for creating, updating, transferring, etc organizational process assets file(s).
.2 Outputs	
.1 Selected sellers	WPMS provides functionalities for creating, updating, transferring, etc selected seller file(s).
.2 Procurement contract award	WPMS provides functionalities for creating, updating, transferring, etc procurement contract award file(s).
.3 Resource calendars	WPMS provides functionalities for creating, updating, transferring, etc resource calendars file(s).
.4 Change requests	WPMS provides functionalities for creating, updating, transferring, etc change request files.
.5 Project management plan updates	WPMS provides functionalities for creating, updating, transferring, etc project management plan file(s).
.6 Project document updates	WPMS provides functionalities for creating, updating, transferring, etc. project document file(s).
9.3 Administer Procurements Execution	WPMS offers functionalities for administering procurements execution
.1 Inputs	
.1 Procurement documents	Functionalities 9.1.2.4
.2 Project management plan	Functionalities 9.1.2.1
.3 Contract	Functionalities 9.2.2.2
.4 Performance reports	Functionalities 7.5.2.1
.5 Approved change requests	WPMS provides functionalities for creating, updating, transferring, etc approved change requests file(s).
.6 Work performance information	Functionalities 1.3.2.2
.2 Outputs	
.1 Procurement documentation	WPMS provides functionalities for creating, updating, transferring, etc procurement documentation file(s).

PMBOK® Processes	WPMS desired functionality
.2 Organizational process assets updates	WPMS provides functionalities for creating, updating, transferring, etc organizational process assets file(s).
.3 Change requests	WPMS provides functionalities for creating, updating, transferring, etc change requests file(s).
.4 Project management plan updates	WPMS provides functionalities for creating, updating, transferring, etc project management plan file(s).
9.4 Close Procurements	WPMS offers functionalities for closing procurements.
.1 Inputs	
.1 Project management plan	Functionalities 1.2.2.1
.2 Procurement documentation	Functionalities 9.3.2.1
.2 Outputs	
.1 Close procurements	WPMS provides functionalities for close procurements.
.2 Organizational process assets updates	WPMS provides functionalities for creating, updating, transferring, etc organizational process assets file(s).

Appendix B

In Appendix B showing mapping between PMBOK and WPMS Features

Document Management Features – Integration Management

PMBOK Project Integration Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
1.1 Develop Project Charter													
.1 Inputs													
.1 Project statement of work	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Business case	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Contract	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.5 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tools & Techniques													
.1 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Project Charter	1	1	1	1	1	1	1	1	1	1	1	1	1
1.2 Develop Project Management Plan													
.1 Inputs													
.1 Project Charter	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Outputs from planning processes	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Integration Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.3 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tools & Techniques													
.1 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs	1	1	1	0	1	0	1	1	1	0	1	0	0
.1 Project Management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
1.3 Direct and Manage Project Execution													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Approved change requests	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tools & Techniques													
.1 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 PM Information System	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Deliverables	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Integration Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Work Performance Information	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Change Requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project Management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project Document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
1.4 Monitor and Control Project Work													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Performance reports	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tools & Techniques													
.1 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Integration Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
1.5 Perform Integrated Change Control													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Work performance information	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.5 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tools & Techniques													
.1 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 PM Information System	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Change requests status updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Integration Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
1.6 Close Project or Phase													
1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Accepted deliverables	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tools & Techniques													
.1 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Final product, service, or Result Transition	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Organizational process assets updates	1	1	1	1	1	1	1	1	1	1	1	1	1

Document Management Features – Scope Management

PMBOK Project Scope Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
2.1 Collect Requirements													
.1 Inputs													
.1 Project Charter	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Stakeholder register	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Interviews	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Focus groups	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Facilitated workshops	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Group creativity techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Group decision making techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Questionnaires and surveys	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Observations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.8 Prototypes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Requirements documentation	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Scope Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Requirement management plan	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Requirements traceability matrix	1	1	1	0	1	0	1	1	1	0	1	0	0
2.2 Define Scope													
.1 Inputs													
.1 Project Charter	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Requirements documentation	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Organizational process assets	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Tool &Techniques													
.1 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Product Analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Alternatives identifications	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Facilitated workshops	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Project scope management	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project documentation updates	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Scope Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
2.3 Create WBS													
.1 Inputs													
.1 Project scope management	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Requirements documentation	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool &Techniques													
.1 Decomposition	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 WBS	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 WBS Dictionary	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Scope Baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project documentation updates	1	1	1	1	1	1	1	1	1	1	1	1	1
2.4 Verify Scope													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Requirements documentation	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Scope Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.3 Requirements traceability matrix	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Validated Deliverables	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Tool &Techniques													
.1 Inspection	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Accepted deliverables	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
2.5 Control Scope													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Work performance information	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Requirements documentation	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Requirements traceability matrix	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool &Techniques													
.1 Variance analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Scope Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.3 Outputs													
.1 Work performance measurements	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Organizational process assets updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1

Document Management – Time Management

PMBOK Project Time Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
3.1 Define Activities													
.1 Inputs													
.1 Scope Baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Decomposition	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Rolling wave planning	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Templates	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Expert judgments	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Activity list	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Activity attributes	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Milestone list	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Time Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
3.2 Sequence Activities													
.1 Inputs													
.1 Activity list	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Activity attributes	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Milestone list	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Project scope statement	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Organizational Process Assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Precedence diagramming method (PDM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Dependency determination	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Applying leads and lags	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Schedule network templates	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Project schedule network diagrams	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Time Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
3.3 Estimate Activity Resource													
.1 Inputs													
.1 Activity list	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Activity attributes	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Resource calendars	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.5 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool &Techniques													
.1 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Alternatives analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Publishing estimating data	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Bottom-up estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Project management software	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Activity resource requirements	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Time Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Resource breakdown structure	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
3.4 Estimate Activity Durations													
.1 Inputs													
.1 Activity list	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Activity attributes	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Activity resource requirements	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Resource calendars	1	1	1	0	1	0	1	1	1	0	1	0	0
.5 Project scope statement	1	1	1	0	1	0	1	1	1	0	1	0	0
.6 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.7 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Analogous estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Parametric estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Time Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.4 Three-point estimates	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Reserve analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Activity duration estimates	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
3.5 Develop Schedule													
.1 Inputs													
.1 Activity list	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Activity attributes	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Project schedule network diagrams	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Activity resource requirements	1	1	1	0	1	0	1	1	1	0	1	0	0
.5 Resource calendars	1	1	1	0	1	0	1	1	1	0	1	0	0
.6 Activity duration estimates	1	1	1	0	1	0	1	1	1	0	1	0	0
.7 Project scope statement	1	1	1	1	1	1	1	1	1	1	1	1	1
.8 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Time Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.9 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Schedule network analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Critical path method	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Critical chain method	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 What-if scenario analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Applying leads lags	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Applying leads and lags	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Schedule compression	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.8 Scheduling tool	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Project schedule	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Schedule baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Schedule data	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Time Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
3.6 Control Schedule													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project schedule	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Work performance information	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Performance reviews	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Variance analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Project management software	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Resource leveling	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 What-if scenario analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Adjusting leads and lags	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Schedule compression	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.8 Scheduling tool	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Time Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.3 Outputs													
.1 Work performance measurements	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Organizational process assets updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1

Document Management – Cost Management

PMBOK Project Cost Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
4.1 Estimates Costs													
.1 Inputs													
.1 Scope baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project schedule	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Human resource plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Risk register	1	1	1	0	1	0	1	1	1	0	1	0	0
.5 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.6 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool&Techniques													
.1 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Analogue estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Parametric estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Bottom-up estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Three-point estimates	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Cost Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.6 Reserve analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Cost of quality	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.8 Project management software	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.9 Vendor bid analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Activity cost estimates	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Basis estimates	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
4.2 Determine Budget													
.1 Inputs													
.1 Activity cost estimates	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Basis estimates	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Scope baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project schedule	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Resource calendars	1	1	1	0	1	0	1	1	1	0	1	0	0
.6 Contracts	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Cost Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.7 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Cost aggregation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Reserve analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Historical relationships	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Funding limit reconciliation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Outputs													
.1 Cost performance baseline	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Project funding requirements	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
4.3 Control Costs													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project funding requirements	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Work performance information	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Cost Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.4 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Outputs													
.1 Work performance measurements	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Budget forecasts	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Organizational process assets updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.6 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1

Document Management – Quality Management

PMBOK Project Quality Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
5.1 Plan Quality													
.1 Inputs													
.1 Scope baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Stakeholder register	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Cost performance baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Schedule baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Risk register	1	1	1	1	1	1	1	1	1	1	1	1	1
.6 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.7 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Cost-benefit analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Cost of Quality	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Control charts	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Benchmarking	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Design of experiments	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Quality Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.6 Statistical sampling	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Flowcharting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.8 Proprietary quality management methodologies	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.9 Additional quality planning tools	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Quality management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Quality metrics	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Quality checklists	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project improvement plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
5.2 Perform Quality Assurance													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Quality metrics	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Work performance information	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Quality Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.4 Quality control measurements	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Tool &Techniques													
.1 Plan Quality and Perform Quality Control tools and techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Quality audits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Process analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Organizational process assets updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Project Management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
5.3 Perform Quality Control													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Quality metrics	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Quality checklists	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Work performance measurements	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Quality Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.5 Approved change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.6 Deliverables	1	1	1	1	1	1	1	1	1	1	1	1	1
.7 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Cause and effect diagrams	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Control charts	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Flowcharting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Histogram	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Pareto chart	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Run chart	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Scatter diagram	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.8 Statistical sampling	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.9 Inspection	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.10 Approved change requests review	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Quality control measurements	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Quality Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Validated changes	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Validated deliverables	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Organizational process assets updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.5 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.6 Project Management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.7 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1

Document Management – Human Resources Management

PMBOK Project Human Resource Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
6.1 Develop Human Resource Plan													
.1 Inputs													
.1 Activity resource requirements	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Organization charts and position description	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Networking	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Organizational theory	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Human resource plan	1	1	1	1	1	1	1	1	1	1	1	1	1
6.2 Acquire Project Team													
.1 Inputs													
.1 Project Management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Human Resource Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Tool &Techniques													
.1 Pre-assignment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Negotiation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Acquisition	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Virtual teams	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Project staff assignments	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Resource calendars	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
6.3 Develop Project Team													
.1 Inputs													
.1 Project staff assignments	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Resource calendars	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool &Techniques													
.1 Interpersonal skills	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Training	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Human Resource Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.3 Team-building activities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Ground rules	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Co-location	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Recognition and rewards	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Team performance assessments	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Enterprise environmental factors updates	1	1	1	0	1	0	1	1	1	0	1	0	0
6.4 Management Project Team													
.1 Inputs													
.1 Project staff assignments	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Team performance assessments	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Performance reports	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool &Techniques													
.1 Observation and conversation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Human Resource Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Project performance appraisals	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Conflict management	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Issue log	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Interpersonal skills	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Enterprise environmental factors updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Organizational process assets updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1

Document Management – Communication Management

PMBOK Project Communication Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
7.1 Identify Stakeholders													
.1 Inputs													
.1 Project charter	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Procurement documents	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Stakeholder analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Stakeholder register	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Stakeholder management strategy	1	1	1	1	1	1	1	1	1	1	1	1	1
7.2 Plan Communications													
.1 Inputs													
.1 Stakeholder register	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Communication Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Stakeholder management strategy	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tools and Techniques													
.1 Communication requirements analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Communication technology	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Communication models	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Communication methods	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Communications management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
7.3 Distribute Information													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Performance reports	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Communication Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Tools and Techniques													
.1 Communication method	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Organizational process assets updated	1	1	1	0	1	0	1	1	1	0	1	0	0
7.4 Manage Stakeholders Expectations													
.1 Inputs													
.1 Stakeholder register	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Stakeholder management strategy	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Issue log	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Change log	1	1	1	1	1	1	1	1	1	1	1	1	1
.6 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tools and Techniques													
.1 Communication methods	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Interpersonal skills	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Management skills	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Communication Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.3 Outputs													
.1 Organizational process assets updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
7.5 Report Performance													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Work performance information	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Work performance measurements	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Budget forecasts	1	1	1	0	1	0	1	1	1	0	1	0	0
.5 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tools and Techniques													
.1 Variance analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Forecasting methods	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Communication Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.3 Communication methods	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Report systems	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Performance reports	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Organizational process assets updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1

Document Management – Risk Management

PMBOK Project Risk Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
8.1 Plan Risk Management													
.1 Inputs													
.1 Project scope management	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Cost management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Schedule management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Communication management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.6 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool &Techniques													
.1 Planning meetings and analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Risk management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
8.2 Identify Risks													
.1 Inputs													
.1 Risk management plan	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Risk Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Activity cost estimates	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Activity duration estimates	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Scope baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Stakeholder register	1	1	1	0	1	0	1	1	1	0	1	0	0
.6 Cost management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.7 Schedule management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.8 Quality management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.9 Project documents	1	1	1	1	1	1	1	1	1	1	1	1	1
.10 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.11 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool &Techniques													
.1 Documentation reviews	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Information gathering techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Checklist analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Assumptions analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Risk Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.5 Diagramming techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 SWOT analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Risk register	1	1	1	0	1	0	1	1	1	0	1	0	0
8.3 Performance Qualitative Risk Analysis													
.1 Inputs													
.1 Risk register	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Risk management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Project scope statement	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Risk probability and impact assessment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Probability and impact matrix	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Risk data quality assessment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Risk Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.4 Risk categorization	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Risk urgency assessment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Risk register updates	1	1	1	0	1	0	1	1	1	0	1	0	0
8.4 Perform Quantitative Risk Analysis													
.1 Inputs													
.1 Risk register	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Risk management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Cost management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Schedule management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Data gathering and representation techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Quantitative risk analysis and modeling techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Risk Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.3 Outputs													
.1 Risk register updates	1	1	1	0	1	0	1	1	1	0	1	0	0
8.5 Plan Risk Response													
.1 Inputs													
.1 Risk register	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Risk management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Tool & Techniques													
.1 Strategies for negative risks or threats	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Strategies for positive risks or opportunities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Contingent response strategies	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Risk register updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Risk-related contract decisions	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Risk Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
8.6 Monitor and Control Risks													
.1 Inputs													
.1 Risk register	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Work performance information	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Performance reports	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Tool & Techniques													
.1 Risk reassessment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Risk audits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Variance and trend analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Technical performance measurement	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Reserve analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Status meetings	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Risk register updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Organizational process assets updates	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Risk Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.3 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1

Document Management – Procurement Management

PMBOK Project Procurement Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
9.1 Plan Procurements													
.1 Inputs													
.1 Scope baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Requirements documentation	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Teaming agreements	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Risk register plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Risk-related contract decisions	1	1	1	1	1	1	1	1	1	1	1	1	1
.6 Activity resource requirements	1	1	1	1	1	1	1	1	1	1	1	1	1
.7 Project schedule	1	1	1	1	1	1	1	1	1	1	1	1	1
.8 Activity cost estimates	1	1	1	0	1	0	1	1	1	0	1	0	0
.9 Cost performance baseline	1	1	1	1	1	1	1	1	1	1	1	1	1
.10 Enterprise environmental factors	1	1	1	0	1	0	1	1	1	0	1	0	0
.11 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Procurement Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Tool &Techniques													
.1 Make-or-by analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Contract types	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Procurement management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Procurement statements of work	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Make-or-buy decisions	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Procurement documents	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Source selection criteria	1	1	1	0	1	0	1	1	1	0	1	0	0
.6 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
9.2 Conduct Procurements													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Procurement documents	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Source selection criteria	1	1	1	0	1	0	1	1	1	0	1	0	0

PMBOK Project Procurement Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.4 Qualified seller list	1	1	1	0	1	0	1	1	1	0	1	0	0
.5 Seller proposals	1	1	1	0	1	0	1	1	1	0	1	0	0
.6 Project documents	1	1	1	1	1	1	1	1	1	1	1	1	1
.7 Make-or-buy decisions	1	1	1	0	1	0	1	1	1	0	1	0	0
.8 Teaming agreements	1	1	1	1	1	1	1	1	1	1	1	1	1
.9 Organizational process assets	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool & Techniques													
.1 Bidder conferences	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Proposal Evaluation techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Independent estimates	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Advertising	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Internet search	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Procurement negotiations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Selected sellers	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Procurement Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Procurement contract award	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Resource calendars	1	1	1	0	1	0	1	1	1	0	1	0	0
.4 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
.6 Project document updates	1	1	1	1	1	1	1	1	1	1	1	1	1
9.3 Administer Procurements Execution													
.1 Inputs													
.1 Procurement documents	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.3 Contract	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Performance reports	1	1	1	1	1	1	1	1	1	1	1	1	1
.5 Approved change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.6 Work performance information	1	1	1	0	1	0	1	1	1	0	1	0	0
.2 Tool &Techniques													
.1 Contract change control system	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMBOK Project Procurement Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Procurement performance reviews	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Inspections and audits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Performances reporting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Payment systems	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Claims administration	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Records management system	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Procurement documentation	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Organizational process assets updates	1	1	1	0	1	0	1	1	1	0	1	0	0
.3 Change requests	1	1	1	1	1	1	1	1	1	1	1	1	1
.4 Project management plan updates	1	1	1	1	1	1	1	1	1	1	1	1	1
9.4 Close Procurements													
.1 Inputs													
.1 Project management plan	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Procurement documentation	1	1	1	1	1	1	1	1	1	1	1	1	1

PMBOK Project Procurement Management Process	File Upload/Download	File encryption	File sharing/publishing	Remote Viewing	Mark-up/revise	Notification	Search tools	Track record, History	Printing-out	Multi-format support	File storage/archiving	Work flow Integrate	Disaster protection
.2 Tool &Techniques													
.1 Procurement audits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Negotiated settlements	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Records management system	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs													
.1 Close procurements	1	1	1	1	1	1	1	1	1	1	1	1	1
.2 Organizational process assets updates	1	1	1	1	1	1	1	1	1	1	1	1	1

Communication Tools plus Add-ons Features
Communication Tools plus Add-ons Features – Integration Management

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
1.1 Develop Project Charter							
.1 Inputs							
.1 Project statement of work	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Business case	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Contract	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tools & Techniques							
.1 Expert judgment	1	1	1	1	N/A	N/A	N/A
.3 Outputs							
.1 Project Charter	N/A	N/A	N/A	N/A	N/A	N/A	0
1.2 Develop Project Management Plane							
.1 Inputs							
.1 Project Charter	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Outputs from planning processes	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tools & Techniques							
.1 Expert judgment	1	1	1	1	N/A	N/A	N/A

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.3 Outputs							
.1 Project Management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
1.3 Direct and Manage Project Execution							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Approved change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tools & Techniques							
.1 Expert judgment	1	1	1	1	1	N/A	N/A
.2 PM Information System	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Deliverables	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Work Performance Information	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Change Requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project Management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project Document updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
1.4 Monitor and Control Project Work							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Performance reports	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tools & Techniques							
.1 Expert judgment	1	1	1	1	1	N/A	N/A
.3 Outputs							
.1 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
1.5 Perform Integrated Change Control							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Work performance information	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.4 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tools & Techniques							
.1 Expert judgment	1	1	1	1	N/A	N/A	N/A
.2 PM Information System	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Change requests status updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
1.6 Close Project or Phase							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Accepted deliverables	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tools & Techniques							
.1 Expert judgment	0	0	0	1	0	N/A	N/A
.3 Outputs							
.1 Final product, service, or Result Transition	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Communication Tools plus Add-ons Features – Scope Management

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
2.1 Collect Requirements							
.1 Inputs							
.1 Project Charter	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Stakeholder register	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool & Techniques							
.1 Interviews	1	0	0	0	N/A	N/A	N/A
.2 Focus groups	1	0	0	0	N/A	N/A	N/A
.3 Facilitated workshops	0	0	0	1	N/A	N/A	N/A
.4 Group creativity techniques	0	0	0	1	N/A	N/A	N/A
.5 Group decision making techniques	0	0	0	1	N/A	N/A	N/A
.6 Questionnaires and surveys	1	1	1	0	N/A	N/A	N/A
.7 Observations	1	0	0	0	N/A	N/A	N/A
.8 Prototypes	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Requirements documentation	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Requirement management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Requirements traceability matrix	N/A	N/A	N/A	N/A	N/A	N/A	0
2.2 Define Scope							
.1 Inputs							
.1 Project Charter	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.2 Requirements documentation	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2Tool &Techniques							
.1 Expert judgment	1	1	1	1	N/A	N/A	N/A
.2 Product Analysis	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Alternatives identifications	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Facilitated workshops	0	0	0	1	N/A	N/A	N/A
.3 Outputs							
.1 Project scope management	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project documentation updates	N/A	N/A	N/A	N/A	N/A	N/A	
2.3 Create WBS							
.1 Inputs							
.1 Project scope management	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Requirements documentation	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2Tool &Techniques							
.1 Decomposition	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Outputs							
.1 WBS	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 WBS Dictionary	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.3 Scope Baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project documentation updates	N/A	N/A	N/A	N/A	N/A	N/A	0
2.4 Verify Scope							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Requirements documentation	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Requirements traceability matrix	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Validated Deliverables	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool & Techniques							
.1 Inspection	N/A	N/A	N/A	N/A	0	N/A	N/A
.3 Outputs							
.1 Accepted deliverables	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
2.5 Control Scope							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Work performance information	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Requirements documentation	N/A	N/A	N/A	N/A	N/A	N/A	0

Process	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.4 Requirements traceability matrix	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool & Techniques							
.1 Variance analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Work performance measurements	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Communication Tools plus Add-ons Features – Time Management

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
3.1 Define Activities							
.1 Inputs							
.1 Scope Baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Decomposition	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Rolling wave planning	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Templates	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Expert judgments	1	1	1	1	0	0	N/A
.3 Outputs							
.1 Activity list	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Activity attributes	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Milestone list	N/A	N/A	N/A	N/A	N/A	N/A	0
3.2 Sequence Activities							
.1 Inputs							
.1 Activity list	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Activity attributes	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Milestone list	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project scope statement	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Organizational Process Assets	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.2 Tool & Techniques							
.1 Precedence diagramming method (PDM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Dependency determination	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Applying leads and lags	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Schedule network templates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Outputs							
.1 Project schedule network diagrams	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
3.3 Estimate Activity Resource							
.1 Inputs							
.1 Activity list	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Activity attributes	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Resource calendars	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool & Techniques							
.1 Expert judgment	1	1	1	1	0	0	N/A
.2 Alternatives analysis	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Publishing estimating data	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Bottom-up estimating	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Project management software	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Outputs							
.1 Activity resource requirements	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.2 Resource breakdown structure	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
3.4 Estimate Activity Durations							
.1 Inputs							
.1 Activity list	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Activity attributes	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Activity resource requirements	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Resource calendars	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Project scope statement	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.7 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Expert judgment	1	1	1	1	0	0	N/A
.2 Analogous estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Parametric estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Three-point estimates	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Reserve analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Activity duration estimates	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
3.5 Develop Schedule							
.1 Inputs							
.1 Activity list	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Activity attributes	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.3 Project schedule network diagrams	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Activity resource requirements	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Resource calendars	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Activity duration estimates	N/A	N/A	N/A	N/A	N/A	N/A	0
.7 Project scope statement	N/A	N/A	N/A	N/A	N/A	N/A	0
.8 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.9 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Schedule network analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Critical path method	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Critical chain method	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 What-if scenario analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Applying leads lags	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Applying leads and lags	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Schedule compression	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.8 Scheduling tool	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Project schedule	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Schedule baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Schedule data	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
3.6 Control Schedule							
.1 Inputs							

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project schedule	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Work performance information	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Performance reviews	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Variance analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Project management software	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Resource leveling	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 What-if scenario analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Adjusting leads and lags	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Schedule compression	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.8 Scheduling tool	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Work performance measurements	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Communication Tools plus Add-ons Features – Cost Management

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
4.1 Estimates Costs							
.1 Inputs							
.1 Scope baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project schedule	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Human resource plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Risk register	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Expert judgment	1	1	1	1	0	0	N/A
.2 Analogue estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Parametric estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Bottom-up estimating	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Three-point estimates	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Reserve analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Cost of quality	N/A	N/A	N/A	N/A	N/A	N/A	0
.8 Project management software	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.9 Vendor bid analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Activity cost estimates	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Basis estimates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
4.2 Determine Budget							
.1 Inputs							
.1 Activity cost estimates	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Basis estimates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Scope baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project schedule	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Resource calendars	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Contracts	N/A	N/A	N/A	N/A	N/A	N/A	0
.7 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Cost aggregation	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Reserve analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Historical relationships	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Funding limit reconciliation	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Cost performance baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project funding requirements	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
4.3 Control Costs							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project funding requirements	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Work performance information	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Outputs							
.1 Work performance measurements	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Budget forecasts	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Communication Tools plus Add-ons Features – Quality Management

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
5.1 Plan Quality							
.1 Inputs							
.1 Scope baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Stakeholder register	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Cost performance baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Schedule baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Risk register	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.7 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Cost-benefit analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Cost of Quality	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Control charts	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Benchmarking	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Design of experiments	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Statistical sampling	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Flowcharting	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.8 Proprietary quality management methodologies	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.9 Additional quality planning tools	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Quality management plan	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.2 Quality metrics	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Quality checklists	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project improvement plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
5.2 Perform Quality Assurance							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Quality metrics	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Work performance information	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Quality control measurements	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Plan Quality and Perform Quality Control tools and techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Quality audits	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Process analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project Management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
5.3 Perform Quality Control							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Quality metrics	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.3 Quality checklists	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Work performance measurements	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Approved change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Deliverables	N/A	N/A	N/A	N/A	N/A	N/A	0
.7 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Cause and effect diagrams	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Control charts	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Flowcharting	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Histogram	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Pareto chart	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Run chart	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Scatter diagram	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.8 Statistical sampling	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.9 Inspection	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.10 Approved change requests review	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Quality control measurements	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Validated changes	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Validated deliverables	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Project Management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.7 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Communication Tools plus Add-ons Features – Human Resources Management

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
6.1 Develop Human Resource Plan							
.1 Inputs							
.1 Activity resource requirements	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Organization charts and position description	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Networking	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Organizational theory	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Human resource plan	N/A	N/A	N/A	N/A	N/A	N/A	0
6.2 Acquire Project Team							
.1 Inputs							
.1 Project Management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Pre-assignment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Negotiation	1	1	0	1	N/A	N/A	N/A
.3 Acquisition	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Virtual teams	1	1	0	1	N/A	N/A	N/A
.3 Outputs							
.1 Project staff assignments	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Resource calendars	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.3 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
6.3 Develop Project Team							
.1 Inputs							
.1 Project staff assignments	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Resource calendars	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Interpersonal skills	N/A	N/A	N/A	1	N/A	N/A	N/A
.2 Training	N/A	1	0	1	N/A	N/A	N/A
.3 Team-building activities	N/A	1	N/A	1	N/A	N/A	N/A
.4 Ground rules	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Co-location	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Recognition and rewards	N/A	N/A	N/A	1	N/A	N/A	N/A
.3 Outputs							
.1 Team performance assessments	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Enterprise environmental factors updates	N/A	N/A	N/A	N/A	N/A	N/A	0
6.4 Management Project Team							
.1 Inputs							
.1 Project staff assignments	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Team performance assessments	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Performance reports	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.2 Tool&Techniques							
.1 Observation and conversation	N/A	1	N/A	1	N/A	N/A	N/A
.2 Project performance appraisals	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Conflict management	N/A	1	1	1	N/A	N/A	N/A
.4 Issue log	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Interpersonal skills	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Enterprise environmental factors updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Communication Tools plus Add-ons Features – Communications Management

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
7.1 Identify Stakeholders							
.1 Inputs							
.1 Project charter	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Procurement documents	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Stakeholder analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Expert judgment	1	1	1	1	0	0	N/A
.3 Outputs							
.1 Stakeholder register	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Stakeholder management strategy	N/A	N/A	N/A	N/A	N/A	N/A	0
7.2 Plan Communications							
.1 Inputs							
.1 Stakeholder register	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Stakeholder management strategy	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tools and Techniques							
.1 Communication requirements analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Communication technology	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.3 Communication models	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Communication methods	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Communications management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
7.3 Distribute Information							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Performance reports	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tools&Techniques							
.1 Communication methods	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Information distribution tools	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Organizational process assets updated	N/A	N/A	N/A	N/A	N/A	N/A	0
7.4 Manage Stakeholders Expectations							
.1 Inputs							
.1 Stakeholder register	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Stakeholder management strategy	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Issue log	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.5 Change log	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tools&Techniques							
.1 Communication methods	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Interpersonal skills	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Management skills	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
7.5 Report Performance							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Work performance information	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Work performance measurements	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Budget forecasts	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tools&Techniques							
.1 Variance analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Forecasting methods	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Communication methods	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.4 Report systems	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Performance reports	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0

Communication Tools plus Add-ons Features – Risk Management

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
8.1 Plan Risk Management							
.1 Inputs							
.1 Project scope management	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Cost management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Schedule management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Communication management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Planning meetings and analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Risk management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
8.2 Identify Risks							
.1 Inputs							
.1 Risk management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Activity cost estimates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Activity duration estimates	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Scope baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Stakeholder register	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Cost management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.7 Schedule management plan	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.8 Quality management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.9 Project documents	N/A	N/A	N/A	N/A	N/A	N/A	0
.10 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.11 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Documentation reviews	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Information gathering techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Checklist analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Assumptions analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Diagramming techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 SWOT analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Expert judgment	1	1	1	1	0	0	N/A
.3 Outputs							
.1 Risk register	N/A	N/A	N/A	N/A	N/A	N/A	0
8.3 Performance Qualitative Risk Analysis							
.1 Inputs							
.1 Risk register	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Risk management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project scope statement	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.2 Tool&Techniques							
.1 Risk proability and impact assessment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Proability and impact matrix	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Risk data quality assessment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Risk categorization	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Risk urgency assessment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Expert judgment	1	1	1	1	N/A	N/A	N/A
.3 Outputs							
.1 Risk register updates	N/A	N/A	N/A	N/A	N/A	N/A	0
8.4 Perform Quantitative Risk Analysis							
1 Inputs							
.1 Risk register	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Risk management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Cost management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Schedule management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Data gathering and representation techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Quantiative risk analysis and modeling techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Expert judgment	1	1	1	1	N/A	N/A	N/A
.3 Outputs							
.1 Risk register updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
8.5 Plan Risk Response							
.1 Inputs							
.1 Risk register	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Risk management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Strategies for negative risks or threats	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Strategies for positive risks or opportunities	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Contingent response strategies	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Expert judgment	1	1	1	1	N/A	N/A	N/A
.3 Outputs							
.1 Risk register updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Risk-related contract decisions	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
8.6 Monitor and Control Risks							
.1 Inputs							
.1 Risk register	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Work performance information	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Performance reports	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Risk reassessment	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.2 Risk audits	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Variance and trend analysis	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Technical performance measurement	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Reserve analysis	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Status meetings	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Outputs							
.1 Risk register updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0

Communication Tools plus Add-ons Features – Procurement Management

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
9.1 Plan Procurements							
.1 Inputs							
.1 Scope baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Requirements documentation	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Teaming agreements	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Risk register plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Risk-related contract decisions	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Activity resource requirements	N/A	N/A	N/A	N/A	N/A	N/A	0
.7 Project schedule	N/A	N/A	N/A	N/A	N/A	N/A	0
.8 Activity cost estimates	N/A	N/A	N/A	N/A	N/A	N/A	0
.9 Cost performance baseline	N/A	N/A	N/A	N/A	N/A	N/A	0
.10 Enterprise environmental factors	N/A	N/A	N/A	N/A	N/A	N/A	0
.11 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Make-or-by analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Expert judgment	1	0	0	1	N/A	1	N/A
.3 Contract types	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Outputs							
.1 Procurement management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Procurement statements of work	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Make-or-buy decisions	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Procurement documents	N/A	N/A	N/A	N/A	N/A	N/A	0

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.5 Source selection criteria	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0

9.2 Conduct Procurements

.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Procurement documents	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Source selection criteria	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Qualified seller list	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Seller proposals	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Project documents	N/A	N/A	N/A	N/A	N/A	N/A	0
.7 Make-or-buy decisions	N/A	N/A	N/A	N/A	N/A	N/A	0
.8 Teaming agreements	N/A	N/A	N/A	N/A	N/A	N/A	0
.9 Organizational process assets	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Bidder conferences	0	0	0	1	N/A	1	N/A
.2 Proposal Evaluation techniques	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Independent estimates	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Expert judgment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Advertising	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Internet search	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.7 Procurement negotiations	1	0	0	1	N/A	1	N/A

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.3 Outputs							
.1 Selected sellers	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Procurement contract award	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Resource calendars	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Project document updates	N/A	N/A	N/A	N/A	N/A	N/A	0
9.3 Administer Procurements Execution							
.1 Inputs							
.1 Procurement documents	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Contract	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Performance reports	N/A	N/A	N/A	N/A	N/A	N/A	0
.5 Approved change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.6 Work performance information	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Contract change control system	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Procurement performance reviews	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Inspections and audits	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.4 Performanace reporting	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.5 Payment systems	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.6 Claims administration	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Processes	E-mail	IM	Discussion forum	Audio/Video conference	Web-cam facility	E-Tendering	Healthy & Safety file
.7 Records management system	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Procurement documentation	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0
.3 Change requests	N/A	N/A	N/A	N/A	N/A	N/A	0
.4 Project management plan updates	N/A	N/A	N/A	N/A	N/A	N/A	0
9.4 Close Procurements							
.1 Inputs							
.1 Project management plan	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Procurement documentation	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Tool&Techniques							
.1 Procurement audits	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.2 Negotiated settlements	1	0	0	1	N/A	1	N/A
.3 Records management system	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.3 Outputs							
.1 Close procurements	N/A	N/A	N/A	N/A	N/A	N/A	0
.2 Organizational process assets updates	N/A	N/A	N/A	N/A	N/A	N/A	0

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