



PMS-PMC Brochure

Project Management System (PMS) for PMC Projects

PREAMBLE

The present brochure provides an introduction to ILF's Project Management System (PMS) for PMC projects (PMS-PMC).

The use of the PMS-PMC is regulated in PG2301 of ILF's Integrated Management System (IMS).

The complete ILF PMS-PMC documentation consists of:

- this brochure
(XX0351-ILF-PMC-GEN-BRO-0001),
- the *PMS-PMC System Description*
(XX0351-ILF-PMC-GEN-SYS-0001),
- the *Project Life Cycle Workflow*
(XX0351-ILF-ALL-GEN-WFL-0001),
- the documents listed in the *List of PMS-PMC Documents*
(XX0351-ILF-PMC-GEN-LST-0001), and
- the *PMS-PMC Glossary*,
(XX0351-ILF-PMC-GEN-GLO-0001).

ILF's PMS-PMC has originally been developed for services in the area of *Project Management Consultancy (PMC)* carried out by ILF for its Customers within the Oil & Gas industries.

ILF has developed the PMS-PMC further to its present form to use it - wherever applicable - in full or partly also for other industrial sectors like Water Supply projects or Power Supply projects.

This document is not confidential and can serve for both internal and external use.

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1 INTRODUCTION

ILF is a Consulting Engineer, operating on a worldwide basis, having provided engineering and management services for the Oil & Gas industries as well as for Water Supply and Energy Supply in the last five decades.

In its effort to strive for excellence, ILF has developed its own Project Management System (PMS-PMC) for PMC investment projects. The PMS-PMC is a systematic approach to project management based on best industry practices.

The PMS-PMC can be fully tailored to the needs of our Customers and creates the basis for successful project execution.

This brochure gives a rough overview of the design principles, the structure and the application of the PMS-PMC.

2 PMS-PMC CONCEPT

The PMS-PMC has been designed according to the following principles:

- Starting base is the management framework published by the *Project Management Institute (PMI)* in the form of the PMBOK® Guide, but, where useful, PMS-PMC refers to other best industry practices.
- Focus on large investment projects especially for the Oil & Gas industries.
- Flexible to meet the requirements of various projects.
- Openness for later extension to other services and/or other industries.
- Provide support to the project manager and his team in setting up the project specific PMS-PMC.
- Serve as an interactive software-tool utilizing hyperlinks between documents thus not being a set of purely static documents.

3 USER GROUPS

The user groups of the PMS-PMC consist of

- Acquisition managers
PMS-PMC supports the pre-qualification and bidding process and demonstrates ILF's project management capabilities. PMS-PMC is also used to define the scope of the *PMC* services.
- Project manager and team
PMS-PMC supports the project manager and the team during project start-up and the preparation of project specific documentation for all phases of project execution. The project specific PMS-PMC will determine how to manage the project and will also be used for an efficient induction of new staff.
- Project auditors
PMS-PMC provides the auditor a clear and transparent basis for his assessment.



4 ADDED VALUE

ILF's PMS-PMC has been prepared in order to:

- Demonstrate to its Customers ILF's capability in managing large investment projects.

More and more Customers, particularly from the Oil & Gas industries, demand qualified documents & tools for professional project management, following international best practices. The IMS does not reflect such a demand, as the IMS focuses onto the internal (ILF's) view of any given project.

- Support a quick project start-up

The project start-up is always crucial. Very often the project managers start collecting documents and templates from various sources or creating project documentation "from scratch". This is both time consuming and inefficient.

- Facilitate performance assessments

It is crucial for an auditor to gain a quick understanding of where the project stands in terms of target achievement. A structured approach and transparent project planning tools are needed to facilitate the assessment.

- Guide the project management along the whole project life cycle.

The scope of *PMC* services is extremely complex as engineering, scope, change, time, cost, quality, risk, financing, communication and other processes have to be managed in parallel. The PMS-PMC supports an integrated management approach using project specific PMS-PMC documentation, saving time and mitigating risks.

- Become the basis for continuous improvement

The PMS-PMC consists of generic procedures, which can and shall be improved over time.

- Improve the common understanding

A *Glossary* is part of the PMS-PMC and will help to create a common understanding and avoid speaking in different languages and meanings.

- Provide a basis for staff training

Training and education of junior staff is important and needs professional training materials. PMS-PMC provides such materials.



5 PMS-PMC KNOWLEDGE BASES

5.1 Project management basic structure

The *Project Management Institute (PMI)* has, over a period of many years, created a project management framework described in the *PMBOK® Guide*, including best practices and guidelines, for project management.

PMBOK® Guide describes five *Process Groups* carried out during the project:

- Initiating
- Planning
- Execution
- Monitoring and Controlling
- Closing

To carry out these steps, a certain knowledge is required for which the *PMBOK® Guide* describes nine *Knowledge Areas*:

1. *Project Integration Management*

Project Integration Management includes all processes and activities to identify, define, combine, unify and coordinate the various management processes. The overall management of change process including scope and design change control is also part of the *Project Integration Management*.

2. *Scope Management*

Scope Management covers all activities to ensure that the scope of work is defined according to *Owner's* requirements and broken down into reasonable work levels and their elements (*Work Break-down Structure*). It also includes the management of technical deviations.

3. *Time Management*

This *Knowledge Area* covers activities like estimating of project duration, sequencing the line of actions, critical path identification and milestone definition required to produce schedules. It also includes schedule control and schedule change and alteration management.

4. *Cost Management*

This *Knowledge Area* covers issues like cost estimation, budget determination and cost control.

5. *Quality Management*

Quality Management comprises all processes related to quality assurance and quality control.

6. *Human Resource Management*

Human Resource (HR) Management includes all processes related to staffing, organizing, managing and leading the project team, e.g. staff induction, development of qualification profiles, mobilization/demobilization and team building.

7. *Communication Management*

Communication Management includes the organization of internal and external communication and stakeholder management. Reporting is also part of *Communication Management*.

8. *Risk Management*

Risk Management includes the identification and analysis of risks, risk monitoring and control as well as the definition of actions for risk treatment.

9. *Procurement, Contract and Claim Management*

This *Knowledge Area* covers issues like procurement strategy, prequalification, tendering, including bid evaluation, preparation of contracts, contract administration, administration of invoices and payments as well as claim management.



5.2 Structure extension by ILF

Additional Knowledge Areas, see also Figure 1, have been defined by ILF to cover specific business requirements with respect to PMC services for the Oil & Gas industries:

10. Health, Safety, Security and Environment (HSSE) Management

This Knowledge Area covers occupational health and safety, security issues and environmental protection.

11. Engineering Management

This Knowledge Area covers all processes to ensure that the engineering design follows international best practices and meets Owner's expectations.

12. Management of Permitting and Approval Process

The Management of Permitting and Approval Process covers the processes necessary to obtain all relevant approvals for construction and operation from the authorities in charge and how to control these processes.

13. Management of Land Acquisition

This Knowledge Area covers processes to acquire rights of way, purchase land, and how to control these processes.

14. Construction Management

Construction Management covers all activities to ensure that the facilities of the project are constructed in full compliance with the contracts. It is closely related to Contract Management and includes construction supervision.

15. Commissioning Management

Commissioning Management covers all activities to ensure that the facilities of the project are commissioned in full compliance with contracts. It includes vetting of the commissioning programs and supervision of the commissioning including corresponding tests.

It is closely linked with Construction Management.

16. Management of Initial Operation

The Management of Initial Operation covers all activities to ensure that all measures for initial operation are properly planned and executed. Such measures also include preparation of operation manuals, operation planning and operator training. This Knowledge Area is closely interlinked with Commissioning Management.



Figure 1: PMS-PMC Knowledge Areas



5.3 Best industrial practice

The PMBOK® *Guide* in general describes *Process Groups* and *Knowledge Areas*, indicating what to plan, monitor and control for the overall project and the interrelation between these activities. A comprehensive *Glossary* supplements the PMBOK® *Guide*. Thus the PMBOK® *Guide* provides the management framework on a generic basis.

Therefore ILF’s specific know-how related to project management in the Oil & Gas industries has been prepared in order to make the PMBOK® *Guide* approach applicable to these industries.

From the *Owner’s* point of view, any upstream, midstream or downstream facility, such as a pipeline or refinery represents long-term working capital used in the income generating operations of the business. He sees such an operating asset as a large investment along the whole life cycle and he reasons in decades - whereas a project is usually a matter of years. In the Oil & Gas industries, the *Project Life Cycle* shown in below *Figure 3: Structure of the ILF PMS-PMC Document System for a Project* has become a quasi standard with respect to the management of large investment projects.

The *Project Life Cycle* consists typically of five phases:

- 1. *Appraise*
Opportunities identification; feasibility confirmation; project framing and set-up
- 2. *Select*
Business planning, financing, develop conceptual design package; prepare project execution strategies, environmental and social impact assessment
- 3. *Define*
Permit engineering; preparation of *FEED* package; tendering; project execution planning

- 4. *Execute*
Procurement & contracting; preparation of detail, construction & vendor design; construction; commissioning & trial operation; project execution management
- 5. *Operate*
Business control; operation; optimization; maintenance; and later on the abandonment

The project starts at the end of the *Appraise* phase with the project framing or project start-up and ends with the contract close-outs. Basically, the project is finished after the operating asset is put into operation and all contracts have been successfully executed.

During the phases *Appraise*, *Select* and *Define*, costs for design changes are relatively low compared to the *Execute* phase. Usually, the phases are separated by *Gates*, at which a project must undergo a formalized *Gate* review at well defined milestones before entering the next phase of the project, including funding approval. Usually, funding will be provided after successful gate passing. Such *Stage Gate Process* is common practice in the Oil & Gas industries for many years.

5.4 ILF's knowledge base

ILF, over many years, has created its own knowledge database of know-how consisting of *ILF Recommended Practices (RP)*, *Standard Specifications*, *Samples* and other related documents. The *Recommended Practices* and *Standard Specifications* are related to engineering design and technical solutions.

Thus the PMS-PMC complements ILF's know-how in terms of (external) project management, but does not replace or supersede *RPs*. Where useful, references to *RPs* are given in the documents of the *Knowledge Areas*.



Figure 2: Project Life Cycle

6 DOCUMENTS

6.1 PMS-PMC general documentation

6.1.1 PMS-PMC Brochure

This PMS-PMC *Brochure* shall provide an introduction to the ILF PMS-PMC. It shall be used internally and externally.

6.1.2 PMS-PMC Guideline

The PMS-PMC *Guideline* target group is the actual user of the PMS-PMC. As a code of practice and overall guideline for the system it describes how to use the PMS-PMC documentation to setup and implement a project specific system taking into account the specialties of each individual project.

6.1.3 PMS-PMC Glossary

The *Glossary* includes terms and definitions which shall be binding for all generic PMS-PMC documentation.

6.1.4 Knowledge Area Guideline

A *Knowledge Area Guideline* is an addition to the PMS-PMC Guideline.

It is a *Knowledge Area* specific guidance for the nominated elaboration team of that area, providing the generic area specific *List of Deliverables* to be adopted, the links to other *Knowledge Areas* within the PMS-PMC, the IMS and *ILF's Knowledge Base*, and instructions to adapt the PMS-PMC documentation to the project specific requirements.

In addition a *Knowledge Area Guideline* includes as an own chapter a high-level description of the objectives and main activities of an entire project lifecycle for a certain *Knowledge Area*. The chapter serves as a source for the relevant section of the *Project Management Plan*.

6.1.5 List of PMS-PMC documents

This list itemizes all PMS-PMC documents as well as all *Knowledge Area*

documents and serves as basis for a tool like a project specific *List of Deliverables* (LOD).

6.2 Project specific documentation

6.2.1 Project Glossary (Template)

The *Project Glossary* is based on a respective Template and uses the content of the PMS-PMC *Glossary*. After project specific adaption it is binding for all other project specific system documentation.

6.2.2 Management Plans (Template)

As addition to the related *Knowledge Area* section in the Project Management Plan, a *Management Plan* shall provide a more detailed description of the objectives and main activities (the "What") specifying the sub-activities and the relevant deliverables (the "How"), explaining the sequence of the activities or referencing the project timeline (the "When"), and shall provide the roles and responsibilities of the area (the "By Whom").

6.2.3 Working Procedures (Template)

A *Working Procedure* describes in detail how to perform one or more processes or activities required for the conformance to the requirements of a particular operation in a *Knowledge Area*.

6.2.4 Working Plans (Template)

A *Working Plan* provides for the related *Knowledge Area* in more detail the "What", the "How", the "When" and the "By Whom" for a *Management Plan* and/or a *Working Procedure*.

6.2.5 Other project specific documentation

Management Plans, *Working Plans* and *Working Procedures* may have specific attachments and/or tools in order to fa-



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Facilitate their use in a project. Such attachments are documents like registers, lists, work instructions, etc..

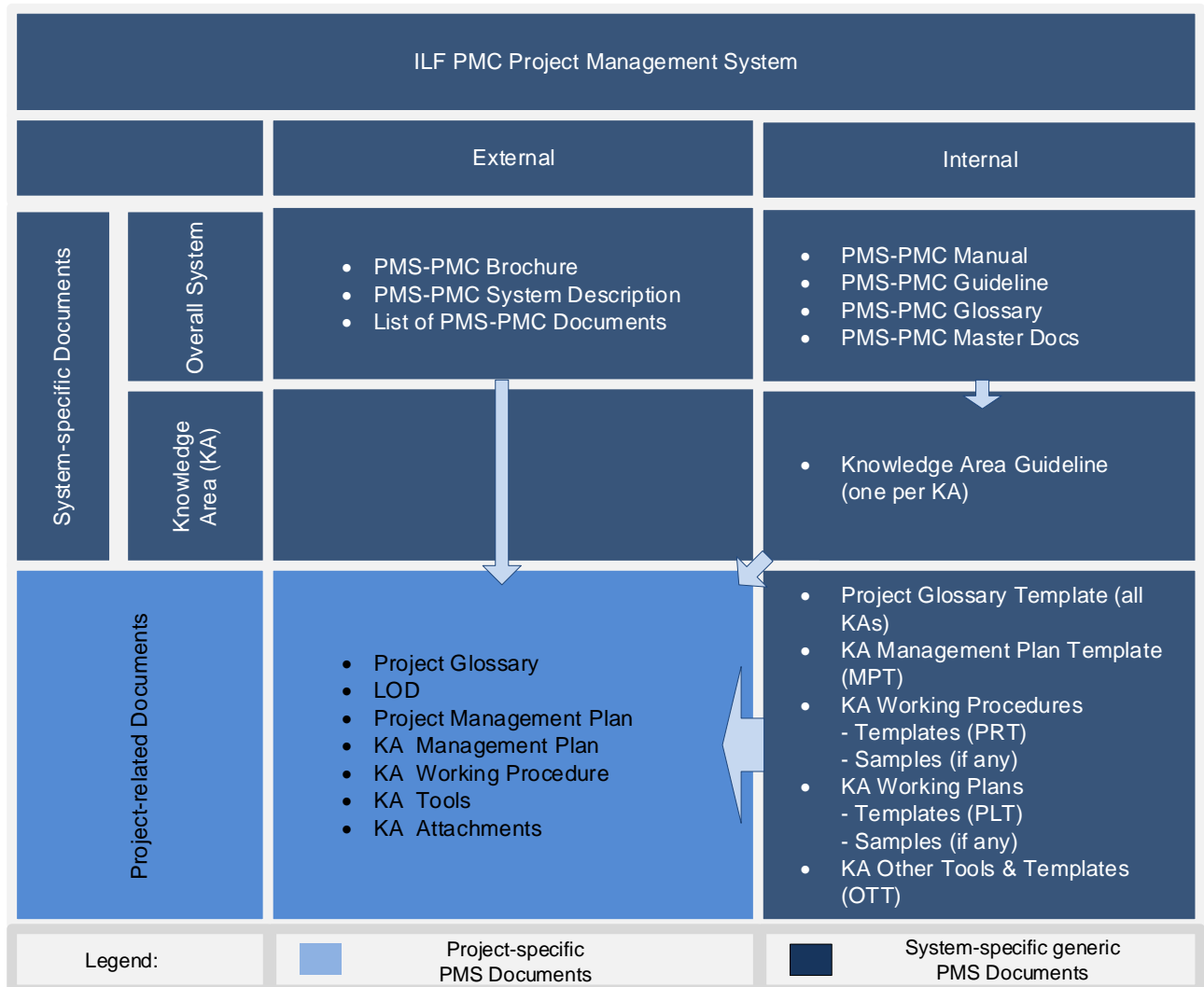


Figure 3: Structure of the ILF PMS-PMC Document System for a Project



7 APPLICATION

Generally the work with the PMS-PMC can be separated into the development of the project and into the project execution.

7.1 Project Development

The proposal manager supported by project management experienced personnel will prepare the offer in four steps.

7.1.1 Identify the project status

Identify the project status in the *Project Life Cycle Workflow*. If considered conducive, this *Workflow* shall be used during clarification meetings with the *Owner*.

7.1.2 Define ILF's scope of work

As the PMS-PMC covers the whole scope of any project within the *Project Life Cycle (XX0351-ILF-ALL-GEN-WFL-0001)*, proper customization is extremely important not to "over-scope" the project management service. The question "What is really necessary to successfully manage the project?" shall guide the process of scope definition.

Activities, which are related to ILF's internal project management, such as reporting, budget control and auditing - in compliance with the IMS - shall be added.

7.1.3 Create the staffing plan

For all activities, necessary competences shall be identified by using the pre-defined competence profiles being part of the *Human Resource Management Procedure* of the PMS-PMC and a tentative staffing plan shall be created.

7.1.4 Create a list of project specific documents

The list shall be prepared using ILF's *List of PMS Documents (XX0351-ILF-PMC-GEN-LST-0001)* as well as *Knowledge Area Guidelines*.

7.2 Project Execution

PMC services - as services in general - shall be executed according to the general principle "Plan the work and work the plan".

7.2.1 Initial planning phase

After contract award, the project specific PMS-PMC documentation shall be prepared, based on *Figure 3: Structure of the ILF PMS-PMC document system for a Project*, using the *List of PMS Documents* mentioned in 7.1.4. The list shall be converted into a matrix by adding the sequence and the authors.

The first documents shall be the *Project Charter* and the *Stakeholder Register*, both representing important PM tools, and also the *Project Glossary* and the first issue of the *Project Management Plan*.

7.2.2 Service execution

The project will be managed according to the project specific PMS documentation prepared for the project in due time.

7.2.3 Performance assessment

The performance of the *PMC* services shall be controlled by means of project audits. Audits shall be planned in advance and be incorporated in the project specific *Plans*. The audits will be performed on basis of the project specific PMS-PMC documentation.

7.2.4 Service close-out

After the *PMC* services have been completed, the experience gained during their execution shall be compiled, together with the performance assessments, and forwarded to the unit within ILF responsible for PMS-PMC in order to improve the system and documents as part of ILF's internal *Lessons Learned* process.





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