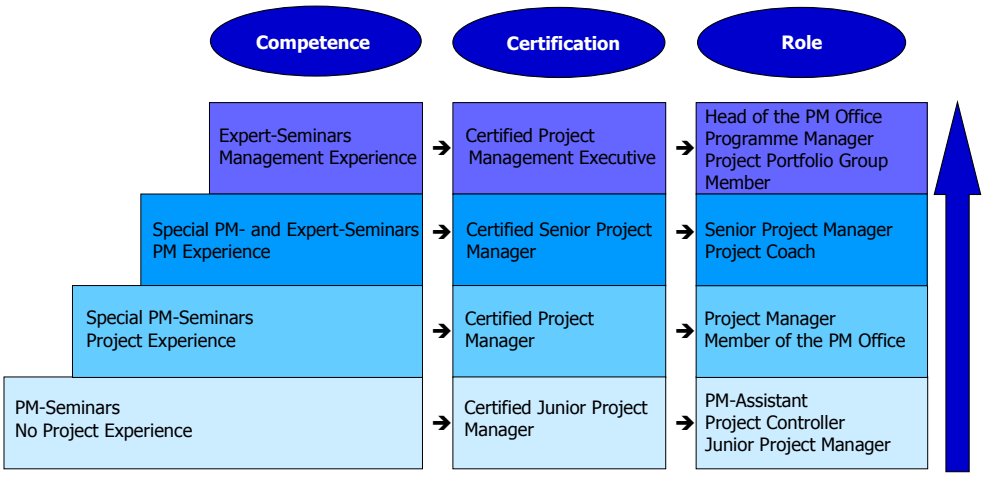
PROJEKT MANAGEMENT AUSTRIA

Editor: Univ.Prof.Dkfm.Dr. Roland Gareis

pm baseline

Knowledge Elements for Project and Programme Management and for the Management of Project-oriented Organisations

- **State of the Art: Processes, Methods and Models for Project and Programme Management and for the Management of Project-oriented Organisations**
- **Basis for the Project Management Certification from PROJECT MANAGEMENT AUSTRIA**
- **Orientation for the Design of Project and Programme Management Training Programmes**
- **Based upon the ICB, International Competence Baseline from IPMA-International Project Management Association and upon *ROLAND GAREIS Project and Programme Management*®**
- **Download: www.p-m-a.at**



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Foreword

Project management as a competence of the Project-oriented Society

The increased significance of project management is apparent. The times when projects were limited to the performance of contracts in the building, construction and IT Industry are long past. Projects are being used as temporary organisations for the performance of any process of large scope in project-oriented organisations.

New types of projects, such as organisational development projects, marketing projects, product development projects are becoming commonplace. We are living in a project-oriented society!

Project management has established itself internationally as a discipline in its own right, and project manager has become a new profession. Project management standards, such as the **pm baseline** serve to support the formalisation of project management in our society.

PROJEKT MANAGEMENT AUSTRIA: The Austrian Project Management Association

PROJEKT MANAGEMENT **AUSTRIA** (PMA) is a network of project managers in Austria and provides a platform for exchanging experiences, for the distribution of information and for the establishment of professional contacts for all those interested in project management. Its members come from trade and industry, public administration and universities. PMA represents Austria in the IPMA International Project Management Association, the parent organisation of currently 31 national project management associations.

The PMA Certification Centre certifies Junior Project Managers, Project Managers, Senior Project Managers and PM Executives in accordance with the validation criteria of the IPMA International Project Management Association and in doing so it promotes the development of the profession of project management.

The vision of PMA for the new century is for project management to be accepted as a profession in its own right.

PM Certification through PMA

Project management certification is attracting an increasing amount of attention internationally. Multinational and multicultural projects are increasing in importance. Internationally recognised qualifications are necessary. PMA is addressing this need through its PM Certification programme. The building blocks of certification levels are equivalent to a career path within an organisation. The basis for the PM Certification is this **pm baseline**.

IPMA-International Project Management Association

The IPMA, founded in 1965, is an international network of 31 national project management associations in Europe, Africa, America and Asia and currently has over 25,000 members.

The focus of the organisation is put on the professionalisation of project management and at the same time taking into consideration specific cultural requirements. The IPMA offers training courses, expert seminars and congresses; puts emphasis on research and publication and has, together with its members, developed a project management certification programme.

Project management standards are a central instrument for ensuring a uniformly high standard of quality in the project management certification programmes of the diverse national project management associations in the IPMA. For this purpose, the IPMA published the ICB – International Competence Baseline in February 1999, which forms a basis for the establishment of national project management baselines. In the ICB the project management knowledge elements are divided into "core" and "additional" elements. In addition to these contents requirements for the design of the national baselines formal requirements are defined. The structural relationship between the ICB from IPMA and the **pm baseline** from PMA is given in the appendix.

Objectives and Content of the pm baseline from PMA

The objective of the **pm baseline** is a comprehensive representation of the relevant knowledge elements of project and programme management and the management of project-oriented organisations. Each of these knowledge elements is fully described and literature references are given. The papers listed in the dark grey boxes can be downloaded from www.p-m-a.at. Common literary abbreviations are used. A comprehensive list of references is enclosed, too.

The project management knowledge elements are structured firstly according to basic definitions and process descriptions and then by the project management methods used in the project management sub-processes of project start, project controlling, and so on. This should make it easier for the reader to identify the main points. In addition to project management, programme management and the management of project-oriented organisations make up important knowledge elements.

A central objective of the **pm baseline** is to represent a consistent approach to project management and to the management of project-oriented organisations, as well as a common language. The **pm baseline** is based on *ROLAND GAREIS Project and Programme Management*®.

In the appendix of the **pm baseline** is a description of the evaluation scheme for the certification of Junior Project Managers, Project Managers, Senior Project Managers and PM-Executives. In accordance with the International Competence Baseline there is a clear differentiation into knowledge and experience.

The **pm baseline** should provide an overview of the state of the art to all those interested in project management and the management of project-oriented organisations. In particular, the knowledge defined in the pm baseline forms the basis for the project management certification from PMA. Furthermore, the pm baseline should provide an orientation for the design of project management training programmes in schools, colleges and universities, as well as within companies.

The **pm baseline** is not a project management textbook or script, and is therefore in no sense sufficient for the acquisition of individual project management knowledge.

Development and Distribution of the pm baseline

The first version of the **pm baseline** in German was published in November 1999. The **pm baseline** is periodically updated to keep pace with new developments.

The second version of the **pm baseline** in German was published in July 2001. It took into account the validation framework of the project management certification programmes of the PMA through changes required by the IPMA, and through new findings from other sources, especially those which resulted from research at the PROJEKTMANAGEMENT **GROUP** at the University of Economics and Business Administration, Vienna. This document is the first English version of the **pm baseline** from PMA.

The German version of the **pm baseline** translated into English by Joanne Lee. The editing was assisted by Martina Huemann.

The **pm baseline** is available from the PMA in hardcopy, or it may be downloaded free of charge on the PMA Homepage: www.p-m-a.at.

Happy Projects!

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1. Projects and Project Management

1.1. Projects and Types of Projects
1.2. Project Management and Project Management Sub-Processes
1.3. Designing the Project Management Process
1.4. Systems Theory and Project Management
1.5. Criteria for Project Success
1.6. Project Quality

1.1. Projects and Types of Projects

Projects can be perceived in different ways, as

- complex tasks
- temporary organisations and/or
- social systems.

Projects are complex, mostly new, risky and important undertakings for the organisation undertaking the project. They are goal-determined tasks, since the objectives for the deliverables, the deadlines, the resources and the costs are agreed between the project owner and the project team.

Furthermore, projects can be perceived as organisations. In comparison to the relatively permanent structures of the permanent organisation (such as divisions, business units, departments), projects can be seen as temporary organisations.

Projects can also be viewed as social systems which can be clearly differentiated from their environments and at the same time have relationships to these environments. As an independent system a project has a specific purpose and its own structure. Elements of the project structure are, for instance, project specific values and rules, project roles, project specific communications, planning and controlling methods.

Projects are to be differentiated from non-projects, such as routine tasks of the organisation, as well as from programmes.

The classification of projects into different project types makes it possible to analyse the type-specific challenges and potentials for project management. Projects can be differentiated by industry, location or objective, level of concreteness and/or level of repetition, ownership, duration and relation to the organisation's processes.

References

Gareis 1999, May the Guide to the PMBOK be Challenged by a New Project Management Paradigm?

ICB 1999, p. 30

Suggestions for Further Reading

Gower Handbook 2000, Chap. 4 Projects and Project Management, pp. 65-76

Kerzner 2001, Chap. 1.14 Classification of Projects, pp. 29

1.2. Project Management and Project Management Sub-Processes

Project management is a business process of the project-oriented organisation. The project management process begins with the project assignment and ends with the project approval. It contains the sub-processes project start, project co-ordination, project controlling, project discontinuity management and project close-down. These sub-processes of project management are related to one another. The objects of consideration in project management are the project objectives, project scope, project schedule, project resources and project costs, the project organisation and the project culture, as well as the project context (pre- and post project phases, project environments, other projects etc.).

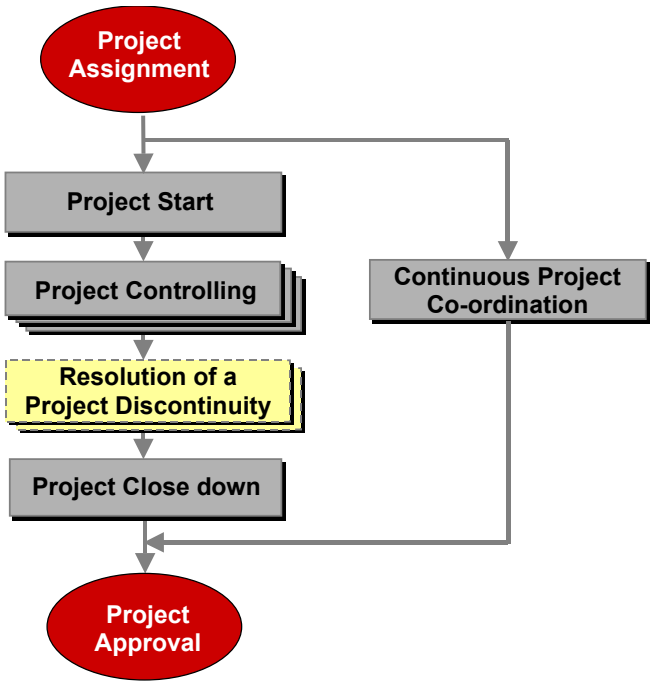

Figure 1: Project Management Process

Project Start Process

Project start is a sub-process of the project management process. Its objectives are the transfer of know-how from the pre-project phase into the project, the agreement of project objectives, the creation of project plans, the design of a project organisation, team building, the establishment of the project as a social system, the planning of actions for risk management, for avoiding and providing for crises, the design of the project context relationships, the construction of a common "Big Project Picture", the execution of initial project marketing, and the creation of project management documentation for "Project Start".

Project Co-ordination Process

The objectives of project co-ordination are the continuous ensuring of project performance, the continuous ensuring of adequate information for the project team members and representatives of relevant environments, as well as the continuous support for the completion of individual work packages. Project co-ordination begins with the project assignment and ends with project approval. Project co-ordination includes: continuous quality checks of the (intermediate) results of work packages, continuous communication between the project manager and project team members and the project owner, continuous forming of the relationships to relevant environments, disposition of project resources and continuous project marketing.

Project Controlling Process

The objectives of project controlling are the analysis of the project status, the construction of the "Big Project Picture", the agreement and / or undertaking of directive actions, the further development of the project organisation and the project culture, changing project objectives, the creation of progress reports, the redesign of the project context relationships, and the execution of project marketing actions. The project controlling process takes place many times during the performance of a project, it begins with the initiation of a project controlling process and ends when the project performance report has been filed.

The Process of Resolving a Project Discontinuity

A project discontinuity is a project crisis, a project opportunity or a project phase transition. Project crises and project opportunities occur without warning. In the framework of project start and project controlling it is possible to develop scenarios with which it is possible to identify potential project discontinuities. Plans for the provisions for eventual discontinuities can be made. To deal with a project discontinuity, a specific process must be undertaken. The objectives of the process of dealing with a project in crisis, are securing progress in the project, limiting possible damage to the project. Dealing with a project crisis begins with the definition of the crisis and ends when the end of the crisis has been communicated.

Project Close-down Process

Project close-down is a sub-process of project management. Its objectives are the planning and completion of remaining project tasks, emotional closure, project evaluation, dissolving the project team and the (eventual) payment of project bonuses, the creation of "As-is" documentation, making plans for the post-project phase and an eventual project evaluation, the creating of project close-down reports, the transfer of know-how to the permanent organisation and into other projects, the dissolution of the project environment relationships and the closing project marketing actions, and the efficient design of the project close-down process. Project close-down begins with the initiation of the project close-down and ends with the approval of the project by the project owner.

References

Gareis 2000, Managing the Project Start

ICB 1999, p. 30

Suggestions for Further Reading

Fangel 1998, Best Practice in Project Start-Up, pp. 354-361

Gower Handbook 2000, Chap. 4 Projects and Project Management, pp. 65-76

Knutson 2001, Chap. 8 Project Planning, Chap. 9 Execution Management, Chap. 12 Closeout Management, pp. 374-391

1.3. Designing the Project Management Process

The project management process requires an explicit design. This design includes the selection of adequate communications structures and activities, the selection of adequate information technology and telecommunications instruments to support the communications, the definition of adequate forms of project management documentation, the use of standard project plans and checklists, the selection of adequate project management methods and the decision of whether or not to use a project coach.

To design the communications activities in the project management process various communications structures can be used: one to one meetings, project meetings, project workshops, presentations and combinations thereof. Decisions about the selection of participants in the project workshops and meetings must be taken. The project meetings, and especially project workshops, require design and moderation through a project team member or a coach/moderator (company internal or external).

Information technology and telecommunications instruments serve to support the communication and documentation of, for instance, specific project management Software, e-mail distributors, communications platforms, project handbook. Closely bound to this is also the definition of adequate forms of project management documentation. Decision about the structure, form (for instance paper and /or electronic), extent, content, target groups etc., must be made.

References

Gareis 2000, Managing the Project Start

ICB 1999, p. 54

Suggestions for Further Reading

Kerzner 2001, Chap. 5.13 Communications, pp. 273

Knutson 2001, Chap. 10 Communications Management, pp. 308 - 334

1.4. Systems Theory and Project Management

As systems everything for which one can distinguish between inside and outside can be understood. The inside / outside difference indicates, that an order can be established, which does not extend itself arbitrarily.

Systemic project management views projects as social systems. It does not build on the traditional project management approach, but proposes its methods in a new context. Furthermore it makes new perspectives for the observation of projects possible and advances the development and the use of new project management methods. By viewing projects as social systems and the observation of the complexity and dynamic of projects, new potentials and challenges for project management can be derived, especially:

- the construction of project boundaries and project contexts,
- building up and reducing complexity in the project and
- the management of dynamics in the project.

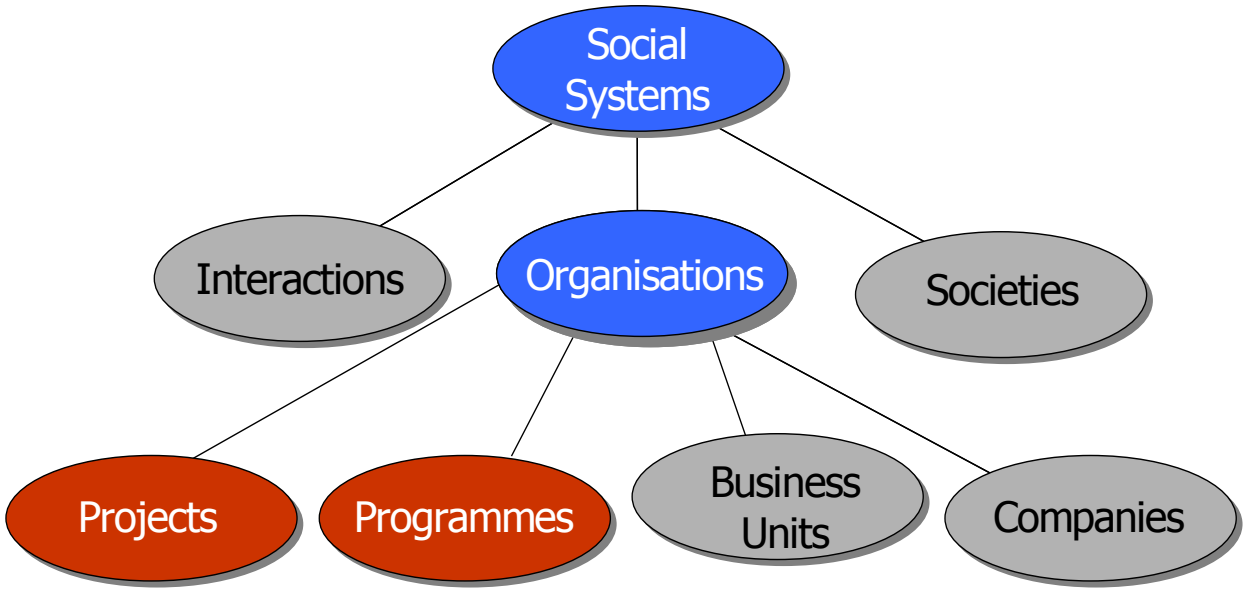

Figure 2: Social Systems

References

Gareis 1999, May the Guide to the PMBOK be Challenged by a New Project Management
Paradigm?

Suggestions for Further Reading

Luhmann N., 1995. Social Systems, Stanford University Press, Stanford, California

1.5. Criteria for Project Success

Professional management is to be viewed as a central success factor in a project. In particular

- the project boundaries and the project objectives should be adequately defined
- project plans should be developed and controlled periodically
- projects are to be structured process-oriented
- the project organisation and project culture are to be designed specific to each project
- a specific project culture should be developed and
- the relationships of the project to the project context should be designed.

Project management contributes to the securing of project success. Other factors such as the organisation's strategy, competitive situation, etc. also influence project success.

References

Gareis 2000, Managing the Project Start

ICB 1999, p. 38

Suggestions for Further Reading

Briner, Geddes, Hastings 2001, Success Criteria, pp. 85

Gower Handbook 2000, Chap. 5 Project Success and Strategy, pp. 77-84

Kerzner 2001, Chap. 9 The Variables for Success, pp. 461-474

1.6. Project Quality

Project quality can be defined as fulfilling customer's expectations. These expectations are defined through the project objectives and change over time.

The customers of a project are not only the end users, but also relevant environments such as suppliers, the project team, etc. To ensure the quality of a project it is absolutely necessary to consider these environments.

The design of expectations in projects is a project management task. The execution of quality assurance activities is, however, the job of every member of the project organisation.

It is possible to distinguish between quality of the project content and the quality of project management. Professional project management contributes to the assurance of quality in content.

References

ICB 1999, p. 57

Suggestions for Further Reading

Gower Handbook 2000, Chap. 16 Managing Quality, pp. 267-275

Kerzner 2001, Quality Management, pp. 1083 - 1138

2. Methods for Project Start: Project Context Analysis

2.1. Dimensions of the Project Context
2.2. Project Environment Analysis
2.3. Project and Business Case
2.4. Project Marketing

2.1. Dimensions of the Project Context

The project context can be divided into a contents, a time and a social context. In the analysis of the contents dimension of the context the following must be taken into consideration:

- the importance of the project in the organisation,
- the connection between the organisation's strategy and the project,
- the relationship between the project and other projects and
- the connection between the project to the underlying Business Case.

The objective of the analysis of the connections between the organisation's strategy and the project under consideration is to clarify if and how the organisation's strategy occasioned the start of the project, and in what form and in what measure the project contributes to the realisation of the organisation's strategy. Furthermore, it is to be established whether or not the project influences the continuous development of the organisation's strategy. Relationships between projects which are being carried out in a organisation at the same time can be synergistic or competitive in nature. The objective is therefore to discover the dependencies which exist between projects in terms of goals, methods, resources and the required intermediate results.

Through the definition of the project start and close-down events which limit a project in respect to time, there exists a pre- and post-project phase which is the project time context. Knowing the history which lead up to the project is important for understanding the project itself and for the development of adequate project structures. An information transfer of the negotiations and decisions from the pre-project phase into the project is, therefore, necessary. The expectations in regard to the post-project phase also influence the tasks to be fulfilled as well as the strategy for designing the project environment relationships.

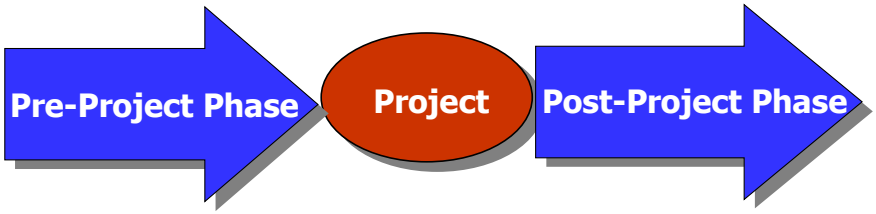

Figure 3: Project Time Context

References

Gareis 2000, Managing the Project Start
ICB 1999, p. 34

Suggestions for Further Reading

Gower Handbook 2000, Part II Context

2.2. Project Environment Analysis

Because a project represents a social system it is also necessary to consider its relationships to its own social environments. The design of the project environment relationships is a project management activity.

The objective is to determine which environments are relevant for the project and can have an influence on project success.

Relevant project environments can be divided into project internal and project external environments. External project environments are, for instance, customers, suppliers, banks, but also other divisions and departments of the organisation undertaking the project. They have strong, results-oriented expectations from the project and, have a common present. They can be only partially influenced.

The project team or the project management can be viewed as internal project environments, since their relationships to the project have an central influence on the its success. They have strong, process-oriented expectations and often have a common past and future.

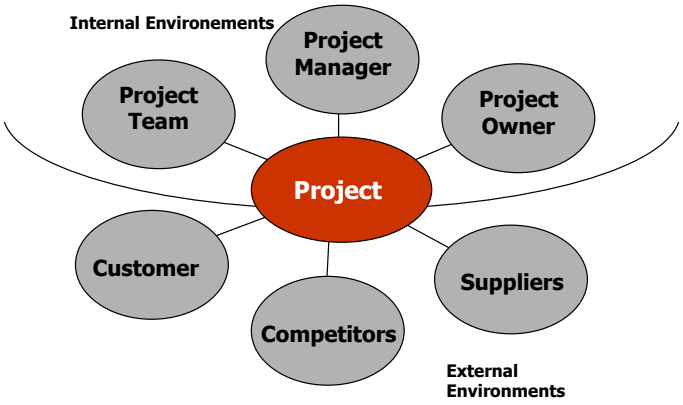

Figure 4: Project and Relevant Project Environments

References

Gareis 1999, May the Guide to the PMBOK be Challenged by a New Project Management Paradigm?

ICB 1999, p. 34

Suggestions for Further Reading

Gower Handbook 2000, Chap. 42 Managing Stakeholders, pp. 757-775

Turner 1995, Part 4 Stakeholders, pp. 197-239

2.3. Project and Business Case

Every project has a contribution to make to the organisation's success. The economic consequences of an investment initiated through a project can be analysed in a "Business Case Analysis".

The objective of a Business Case is not only to analyze the immediate project costs and benefits, but also the resulting follow-up costs and benefits.

To evaluate an investment it is necessary to apply investment calculations (Net Present Value method, internal interest rate, annuity method, etc.).

Investment Proposal Number:	Business Case: Summary
1) Problem Description	2) Goal of the Investment
•	•
•	•
•	•
3) Process Owner	4) Business Case Author
•	•
5) Use/Cost Difference	6)

Figure 5: Business Case Summary

References

ICB 1999, p. 36

Suggestions for Further Reading

Gower Handbook 2000, Chap. 25 Proposal, Initiation and Feasibility, pp. 469-478; Chap. 27 Project Appraisal, pp. 509-524

Knutson 2001, p. 190, Business Case Forms, pp. 220 - 224

Turner 1995, Chap. 3 Estimating Costs and Revenues, pp. 31

2.4. Project Marketing

Because of their complexity, dynamics, newness, etc. projects have a great need to be explained. The objective of project marketing is, therefore, to communicate to the project environments the strategies being followed and the desired results of the project.

Project marketing makes use of the instruments of communications policy. All activities which serve to build trust, inform and build consensus with the project environments, are considered as integrating.

In projects, one can differentiate between object-oriented marketing activities (such as cost / benefit of the project results) and process-oriented marketing activities.

Project marketing activities are generally to be carried out by all members of the project organisation. The fulfilment of these activities requires a new understanding of the project manager and the team members. They are not "only" responsible for the creation of the project deliverables, but also for the marketing and acceptance of the results.

References

ICB 1999, p. 67

3. Methods for Project Start: Design of the Project Organisation

3.1. Project Organisational Forms
3.2. Project Roles
3.3. Project Teamwork
3.4. Leadership in Projects
3.5. Project Communication
3.6. Project Culture

3.1. Project Organisational Forms

In project management three essential forms of project organisation can be observed: influence project organisation, pure project organisation and matrix project organisation. In influence project organisation the project manager has a staff function without formal management authority. He follows the execution of the project and consults with his superiors about the activities to be carried out. In pure project organisation the project manager has formal authority over those taking part in the project. In this form organisational independence is often supported by the fact that those taking part in the project come out of various departments and are given a common work area. Matrix project organisation is marked by the division of management authority between the project manager and the department heads of the permanent organisation.

New forms of project organisation are characterised by the "Empowerment" of the project team members, the project team and the project itself as relatively autonomous organisations, and also through integrated organisational design, in which the representatives of the relevant environments are drawn into the project team.

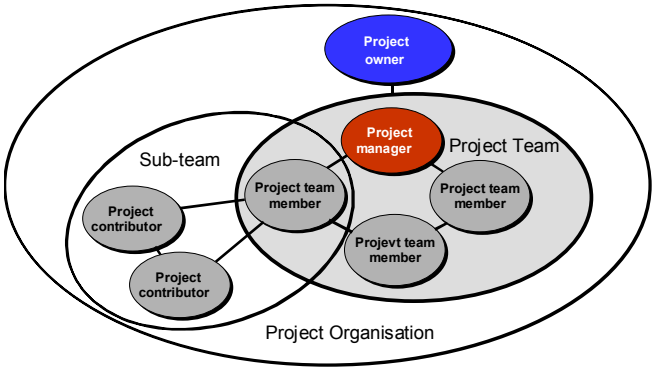

Figure 6: "Empowered" Project Organisation

References

ICB 1999, p. 51

Suggestions for Further Reading

Gower Handbook 2000, Partnering, Benchmarking and Alliances, pp. 589-612

Kerzner 2001, Chap. 3 Organizational Structures, pp. 97-156

Knutson 2001, Organizational Issues, pp. 419 - 421

3.2. Project Roles

A role is defined as a bundle of expectations from a position or job. Project roles are defined by the description of assignments, authority , responsibilities and behavioural expectations. The objectives of the definition of project roles are the clarification of the collaboration of the project team, and the definition of the social project boundaries.

It is possible to differentiate between individual and group roles.

Project related roles for individuals are, for instance,

- Project owner
- Project manager
- Project team member
- Project contributor

Project related group roles are for instance

- Project owner (as committee)
- Project team
- Sub-teams

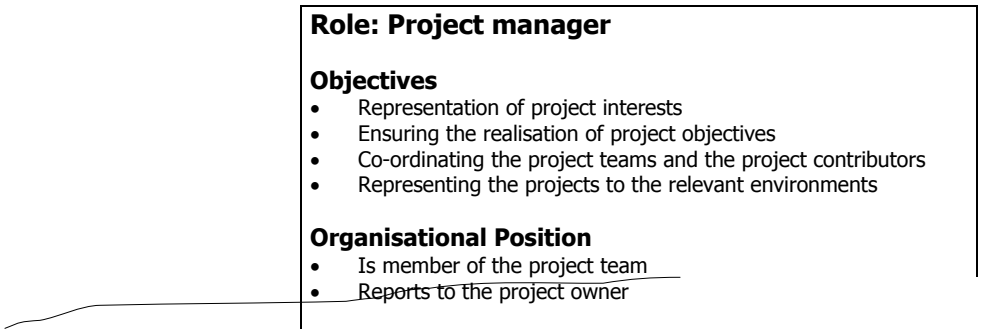

Figure 7: Part of the Role Definition of a Project Manager

References

Gareis, Huemann 2000, PM Competences in the Project-oriented Organisation

ICB 1999, p. 51

Suggestions for Further Reading

Kerzner 2001, Chap. 4.7 Duties and Job Descriptions, p. 186

Knutson 2001, Chap. 2 The Project Players, Chap. 3 The Manager of Projects, pp. 39 - 88

Mantel, Meredith 2000, Chap. 3 The Project Manager, pp. 85-134

3.3. Project Teamwork

Because projects have as content a number of interdependent activities, the fulfilment of which crosses the borders of individual departments, teamwork is the basic requirement to ensure the success of a project.

The objective of the composition of the project team is, however, not the "sum of the qualifications" of the individual project team members, but to optimise the qualifications of the team as a whole.

In doing so one must ensure a level of variety and redundancy in the team. Variety in the project team is realised through the selection of team members with different personal backgrounds, different education, different professional experiences, and belonging to differing organisational cultures. Redundancy can be ensured through the selection of team members with common history, similar professional qualifications, similar environmental contacts and so on.

The development of a project team can be supported by the performance of a start workshop.

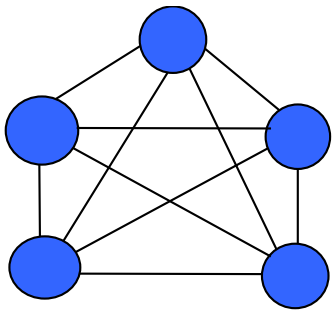

Figure 8: "Real" Teamwork

References

Gareis, Huemann 2000, PM Competences in the Project-oriented Organisation
ICB 1999, p. 52

Suggestions for Further Reading

Briner, Geddes, Hastings 2001, pp. 93

Gower Handbook 2000, Chap. 40 Managing Teams: The Reality of Life, pp. 723-739

Kerzner 2001, Chap. 5.5 Barriers to Project Team Development, pp. 249 – 252, Chap. 5.7 Team Building as an Ongoing Process, pp. 258 - 259

Knutson 2001, Chap. 5 Team Dynamics, pp. 121 - 146

3.4. Leadership in Projects

Leadership activities in projects are to be carried out by the project owner, the project manager and the project team.

The functions of leadership are, for instance
- The agreement of objectives,
- Informing and deciding,
- Controlling and giving feedback,
- Ensuring freedom of action and recommending work forms, as well as
- Directing energy in the project.

The objectives are giving orientation to the project team members, motivation and further development of the project team members. In order to ensure performance the project team members are to be given freedom of action, which tends to be reduced during the course of the project.

Energy in a project can be directed though the use of event-oriented leadership in project workshops, project presentations and milestone celebrations, since these are not be carried out continuously throughout the duration of the project.

References

ICB 1999, p. 53

Suggestions for Further Reading

Geddes, Hastings, Briner 2001, Chap. 1 What makes a good Project Leader?, pp. 13

Gower Handbook 2000, Chap. 41 Managing and Leading, pp. 741-755

Kerzner 2001, Chap. 5.8 Leadership in a Project Environment, pp. 260 - 266

Knutson 2001, Chap. 5 Team Dynamics, pp. 121 - 146

3.5. Project Communication

In the project start process the communication forms one-to-one-meetings, kick-off meetings and project start workshop(s) can be combined. A project start workshop contributes to assurance of quality in project management

The objective of the one-to-one-meeting between the project manager and a project team member is to inform about the project and to exchange expectations each may have about working together. This basic orientation provides a good basis for the participation in further communications activities.

The objective of a kick-off meeting is for the project owner to inform the project team and project manager about the project. This is a "one-way" communication and lasts from 2 to 3 hours with little possibility for interaction.

The objective of the project start workshop is to develop the "Big Project Picture" by the project team. The interaction of the team members in the workshop forms a large contribution to the development of the project culture. A project start workshop lasts 1 to 3 days and takes place in a moderated form, usually outside the workplace, possibly in a hotel.

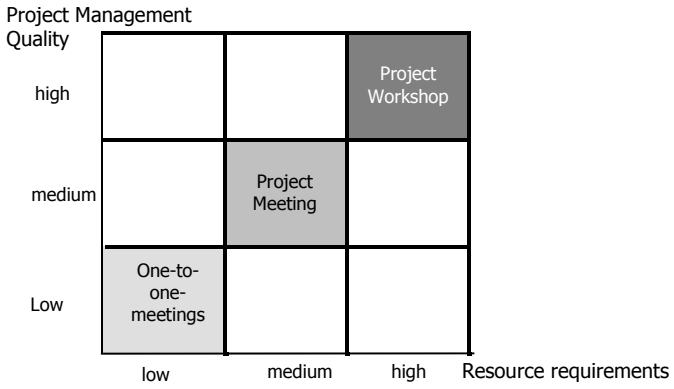

Figure 9: Communications Activities in Projects

References

Gareis 2000, Managing the Project Start
ICB 1999, p. 54

Suggestions for Further Reading

Fangel 1998, Best Practice in Project Start-Up, pp. 354-361

3.6. Project Culture

As an independent social system a project has a culture. The project culture can, as a whole, define the values, norms and rules of a project.

Project culture is not directly describable, but can be observed in the capabilities and behaviour of the project members, the planning and controlling methods, the form of the project communications, etc.

Project specific values give a standard for what is seen as good, valuable and desirable in the project. They determine the conscious and unconscious behaviour of the project team members and give them orientation.

Methods for developing a project culture are the establishment of a project mission statement, a project name and a project logo, the development of a project vocabulary and project specific social event.

Project specific rules give the project team members orientation and can be summarised in the project handbook.

Date	Slogan
12/88	Total marketing!
10/89	No more creativity! Love for the details and for high quality in production!
5/90	Have fun, everything is decided!
6/90	INTERNET ´90 - A High Touch Project!

Figure 10: Examples of Project Slogans

References

ICB 1999, p. 37

Suggestions for Further Reading

Gower Handbook 2000, Chap. 44 Managing Culture, pp. 793-814

4. Methods for Project Start: Project Planning

4.1. Project Objectives

The project objectives should clarify the meaning of the project and define the desired results. A holistic project view ensures the consideration of all closely coupled objectives. Objectives can be broken down into main objectives and additional objectives.

Additional objectives are objectives which are not directly related to the main results of the project. Additional objectives of a customer project in construction could be, for instance, organisational development, personnel development or marketing objectives.

Project objectives are, wherever possible, to be formulated operationally with consideration of the quality and quantity requirements. With the definition of non-objectives the project boundaries become clearer. Non-objectives can be redefined as an additional objective at a later time, if required.

Type of Objective	Objective: Base plan	Objective: adapted on _____	Objective: adapted on _____
Main Objectives	• •	• •	• •
Additional Objectives	• •	• •	• •
Non-Objectives	• •	• •	• •

Figure 11: Project Objective Plan Form

References

ICB 1999, p. 37

Suggestions for Further Reading

Kerzner 2001, Chap. 7.1 Objectives, pp. 379 - 381

4.2. Object Breakdown Structure (Objects of Consideration)

The object breakdown structure is the structuring of the objects to be created within a project. It represents the individual components and their relationships to each other in a hierarchical manner, either graphically or in a table. The object breakdown structure is a model of the most important results of the project and the basis for work breakdown structure planning.

The objective of an object break down structure is to create a common view of the objects to be considered in the project. The structuring of the objects can be according to systems, locations, etc.

In projects which have no physical results, such as organisational development or marketing projects, an object break down structure can be particularly meaningful.

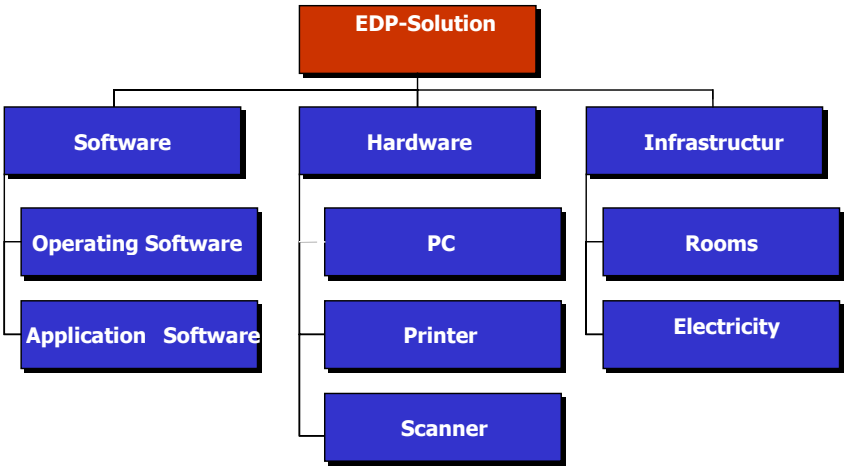

Figure 12: Object Breakdown Structure

References

ICB 1999, p. 13

4.3. Work Breakdown Structure

The objective of the work breakdown structure is the structuring of the tasks to be fulfilled in the project into work packages. The work breakdown structure is

- a structure of the project in planable and controllable work packages
- a basis for schedule, cost and resource planning
- a central communications tool in the project.

In contrast to the object breakdown structure the work breakdown structure shows no components, but shows individual work packages instead. The structuring of the work breakdown structure is process-oriented in phases. The level of detail of the work breakdown structures serves as the basis for the agreement of objectives between the project manager and the project team members.

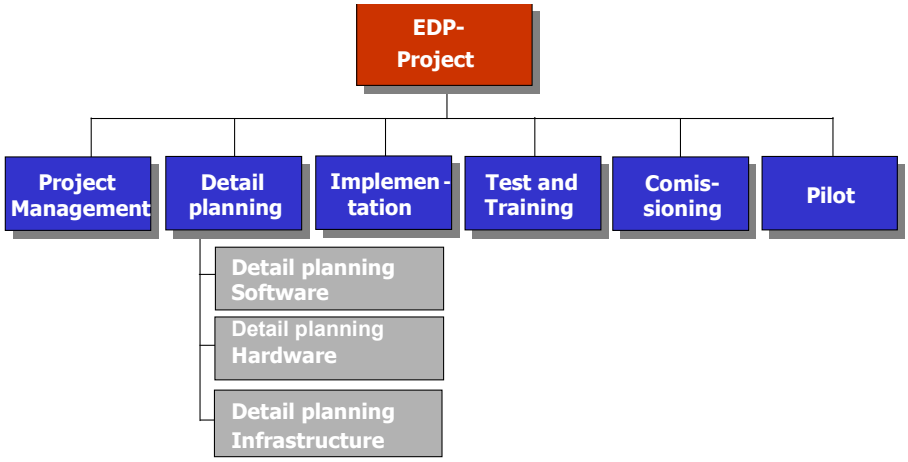

Figure 13: Work Breakdown Structure

References

ICB 1999, p. 41

Suggestions for Further Reading

Cleland 1994, Chap. Work Breakdown Structure, pp. 250

Kerzner 2001, Chap. 11.10 Work Breakdown Structure, pp. 573

Knutson 2001, Work Breakdown Structure, The Task List, pp. 238

Mantel, Meredith 2000, Chap. 5.4 The Work Breakdown Structure, pp. 203

4.4. Work Package Specifications

In work package specifications the content, objectives and results of work packages are defined. They serve as a basis for agreements. The objectives of the work package specification are

- to clarify the objectives and the content of the work package
- the clear differentiation of the individual work packages from one another
- the recognition of connections between work packages
- the definition of the evaluation and measurement of performance for the work package
- to give orientation to the work of the project team members and to establish commitment

Work package specifications are not prepared for all work packages, but only for the most important and unclear ones.

Project Name ***Project Number***	WP SPECIFICATION		
WBS Code, WP Description	WP Content		
	Non-WP Content		
	WP Results		
	Performance Measurement		
Version:	Date:	Author:	Page 1 of 1

Figure 14: Work Package Specification Form

References

ICB 1999, p. 41

Suggestions for Further Reading

Kerzner 2001, Project Specifications, pp. 570 - 572

4.5. Project Phases

A project phase is a defined period of time in a project which can be differentiated from other phases by its objectives and contents. The project phases are different for each project. They can, however, be standardised for certain types of projects.

The phases of a conception project are, for instance, collecting information, definition and description of alternatives, decision making. The phases of a construction contracting project are, for instance, engineering, procurement, logistics, assembly and comissioning.

Thinking in project phases promotes a process-oriented structuring of projects into work breakdown structures.

References

ICB 1999, p. 35

Suggestions for Further Reading

Gower Handbook 2000, Chap. 14 Managing Scope - Functionality and Value, pp. 237-250; Chap. 23 Managing the Project Life Cycle, pp. 431-449

Kerzner 2001, Chap. 11.3 Life Cycle Phases, pp. 558

Knutson 2001, Life Cycles, pp. 18

4.6. Project Scheduling

In scheduling a project one must take into consideration the planning object, the depth of the planning and the methods to be used. The project scheduling can either be the entire project, or portions thereof, such as individual project phases. Here one can use different scheduling methods for different planing objects.

The scheduling of a project can be made with milestone lists, a bar chart, or network plan. The planing depth can be either high level or detailed.
The basis for scheduling is the work breakdown structure and the work packages at various levels.

A milestone list, bar chart or network plan are complimentary to one another. The efficient use of one or more scheduling methods is dependant upon the complexity and dynamic of the project in question. The information requirement for the application of various scheduling methods and the individual results differ.

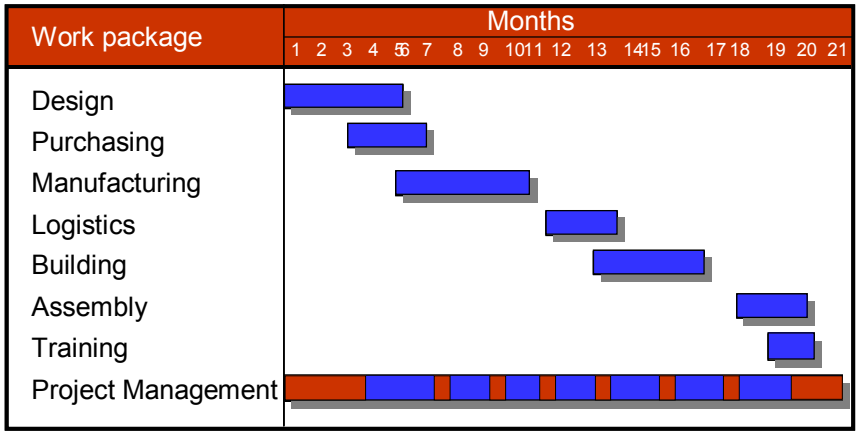

Figure 15: Bar Chart

References

ICB 1999, p. 43

Suggestions for Further Reading

Gower Handbook 2000, Chap. 19 Managing the Schedule, pp. 323-347

Kerzner 2001, Chap. 12 Network Scheduling Techniques, pp. 671-722

Mantel, Meredith 2000, Chap. 8 Scheduling, pp. 302-339

4.7. Project Resources

Typical project resources are personnel with different qualifications, equipment, material, storage space. In planing project resources not all of the resources used in the project will be planned, only those which are considered to be scarce.

The objective of planning resource requirements is the defining of over and under coverage of project requirements with the available project resources. The requirement and the availability of scarce resources can be visualised in a resource histogram either for each planning period or cumulatively over time in a project resource curve.

Network plan supported resource plans can be developed for different schedules. As basis for optimisation decisions, two extreme schedule scenarios are assumed: the earliest possible and the latest allowed. Because the planning of project resources is reduced to the consideration of scarce resources, this is no instrument for general resource planning in the project-oriented organisation. It is, therefore, not a replacement for a departmental personnel planning.

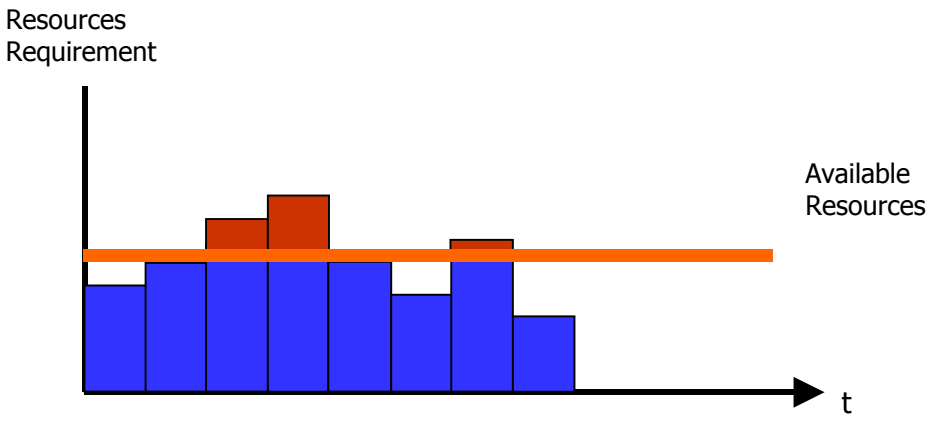

Figure 16: Resource Histogram

References

ICB 1999, p. 44

Suggestions for Further Reading

Gower Handbook 2000, Chap. 20 Managing Resources, pp. 349-373

Kerzner 2001, Chap. 20.5 Identifying Strategic Resources, pp. 1023 - 1028

Knutson 2001, The Resource Allocation Process, pp. 208 - 212

Mantel, Meredith 2000, Chap. 9 Resource Allocation, pp. 361-388

4.8. Project Costs

The objectives of project cost planning are the estimation and the documentation of project costs. Project cost plans offer the basis for decisions: whether or not to execute a project, fixing of the price on an offer. Project costs can be planned for internal as well as external projects.

The objects of consideration in cost planning are the work packages of the work breakdown structure. Project related cost plans can be created for individual work packages, for individual object components, for sub-assignments and for the project as a whole. In doing so the structure of the project cost plan should match the structure of the work breakdown structure, in order to make integrated project planning and integrated project controlling possible.

Types of costs can be differentiated according to functional criteria, such as personnel costs, material costs, equipment costs, administrative and sales costs; according to cost centres as direct and indirect costs, and according to activity, as fixed or variable costs.

Project Name ***Project Number***		PROJECT COST PLAN				
WBS Code	Phase / Work Package	Cost Type	Plan Cost	Adapted Plan Cost from	Actual Cost	Cost Deviation
		• Personnel				
		• Material				
		• Subcontractors				
		• Other				
		Total				
Project costs						
Version:		Date:	Author		Page 1 of 1	

Figure 17: Project Cost Form

References

ICB 1999, p. 45

Suggestions for Further Reading

Gower Handbook 2000, Chap. 18 Managing Cost, pp. 293-321

Kerzner 2001, Chap. 14 Pricing and Estimating, pp. 741-792

Knutson 2001, The Project Budget, pp. 257, Budget Worksheet, pp. 267

Mantel, Meredith 2000, Chap. 7 Budgeting and Cost Estimation, pp. 261-276

4.9. Project Financing

Financing can be a scarce resource in a project. Project finance plans are graphical or tabular representations of the timing of project related cash inflows and cash outflows. The flow of payments in a project can be visualised in a histogram per period and in a cumulative curve. In network plan supported project finance planning it is possible to create cash flow histograms and curves for various schedule scenarios.

The objective of project finance planning is the planing of project related liquidity. By calculating the payment surplus in a given period the requirement or availability of cash can be planned.

The cash requirement is eventually to be financed through the project. In any event, financing costs such as interest should be calculated as project costs.

If project-related surpluses occur, they can be invested. The earnings on such investments should be taken into account when calculating the results of the project.

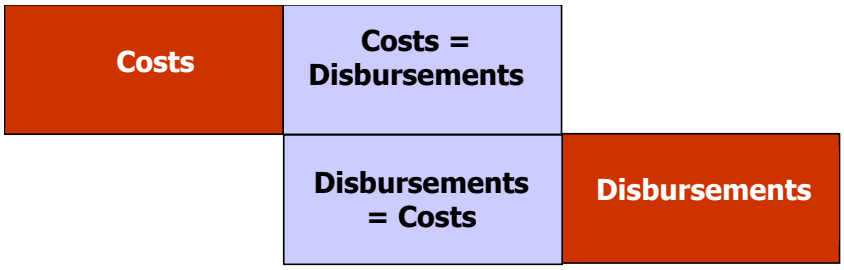

Figure 18: Project Financing

References

ICB 1999, p. 45

Suggestions for Further Reading

Gower Handbook 2000, Chap. 29 Managing Finance, pp. 541-563

4.10. Project Risks

Project risk can be defined as negative or positive deviations of the project objectives. The objectives of project risk management are

- The analysis of risks
- The minimisation of damages
- The use of potentials

The functions of risk management are

- Risk analysis
- Risk evaluation
- Risk actions (avoidance and provisions)

Project risks can be broken down into various types. Risk management in projects is a project management function. The use of project management methods, such as work breakdown structuring, network planning and the project environment analysis, can be considered as risk avoiding actions.

Project Name ***Project Number***			PROJECT RISK ANALYSIS				
WBS Code	WP Description	Risk	Benefit/Cost in 100 EUR	Probability	Expectation in 100 EUR	Avoiding Action	Provisional Action
Version:		Date:	Author:			Page 1 of 1	

Figure 19: Project Risk Analysis Form

References

ICB 1999, p. 47

Suggestions for Further Reading

Chapman, Turner 1995, Chap. 4 Risk Analysis, pp. 61

Chapman, Ward 1997, Project Risk Management

Chicken, Posner 1998, The Philosophy of Risk

Gower Handbook 2000, Chap. 21 Managing Risk, pp. 375-394

Kerzner 2001, Chap. 17 Risk Management, pp. 903-938

Knutson 2001, Chap. 11 Risk Management, pp. 335 - 373

5. Methods for Project Co-ordination

5.1. TO DO-Lists
5.2. Minutes of Meetings

5.1. TO DO-Lists

Team and sub-team meetings are used for communications in the project co-ordination process. To support communications TO DO-lists are used. A TO DO-list is a list of actions to be carried out in relation to work packages with assigned responsibilities and deadlines. The TO DO-list aids the individual project team members for operational planning as well as in making agreements.

Project Name ***Project Number***		TO DO-LIST from		
WBS Code from WP	Action	Responsible	Deadline	Status
Version:	Date:		Author:	Page 1 of 1

Figure 20: TO DO-List Form

References

ICB 1999, p. 61

Suggestions for Further Reading

Knutson 2001, Action Item List, pp. 333

5.2. Minutes of Meetings

Minutes of meetings are created in order to document the results of discussions and to ensure that agreements have been documented.

A meeting protocol contains
- the names of the participants in the meeting
- the key statements
- decisions made
- agreements in regard to the next steps.

Acceptance protocols serve to document the closure of work packages.

References

ICB 1999, p. 50

Suggestions for Further Reading

Kerzner 2001, Chap. 5.13 Communications, pp. 273 – 284

Knutson 2001, Protocol, pp. 322 - 323

6. Methods for Project Controlling

6.1. Change Management
6.2. Project Status Report, Project Score Card
6.3. Earned Value Analysis
6.4. Adaptation of Project Plans

6.1. Change Management

The objective of change management is to manage the dynamics in projects and in the project environment relationships. The changes to be considered in change management are changes in the project objectives.

Change management in customer projects is often understood as "claim management". A "claim" is an additional requirement from the customer or supplier due to a deviation from a contract.

References

ICB 1999, p. 46

Suggestions for Further Reading

Gower Handbook 2000, Chap. 15 Managing Scope - Configuration and Work Methods, pp. 251-266

Kerzner 2001, Chap. 11.27 Configuration Management, pp. 620 - 621

6.2. Project Status Report, Project Score Card

The project status report is a formal result of the project controlling process. Project status reports are generated periodically.

The contents of the project status report are the overall status of the project, the status of the project objectives, the project progress, the project schedule, the project costs and / or the benefits, the project environment relationships and / or the context, the project organisation and the status of the project culture.

The Project Score Card aids the visualisation of the project status. The following criteria can be taken into consideration:

- Project objectives and context
- Project progress, costs, schedule
- Project organisation
- External project environments

The status of each criteria will be defined, whereby "traffic lights" can be used to support visualisation:

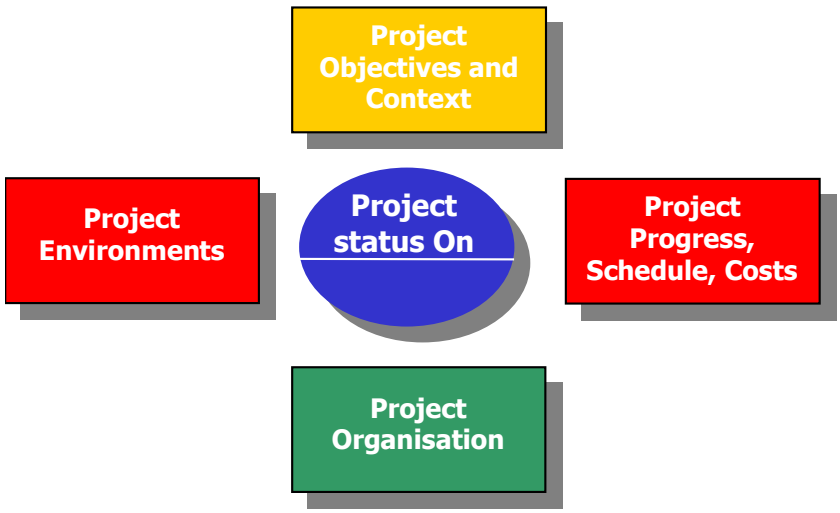

Figure 21: Project Score Card

References

ICB 1999, p. 49

Suggestions for Further Reading

Gower Handbook 2000, Chap. 26 Managing Implementation and Progress, pp. 479-503

6.3. Earned Value Analysis

The objective of the earned value analysis is the monetary evaluation of the progress (earned value) at a particular point in time, the establishment of an appropriate basis for evaluation of the remaining costs and the establishment of a basis for progress-related payments from the customer.

The earned value is defined as the planned costs for the actual work performed. The earned value is derived on the basis of the work packages, where progress can be measured. By aggregation it is possible to establish the progress and the earned value for the project phases and for the project.

It is assumed that there is a proportional relationship between the project progress and the project costs.

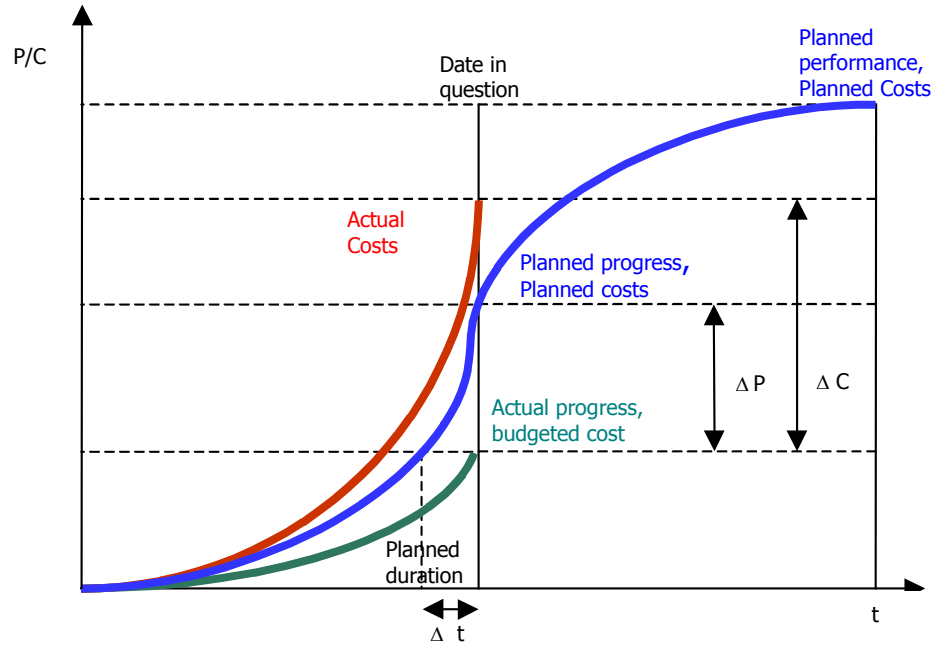

Figure 22: Earned Value Analyse

References

ICB 1999, p. 48

Suggestions for Further Reading

Gower Handbook 2000, Cost Reporting Based on Earned Value, pp. 316-321

Kerzner 2001, Chap. 15.5 Variance and Earned Value, pp. 835 – 839, Chap. 15.6 Recording Material Costs Using Earned Value Measurements, pp. 848 - 850

6.4. Adaptation of Project Plans

Because changes can occur during the execution of a project, and in order to improve the level of information in a project, it makes sense to carry out periodic project controls.

In the project controlling process the project plans, which were created in the project start process, can be adapted, if required. These include the work breakdown structure, the bar chart, risk analysis, project environment analysis, and also the project organisation and project culture.

References

ICB 1999, p. 50

Suggestions for Further Reading

Gower Handbook 2000, Chap. 26 Managing Implementation and Progress, pp. 479-503

7. Methods for Project Close-down

7.1. Project Close-down and Project Context
7.2. Assessment of the Project and of the Project Team
7.3. Project Close-down Documentation

7.1. Project Close-down and Project Context

Agreements for the post-project phase are made during the project close-down process. The relationships between the relevant environments are dissolved with the project close-down and a final project marketing is carried out. An important objective of the project close-down is to ensure the transfer of acquired know-how to the permanent organisation.

Project management methods for project close-down are:

- To-Do-Lists for remaining tasks and agreements for the post-project phase
- Project close-down reports
- "As-is" project management documentation
- Final presentations, publication of project results

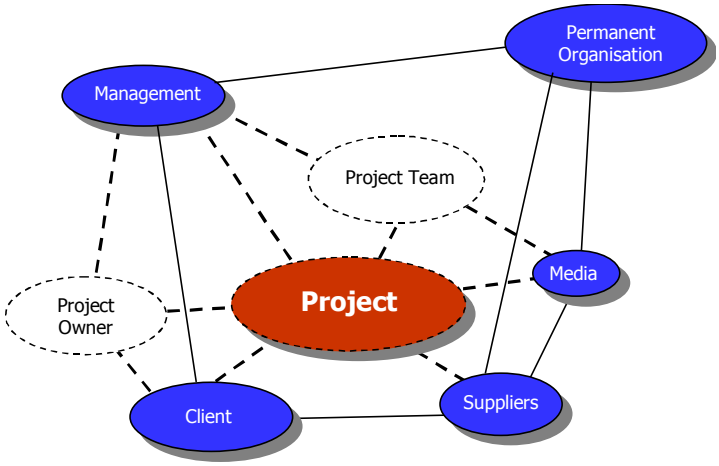

Figure 23: Dissolving the Project Environment Relationships

References

ICB 1999, p. 40

Suggestions for Further Reading

Knutson 2001, Chap. 12 Closeout Management, pp. 374-391

7.2. Assessment of the Project and of the Project Team

In the project close-down process an assessment of the project results can be made. Assessment criteria are:

- Content-related criteria: performance fulfilment, fulfilment of additional objectives, adherence to the schedule and costs
- Process-related criteria: quality of the project teamwork, relationships to relevant environments

The assessment can be made in individual one-to-one meetings, group meetings or workshops. The following methods can be used for performance appraisal: written or verbal; reflection, feedback; questionnaire, moods. The appraisal can be linked to the payment of a project bonus.

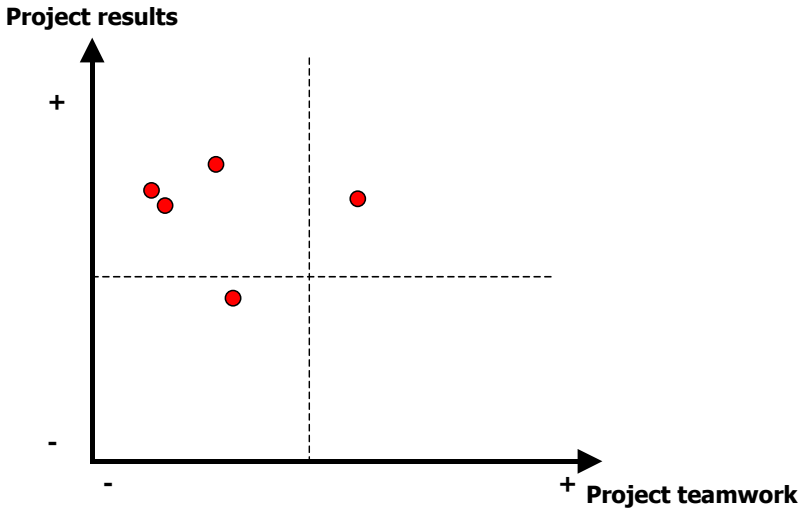

Figure 24: Example of an Assessment

References

ICB 1999, p. 40

Suggestions for Further Reading

Knutson 2001, Chap. 12 Closeout Management, pp. 374-391

7.3. Project Close-down Documentation

The contents of the project close-down report are the presentation of the project results, the assessment of the realisation of the project objectives and the reflection of the gained project experiences.

The project close-down report can be structured either by project phases and/or by the relationships with the relevant project environments; it is to be created specifically for the target readership. The "As-Is" project management documentation is a part of the project close-down report.

Project Name	Project Close-Down Report		
Overall Impression			
•			
Reflection: Fulfilment of Work Packages			
•			
Reflection: Environmental Relationships			
•			
Summary of Experiences for other Projects			
•			
Appendix: As-is-Project Management Documentation			
Version: 1	Date:	Author:	Page 1 of 1

Figure 25: Project Close-down Report Form

References

ICB 1999, p. 21

Suggestions for Further Reading

Knutson 2001, Chap. 12 Closeout Management, pp. 374-391

8. Methods for Resolving a Project Discontinuity

8.1. Situation Analysis
8.2. Scenario Technique
8.3. Strategies and Actions

8.1. Situation Analysis

The objective of the situation analysis is the analysis of the causes that lead to a project crisis or a project opportunity.

Causes for a project crisis can be unclear project assignments, inadequate project planning, inefficient project organisation, missing reporting structure, the insolvency of a partner or customer, legislative changes or a destructive influence of the media.

The causes of a project opportunity could be new available technologies, new possible partnerships, additional customer requirements, etc.

The causes of a phase transition crisis require no specific analysis, since these are structurally determined and are known at project start.

References

ICB 1999, p. 55

Suggestions for Further Reading

Gower Handbook 2000, Chap. 43 Managing Conflict, Persuasion and Negotiation, pp. 777-791

8.2. Scenario Technique

The scenario technique can be used in the management of a discontinuity.

The objective of the scenario technique is the description of possible future states of a project. This is achieved by the use of a future-oriented planning, rather than one that is oriented to the past.

In the scenario technique several scenarios (Best Case, Worst Case, Trend-Scenario) will be worked out, in order broaden the spectrum of the strategies.

References

ICB 1999, p. 55

Suggestions for Further Reading

Gower Handbook 2000, Chap. 43 Managing Conflict, Persuasion and Negotiation, pp. 777-791

8.3. Strategies and Actions

To deal with a project discontinuity it is necessary to plan and to control the strategies and actions to be used. The strategies should be defined with reference to the project environment. The controlling of the strategies should be given special priority.

References

ICB 1999, p. 55

Suggestions for Further Reading

Gower Handbook 2000, Chap. 43 Managing Conflict, Persuasion and Negotiation, pp. 777-791

9. Programmes and Programme Management

9.1. Programme Definition
9.2. Design of the Programme Organisation
9.3. Programme Planning and Programme Controlling

9.1. Programme Definition

A programme is a group of projects and temporary tasks, which are closely linked through common objectives. Programmes are limited in time and organisation. The linking of projects into the framework of a programme is achieved not only through common objectives, but also through a common budget, programme schedule, programme strategies, organisational rules and programme marketing. Programmes have a higher level of complexity, usually have a longer duration, a higher budget, and a higher risk than projects. Compared to projects, programmes have a higher strategic importance.

Typical programmes are for instance the development of a new product group, the implementation of a comprehensive information technology solution (such as SAP), the re-organisation of a group of companies into a holding group, and large-scale investments, such as an oil platform.

Programme management can be seen as a business process of the project-oriented organisation. The objective of programme management is the successful execution of programmes.

The objects of consideration in programme management are:
- The programme objectives, programme scope, programme schedules, programme resources and programme costs
- The programme organisation and programme culture, as well as
- The programme context (pre-, post-programme phase, programme environments, other programmes and projects)

Programme management takes place continuously over the life of the programme (programme coordination), but also "energetical" in the individual programme management processes, programme start, programme controlling, resolution of programme discontinuities and programme close-down.

References

Gareis 2000, Programme Management and Project Portfolio Management: New Competences of Project-oriented Organizations

Suggestions for Further Reading

CCTA 1999, What is Programme Management?, pp. 2

Gower Handbook 2000, Chap. 3 Managing Programmes of Projects, pp. 47-63

Loftus 1999, Project Management of Multiple Projects and Contracts

9.2. Design of the Programme Organisation

In order to make autonomous projects possible on one side, and to make use of synergies between projects on the other side, a specific programme organisation is required. Typical programme roles are the programme owner, the programme manager, the programme team and the programme office. The programme owner role is to be differentiated from the project owner role. Typical communication structures in a programme are programme owner's meetings and programme team meetings.

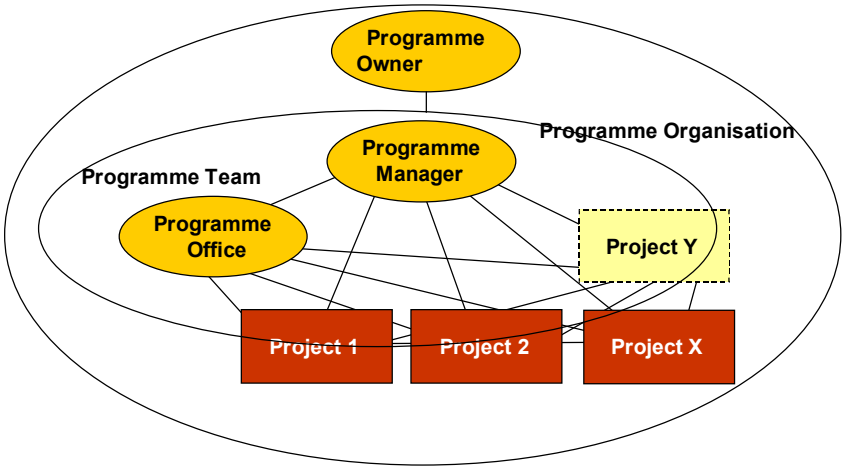

Figure 26: Programme Organisation

References

Gareis 2000, Programme Management and Project Portfolio Management: New Competences of Project-oriented Organizations

Suggestions for Further Reading

CCTA 1999, Chap. 3 Programme Management Organisation, pp. 19

Gower Handbook 2000, Chap. 3 Managing Programmes of Projects, pp. 47-63

9.3. Programme Planning and Programme Controlling

The processes and methods of programme management are equivalent to the processes and methods of project management. Project management and programme management processes in a programme run parallel to each other in time but are to be carried out separately.

References

Gareis 2000, Programme Management and Project Portfolio Management: New Competences of Project-oriented Organizations

Suggestions for Further Reading

CCTA 1999, Chap. 4 Programme Planning, pp. 31

Gower Handbook 2000, Chap. 3 Managing Programmes of Projects, pp. 47-63

10. Assignment of Projects and Programmes and Investment Evaluation

10.1. Assignment of Projects and Programmes
10.2. Investment Evaluation

10.1. Assignment of Projects and Programmes

In order to formally start a project, a project assignment is required. The project assignment process begins with the emergence of a project idea and ends with the assignment of a project team.

The project assignment process includes:

- Project idea development
- Investment proposal development
- Decision making
- Awarding the project assignment

Important methods for the project assignment process are the definition of the project boundaries, and the definition of the project context, the investment proposal and the project assignment.

A project assignment is a written or verbal assignment from the project owner to the project manager or project team. The project assignment is to be documented in a standardised form. It contains the most important project data.

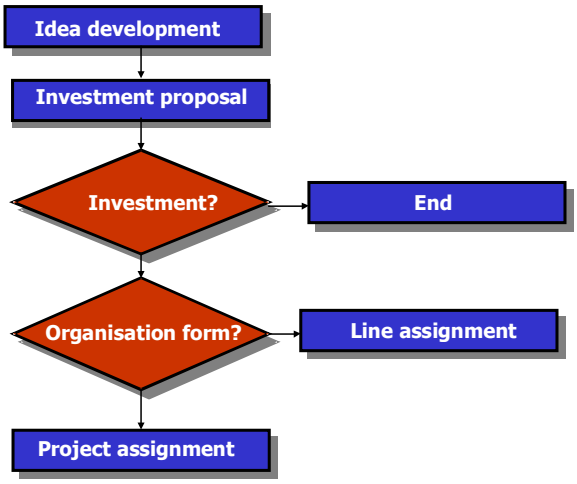

Figure 27: Project Assignment

References

ICB 1999, p. 36

Suggestions for Further Reading

Knutson 2001, Chap. 6 Proposal Management, pp. 149-186

10.2. Investment Evaluation

An investment which has been initiated through a project or programme can be evaluated after closure of the project (or programme). This evaluation can be for an investment in infrastructure, in products, in the organisation and in personnel.

The objects of consideration in the evaluation can be the initialisation process, meaning the project or the programme, as well as the results of this initialisation process. The objectives of investment evaluation are the setting of corrective actions as well as learning for similar investments in the future.

The evaluation process includes the phases of planing the evaluation, collecting and evaluating information, the development of corrective action, as well as generating reports and the communication of the evaluation results. Document analysis, interviews, questionnaires and observation can be used as evaluation methods. A central result of the investment evaluation is an adapted Business Case of the investment.

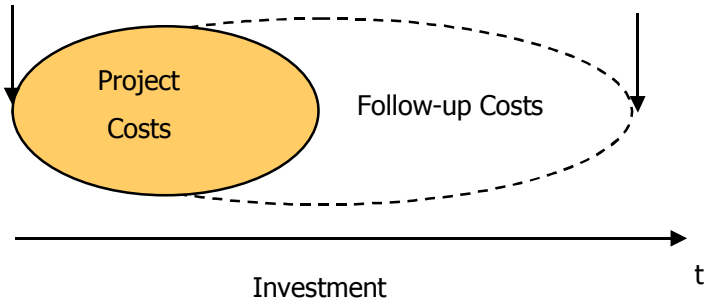

Figure 28: Project and Investment

References

ICB 1999, p. 36

11. Managing the Project-oriented Organisation

11.1. Model of the Project-oriented Organisation
11.2. Consulting and Auditing of Projects and Programmes
11.3. Project Portfolio Management
11.4. Network of Projects
11.5. Personnel Management in the Project-oriented Organisation
11.6. Organisation of the Project-oriented Organisation

11.1. Model of the Project-oriented Organisation

A project-oriented organisation is an organisation, which

- uses "Management by Projects" as an organisational strategy,
- uses temporary organisations to carry out processes of a large scope,
- manages various types of projects in a project portfolio,
- has specific permanent organisations for integration,
- applies the New Management Paradigm,
- has an explicit project management culture and
- perceives itself as project-oriented.

The most important structural feature of a project-oriented organisation is the use of temporary and permanent organisations as structural elements. Whilst temporary organisations (projects and programmes) contribute to the differentiation of the project-oriented organisation, permanent structures support integration. Integrative structures of the project-oriented organisation are, for example, resource pools and the PM Office.

Specific processes of the project-oriented organisation are: project management, programme management, the assignment of projects and programmes, consulting and auditing of projects and programmes, project portfolio management, project networking, personnel management in the project-oriented organisation, organisational design of the project-oriented organisation.

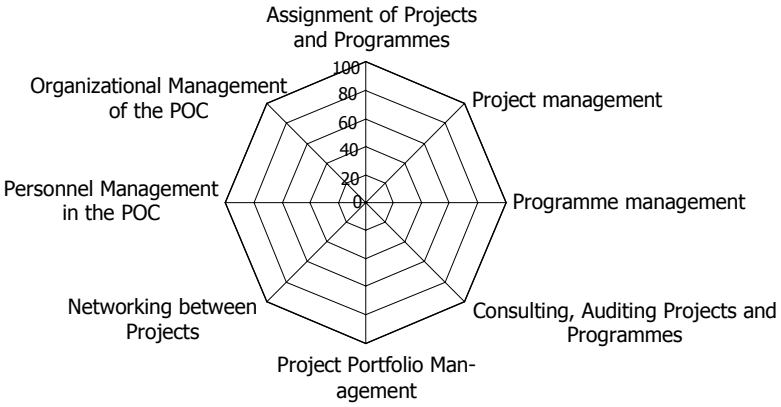

Figure 29: Specific Management Processes of the POO

References

Gareis 2002, A Process-based Maturity Model for the Assessment of the Competemces of Project-oriented Companies

Gareis, Huemann 2000, PM Competences in the Project-oriented Organisation

ICB 1999, p. 32

Suggestions for Further Reading

Gareis 1990, Management by Projects, pp. 35-47

Turner, Keegan 2000, Processes for Operational Control in the Project-based Organization, pp. 123-134

11.2. Consulting and Auditing of Projects and Programmes

The objective of project management consulting is to improve project management quality through project management consulting and to make a contribution to securing project success. Project management consulting focuses on the project management process and not on the project content.

Project auditing can be differentiated by auditing project content and process. The PM Audit serves as evaluation of the project management process in projects or in programmes.

Quality of PM in Project „XY " **Status: Project Start**			
Project:	**Company:**		
Criteria	**Weight**	**Score r**	**Weighted Score**
Project Assignment	10%		
Business Case	10%		
Object breakdown plan and work breakdown plan	10%		
Milestone plan and Bar Chart	10%		
Project budget	10%		
Project risk analysis	10%		
Project organisation	10%		
Project environment analysis	10%		
Consistency in the PM Documentation	10%		
Process of creating the PM Documentation	10%		
Total PM Audit Score:	**100%**	—	
PM Auditor:	Date:	Seite:	

Figure 30: PM Audit Checklist for the Project Start

Suggestions for Further Reading

Gower Handbook 2000, Chap. 9 Project Health Checks, pp. 145-160

11.3. Project Portfolio Management

A project portfolio is defined as all the projects being carried out in a project-oriented organisation at a given time.

The objectives of project portfolio management are:

- Optimisation of the results of the project portfolio (not of the individual projects)
- Selecting the projects to be started
- Interruption and / or cancelling of projects
- Definition of project priorities
- Co-ordination of internal and external resources
- Organisation of learning from and between projects

The basis for project portfolio management is a project portfolio database with aggregated project data such as project type, project status, etc. Project portfolio management requires specific project portfolio reports. Typical project portfolio reports are a project portfolio bar chart, a profit versus risk matrix, a project portfolio progress graph, etc.

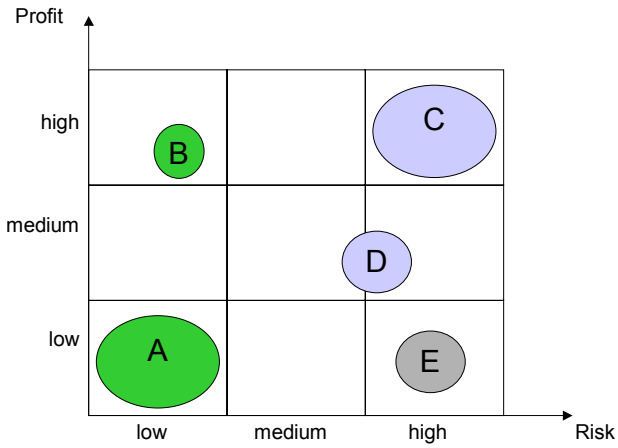

Figure 31: Portfolio Report

References

Gareis 2002, Professional Project Portfolio Management

Suggestions for Further Reading

Knutson 2001, Chap. 7 Portfolio Management, pp. 187-235

11.4. Network of Projects

Projects which are executed simultaneously in a organisation and are related to one another can be viewed as a network of projects. Either all of the projects in the organisation or project groups such as proposal preparation project, contracting projects, product development projects, and so on, can be grouped together into networks of projects.

The objects of consideration in a network of projects are the relationships between several projects.

When one takes into consideration the linking of content of individual projects, such as the use of the same technology or execution in the same geographical region, it is possible to form these projects into a network. The objective of this grouping is to establish synergies between the individual projects.

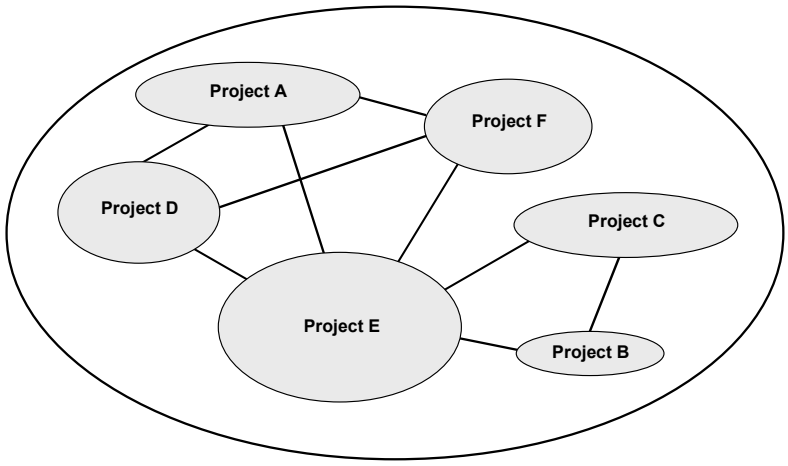

Figure 32: Network of Projects

References

Gareis 2002, A Process-based Maturity Model for the Assessment of the Competemces of Project-oriented Companies

11.5. Personnel Management in the Project-oriented Organisation

Specific personnel management processes in project-oriented organisations are the recruiting, the disposition and the development of project management personnel. One task of personnel development in the project-oriented organisation is, for example, project management training, which serves to qualify project management personnel.

The establishment of a project management career path in an organisation makes long-term development of project management competences possible. Project related incentive systems are specific to the project-oriented organisation.

References

ICB 1999, p. 31, p. 64

Suggestions for Further Reading

Gareis 1990, Handbook of Management by Projects

Gower Handbook 2000, Chap. 38 Managing Human Resources in the Project-based Organisation, pp. 693-707

11.6. Organisation of the Project-oriented Organisation

Project-oriented organisations require specific organisational structures such as expert pools, a PM Office and project portfolio groups. These organisations make use of specific integrative tools such as project management guidelines, standard project plans and project management marketing instruments.

A PM Office is a permanent structure for the professionalisation of project management in the project-oriented organisation. The PM Office is the process owner of project management (and of programme management) processes and as such is responsible for their application and further development.

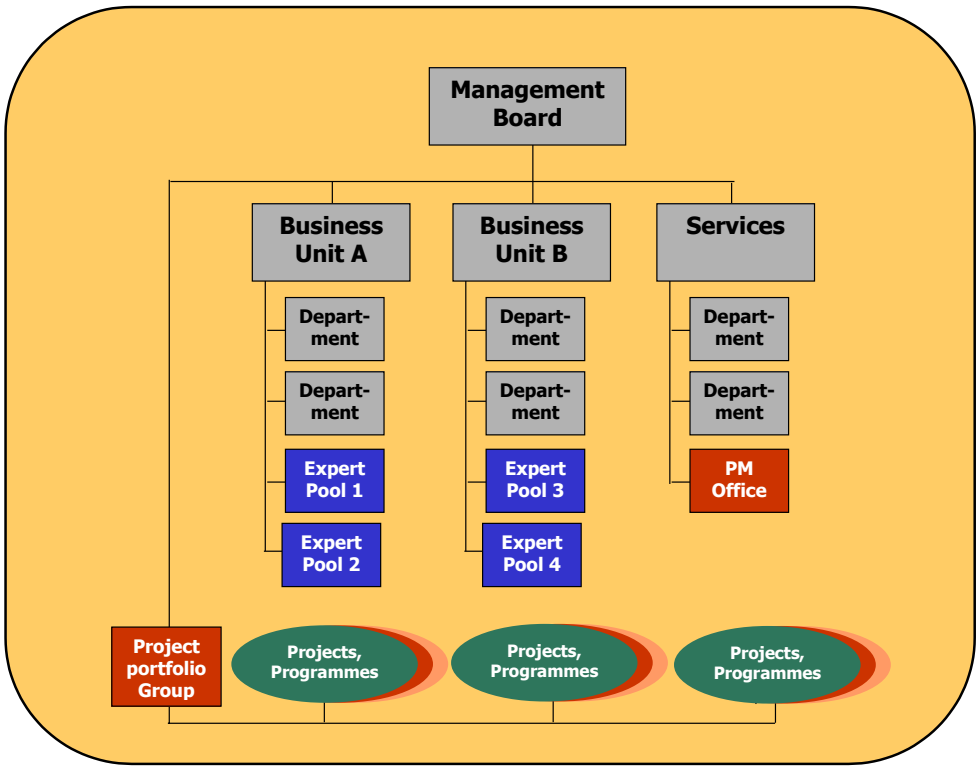

Figure 33: Organisation Chart of the POO

References

Gareis 2002, Professional Project Portfolio Management

ICB 1999, p. 31, p. 59

Suggestions for Further Reading

Knutson 2001, Chap. 14 The Evolution of the Project Office, pp. 455-481

12. Procurement and Contracting

12.1 Procurement and Contracting

12.1. Procurement and Contracting

The fulfilment of project related procurement tasks is especially important for capital investment projects (building, construction, IT). Procurement activities are the development of proposal specifications, request for proposals for services, collecting and comparing offers and awarding assignments.

In addition to knowledge of the legal aspects of proposals and awards, it is also necessary to have knowledge of labour laws, concessions, expropriation, product liability, privacy acts and criminal law.

Questions that are of particular importance should be handled by lawyers. The project manager must provide information about of the project, agree the processes and the schedules, and record the effects on the costing.

Important aspects are the recognition of the law in relation to the project and the introduction of project related prerequisites and procedures.

References

ICB 1999, p. 31, p. 54

Suggestions for Further Reading

Gower Handbook 2000, Chap. 30 Roles and Responsibilities in Project Procurement, pp. 571-587; Chap. 32 Contract Law, pp. 613-628; Chap. 33 Contracts and Payment Structures, pp. 629-641; Chap. 34 Standard Forms of Contracts, pp. 643-647; Chap. 35 Procurement, pp. 649-661

Kerzner 2001, Chap. 24 Contracts and Procurement, pp. 1139-1163

Appendix

- **Bibliography**
- **Overview of the PM Certification Levels of** PROJEKT MANAGEMENT **AUSTRIA**
- **Cross Reference from the pm baseline to the ICB Knowledge Elements**

Bibliography

The bibliography is broken down into two areas
- Project management and programme management and
- Project-oriented Organisations.

Some books and papers refer to both areas. The papers referred to in the dark grey box are available for downloading at www.p-m-a.at.

Project Management and Programme Management

Papers

Gareis 2000, Programme Management and Project Portfolio Management: New Competences of Project-oriented Organizations, PMI Symposium, Houston 2000

Gareis 2000, Managing the Project Start, in: The Gower Handbook of Project Management, JR Turner and SJ Simister (Eds), Gower, Aldershot

Gareis, Huemann 2000, PM Competences in the Project-oriented Organisation, in: The Gower Handbook of Project Management, JR Turner and SJ Simister (Eds), Gower, Aldershot

Gareis 1999, May the Guide to the PMBOK be Challenged by a New Project Management Paradigm?, PMI Symposium, Philadelphia 1999

Books

ICB – IPMA Competence Baseline, 1999, Caupin, G., Knöpfel, H., Morris P. WG, Motzel, E., Pannenbäcker , O. (Eds), IPMA Bremen

Briner, M., Geddes, M., Hastings, C., 2001, Project Leadership, 2nd edition, Gower, Cambridge

CCTA - Central Computer and Telecommunications Agency, 1999, Managing Successful Programmes, London

Chapman, Ch., Turner, R., 1995, Risk Management, in: Turner R. (Ed): The Commercial Project Manager, McGraw-Hill Book Company, London

Chapman, Ch., Ward, St., 1997, Project Risk Management – Processes, Techniques and Insights, John Wiley & Sons, Chichester

Chicken, J.C., Posner, T., 1998, The Philosophy of Risk, Thomas Telford, London

Cleland, D.I., 1994, Project Management – Strategic Design and Implementation, McGraw-Hill Inc., USA

Fangel, M., 1998, Best Practice in Project Start-Up, in: Proceedings 14th World Congress on Project Management, IPMA, Ljublijana

Gower Handbook, 2000, Turner, J.R., Simister, St.J. (Eds), Gower Handbook of Project Management, Gower, Aldershot, England

Kerzner, H., 2001, Project Management – A systems approach to planning, scheduling and controlling, 7th edition, John Wiley & Sons, Inc., USA

Loftus, J. (Ed), 1999, Project Management of Multiple Projects and Contracts, Thomas Telford, London

Luhmann N., 1995. Social Systems, Stanford University Press, Stanford, California.

Mantel, S.J., Meredith, J.R., 2000, Project Management – A Managerial Approach, 4th edition, John Wiley & Sons, New York

Cleland, D.I., Gareis, R. (Ed): Global Project Management Handbook, McGraw-Hill Inc., USA

The Project-Oriented Organisation

Papers

Gareis 2002, Professional Project Portfolio Management, IPMA World Congress, Berlin 2002

Gareis 2002, A Process-based Maturity Model for the Assessment of the Competemces of Project-oriented Companies, 2nd Senet Conference, Cavtat 2002

Gareis 2000, Programme Management and Project Portfolio Management: New Competences of Project-oriented Organizations, PMI Symposium, Houston 2000

Gareis, Huemann 2000, PM Competences in the Project-oriented Organisation, in: The Gower Handbook of Project Management, J.R. Turner and S.J. Simister (Eds), Gower, Aldershot

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ICB – IPMA Competence Baseline, 1999, Caupin, G., Knöpfel, H., Morris P. WG, Motzel, E., Pannenbäcker , O. (Eds), IPMA Bremen

Turner, J.R. (Ed), 1995, The Commercial Project Manager, McGraw-Hill Book Company, UK

Gower Handbook, 2000, Turner, J.R., Simister, S.J. (Eds), The Gower Handbook of Project Management, Gower, Aldershot, England

Knutson, J., 2001, Succeeding in Project-Driven Organizations People, Processes, and Politics. John Wiley & Sons, New York

Overview of the PM Certification Levels of PROJEKT MANAGEMENT **AUSTRIA**

Prerequisites for Registration for the PM Certification Programmes

Certification as	Prerequisite	
	Knowledge	**Experience**
Junior Project Manager (IPMA Level D)	Basic knowledge of project management according to the pm baseline	• Project management experience in at least the last year (as project team member, PM Assistant, PM consultant, etc.)
Project Manager (IPMA Level C)	Special knowledge of project management according to the pm baseline	• Project management experience in at least the last 3 years • Experience as project manager in at least the last 2 years
Senior Project Manager (IPMA Level B)	Expert knowledge of project management and of the management of project-oriented organisations according to the pm baseline	• Project management Experience in at least the last 5 years • Experience as project manager in at least the last 3 years
Project Management Executive (IPMA Level A)	Expert knowledge of project management and of the management of project-oriented companies according to the pm baseline	• Certification as Senior Project Manager • Experience as Programme Manager or PM Office Manager in at least the last 3 years • Publications and lectures in project management
Re-certification	Further education in project management (certificates of attendance in seminars and events) during the last 3 years	• Proof of professional project management activities (short project documentation, confirmation from project owners)

Certification as Junior Project Manager

The minimum PM competence requirement for certification as Junior Project Manager is presented in Figure 34.

Elements		PM Knowledge					PM Experience				
		5 very high	4 high	3 average	2 low	1 none	1 none	2 low	3 average	4 high	5 very high
1	**Projects and project management**										
2	**Methods for project start: Project context analysis**										
3	**Methods for project start: Design of the project organisation**										
4	**Methods for project start: Project planning**										
5	**Methods for project co-ordination**										
6	**Methods for project controlling**										
7	**Methods for project close-down**										
8	**Methods for resolving a project discontinuity**										
9	**Programmes and programme management**										
10	**Assigning projects and programmes and investment evaluation**										
11	**Managing the project-oriented organisation**										
12	**Procurement and contracting**										

Figure 34: Minimum PM Competence Requirements for the Junior Project Manager

The evaluation of project management competence for the Junior Project Manager takes place in the framework of the certification on the basis of

- a pm test (Duration: 1 hour, 80 questions)
- a pm example (Duration: ca. 1.5 hours)

The pm test is an IT supported, multiple response test. In the pm example the candidate is required to produce project management plans for a defined project. The evaluations of the pm test and the pm example are separate. A passing score on the pm test at least 75% of the possible points. For the pm example a score of 51% must be achieved.

In order to reach an overall passing score it is necessary to pass both parts of the test. When a passing score has not been reached the test (both parts) may be repeated after a waiting period of at least 2 months. The evaluation of the pm test is automated. The evaluation of the example is performed by PMA Assessors.

A detailed description of the certification process for the Junior Project Manager can be found on the PMA Homepage www.p-m-a.at.

Certification as Project Manager

The minimum PM competence requirement for certification as Project Manager is presented in Figure 35.

Elements		PM Knowledge					PM Experience				
		5 very high	4 high	3 average	2 low	1 none	1 none	2 low	3 average	4 high	5 very high
1	**Projects and project management**										
2	**Methods for project start: Project context analysis**										
3	**Methods for project start: Design of the project organisation**										
4	**Methods for project start: Project planning**										
5	**Methods for project co-ordination**										
6	**Methods for project controlling**										
7	**Methods for project close-down**										
8	**Methods for resolving a project discontinuity**										
9	**Programmes and programme management**										
10	**Assigning projects and programmes and investment evaluation**										
11	**Managing the project-oriented organisation**										
12	**Procurement and contracting**										

Figure 35: Minimum PM Competence Requirements for the Project Manager

The evaluation of the project management competence for the Project Manager takes place in the framework of the certification on the basis of

- A case study which is prepared by the candidate
- A pm test (Duration: 1 hour, 80 questions)
- An examination by commission (Duration: ca. 1,5 hours for 2 candidates)

In the case study the central project management methods will be presented by the certification candidate in a short project management document. The lead PMA Assessor provides feedback to the case study. The PMA Certification Centre admits the candidate to the pm test and to the examination.

The pm test is an IT supported, multiple response test. For a positive result on the pm tests at least 75% of the possible points must be awarded.

In the examination by commission the certification candidate presents the main points of his or her case study. In addition to this, several knowledge elements of the pm baseline will be examined in order to evaluate the project management understanding and / or the understanding of specific characteristics of the project-oriented company. In the evaluation the two PMA Assessors will also take into consideration the social skills of the candidate.

The evaluation of the pm test and the examination by commission are separate. The pm test and the examination will be scored with "pass" or "no pass". When a passing score has not been reached one or both parts may be repeated after a waiting period of at least 2 months.

The evaluation of the pm test is automated. The evaluation of the examination by commission is made by two PMA Assessors. In the overall evaluation the pm test is weighted with 20%, the case study with 50% and the examination by commission with 30%.

A detailed description of the certification process for Project Managers can be found on the PMA Homepage www.p-m-a.at.

Certification as Senior Project manager

The minimum PM competence requirement for certification as Senior Project Manager is presented in Figure 36.

Elements		PM Knowledge					PM Experience				
		5 very high	4 high	3 average	2 low	1 none	1 none	2 low	3 average	4 high	5 very high
1	**Projects and project management**	■								■	
2	**Methods for project start: Project context analysis**	■								■	
3	**Methods for project start: Design of the project organisation**	■								■	
4	**Methods for project start: Project planning**	■								■	
5	**Methods for project co-ordination**	■								■	
6	**Methods for project controlling**	■								■	
7	**Methods for project close-down**	■								■	
8	**Methods for resolving a project discontinuity**	■								■	
9.	**Programmes and programme management**		■							■	
10	**Assigning projects and programmes and investment evaluation**		■						■		
11	**Managing the project-oriented organisation**		■						■		
12	**Procurement and contracting**				■			■			

Figure 36: Minimum PM Competence Requirements for the Senior Project Manager

The evaluation of the project management competence for the Senior Project Manager takes place in the framework of the certification on the basis of

- A case study which is prepared by the candidate
- A pm test (Duration: 1 hour, 80 questions)
- An examination by commission (Duration: ca. 1,5 hours for 2 candidates)

In the case study the central project management methods will be presented by the certification candidate in a short project handbook, and a deeper study of a project management theme will be prepared. Possible themes for the study are the design of the project start process, the design of the project close-down process, the design of the project controlling process, project marketing planning, scenario analysis for a project, development of alternative project plans, etc.

The lead PMA Assessor provides feedback to the case study. The PMA Certification Centre admits the candidate to the pm test and the to the examination.

The pm test is an IT supported, multiple response test. For a positive result on the pm tests at least 75% of the possible points must be awarded.

In the examination by commission the certification candidate presents the main points of his or her case study. In addition to this, several knowledge elements of the pm baseline will be examined in order to evaluate the PM understanding and / or the understanding of specific characteristics of the project-oriented company. In the evaluation the two PMA Assessors will also take into consideration the social skills of the candidate.

The evaluation of the pm test and the examination by commission are separate. The pm test and the examination will be scored with "pass" or "no pass". When a passing score has not been reached one or both parts may be repeated after a waiting period of at least 2 months.

The evaluation of the pm test is automated. The evaluation of the examination by commission is made by two PMA Assessors. In the overall evaluation the pm test is weighted with 20%, the case study with 50% and the examination by commission with 30%.

A detailed description of the certification process for Senior Project Managers can be found on the PMA Homepage www.p-m-a.at.

Certification as PM-Executive

The minimum PM competence requirement for certification as PM Executive is presented in Figure 37.

Elements		PM Knowledge					PM Experience				
		5 very high	4 high	3 average	2 low	1 none	1 none	2 low	3 average	4 high	5 very high
1	**Projects and project management**	■								■	
2	**Methods for project start: Project context analysis**	■								■	
3	**Methods for project start: Design of the project organisation**	■								■	
4	**Methods for project start: Project planning**	■								■	
5	**Methods for project co-ordination**	■								■	
6	**Methods for project controlling**	■								■	
7	**Methods for project close-down**	■								■	
8	**Methods for resolving a project discontinuity**	■								■	
9	**Programmes and programme management**	■									■
10	**Assigning projects and programmes and investment evaluation**	■									■
11	**Managing the project-oriented organisation**	■									■
12	**Procurement and contracting**				■			■			

Figure 37: Minimum PM Competence Requirements for the PM-Executive

The evaluation of the project management competence for the PM Executive takes place in the framework of the certification on the basis of

- Case studies which have been prepared by the candidate
- An examination by commission (Duration: ca. 3,5 hours)

The candidate must prepare four short case studies. The themes of the case studies are: programme management, management of the project-oriented company and two "War-Stories" (discontinuities in projects, conflicts in projects).

The lead PMA Assessor provides feedback to the case studies. The PMA Certification Centre admits the candidate to the examination.

In the examination by commission the certification candidate presents and discusses two of his or her case studies. The examination by commission includes a written examination. Possible subjects are, for example, structuring of programmes, development of strategies and project documentation. In addition, the oral examination will cover several knowledge elements of the pm baseline, in order to evaluate the candidate's project management understanding and the understanding for specific characteristics of the project-oriented company. During the evaluation the two PMA Assessors will also take into consideration the social skills of the candidate.

In the overall evaluation the case studies and the examination by commission will each be weighted with 50%.

A detailed description of the certification process for PM Executives can be found on the PMA Homepage www.p-m-a.at.

Cross Reference from the pm baseline to the ICB Knowledge Elements

The following table contains a cross reference between the elements of the pm baseline to the International Competence Baseline (ICB).

C…..ICB Core Element
A…..ICB Additional Element
- …..Additional Element from the **pm baseline**

pm baseline from the PMA		**Reference to the ICB Knowledge Elements**		
1.	**Projects and Project Management**	**ICB#**	**ICB-Knowledge Elements**	**Type of element**
1.1	Projects and Types of Projects	1	Projects and Project Management	C
1.2	Project Management and Project Management Sub-Processes	1	Projects and Project Management	C
		10	Project Start Up	C
		11	Project Close Out	C
1.3	Designing the Project Management Processes	25	Communication	C
1.4	Systems Theory and Project Management	4	System Approach and Integration	C
1.5	Criteria for Project Success	9	Project Success and Failure Criteria	C
1.6	Project Quality	28	Project Quality	C
2.	**Methods for Project Start: Project Context Analysis**	**ICB#**	**ICB-Knowledge Elements**	**Type of element**
2.1	Dimensions of the Project Context	5	Project Context	C
2.2	Project Environment Analysis	5	Project Context	C
2.3	Project and Business Case	7	Project Development and Appraisal	C
2.4	Project Marketing	38	Marketing, Product Management	A

3.	**Methods for Project Start: Design of the Project Organisation**	**ICB#**	**ICB-Knowledge Elements**	**Type of element**
3.1	Project Organisational Forms	22	Project Organisation	C
3.2	Project Roles	22	Project Organisation	C
3.3	Project Teamwork	23	Teamwork	C
3.4	Leadership in Projects	24	Leadership	C
3.5	Project Communication	25	Communication	C
3.6	Project Culture	8	Project Objectives and Strategies	C
4.	**Methods for Project Start: Project Planning**	**ICB#**	**ICB-Knowledge Elements**	**Type of element**
4.1	Project Objectives	8	Project Objectives and Strategies	C
4.2	Object Breakdown Structure, Objects of Consideration	13	Content, Scope	C
4.3	Work Breakdown Structure	12	Project Structures	C
4.4	Work Package Specifications	12	Project Structures	C
4.5	Project Phases	6	Project Phases and Life Cycle	C
4.6	Project Scheduling	14	Time Schedules	C
4.7	Project Resources	15	Resources	C
4.8	Project Costs	16	Project Cost and Finance	C
4.9	Project Financing	16	Project Cost and Finance	C
4.10	Project Risks	18	Project Risks	C

5.	**Methods for Project Co-ordination**	**ICB#**	**ICB-Knowledge Elements**	**Type of element**
5.1	TO DO-Lists	32	Negotiations, Meetings	A
5.2	Minutes of Meetings	21	Information, Documentation, Reporting	C
6.	**Methods for Project Controlling**	**ICB#**	**ICB-Knowledge Elements**	**Type of element**
6.1	Change Management	17	Configurations and Changes	C
6.2	Project Status Report, Project Score Card	20	Project Controlling	C
6.3	Earned Value Analysis	19	Performance Measurement	C
6.4	Adaptation of Project Plans	21	Information, Documentation, Reporting	C
7.	**Methods for Project Close-down**	**ICB#**	**ICB-Knowledge Elements**	**Type of element**
7.1	Project Close-down and Project Context	11	Project Close Out	C
7.2	Assessment of the Project and of the Project Team	11	Project Close Out	C
7.3	Project Close-down Documentation	21	Information, Documentation, Reporting	C
8.	**Methods for Resolving a Project Discontinuity**	**ICB#**	**ICB-Knowledge Elements**	**Type of element**
8.1	Situation Analysis	26	Conflicts and Crises	C
8.2	Scenario Technique	26	Conflicts and Crises	C
8.3	Strategies and Actions	26	Conflicts and Crises	C
9.	**Programmes and Programme Management**	**ICB#**	**ICB-Knowledge Elements**	**Type of element**
9.1	Programme Definition		Not available	-
9.2	Design of the Programme Organisation		Not available	-
9.3	Programme Planning and Programme Controlling		Not available	-

10.	**Assignment of Projects and Programmes and Investment Evaluation**	**ICB#**	**ICB-Knowledge Elements**	**Type of element**
10.1	Assignment of Projects and Programmes	7	Project Development and Appraisal	C
10.2	Investment Evaluation	7	Project Development and Appraisal	C
11.	**Managing the Project-oriented Organisation**	**ICB#**	**ICB-Knowledge elements**	**Type of element**
11.1	Model of a Project-oriented Organisation	3	Management by Projects	C
11.2	Consulting and Auditing of Projects and Programmes		Not available	-
11.3	Project Portfolio Management		Not available	-
11.4	Network of Projects		Not available	-
11.5	Personnel Management in the Project-oriented Organisation	2 35	Project Management Implementation Personnel Development	C A
11.6	Organisation of the Project-oriented Organisation	2 30	Project Management Implementation Standards and Regulations	C A
12.	**Procurement and Contracting**	**27**	**Procurement, Contracts**	**C**