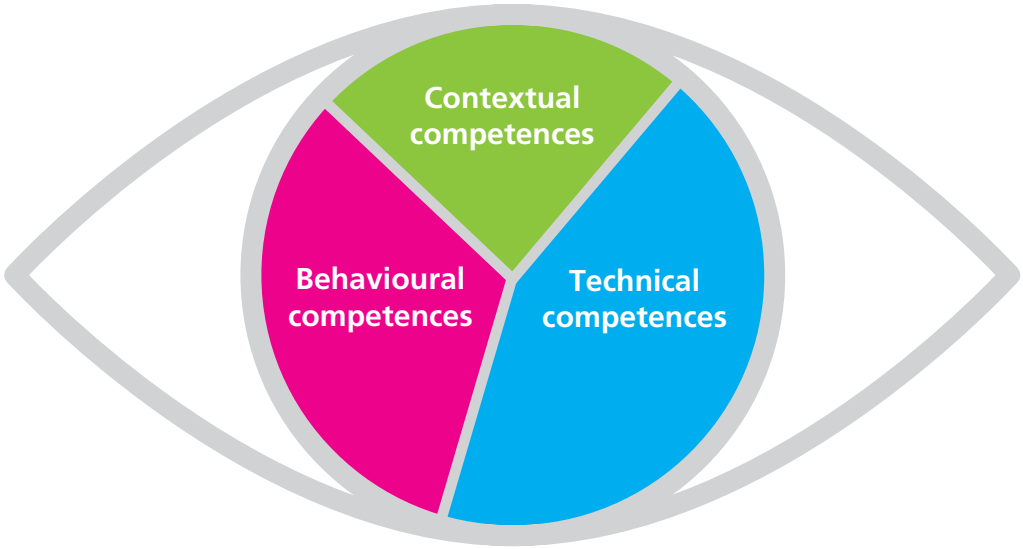
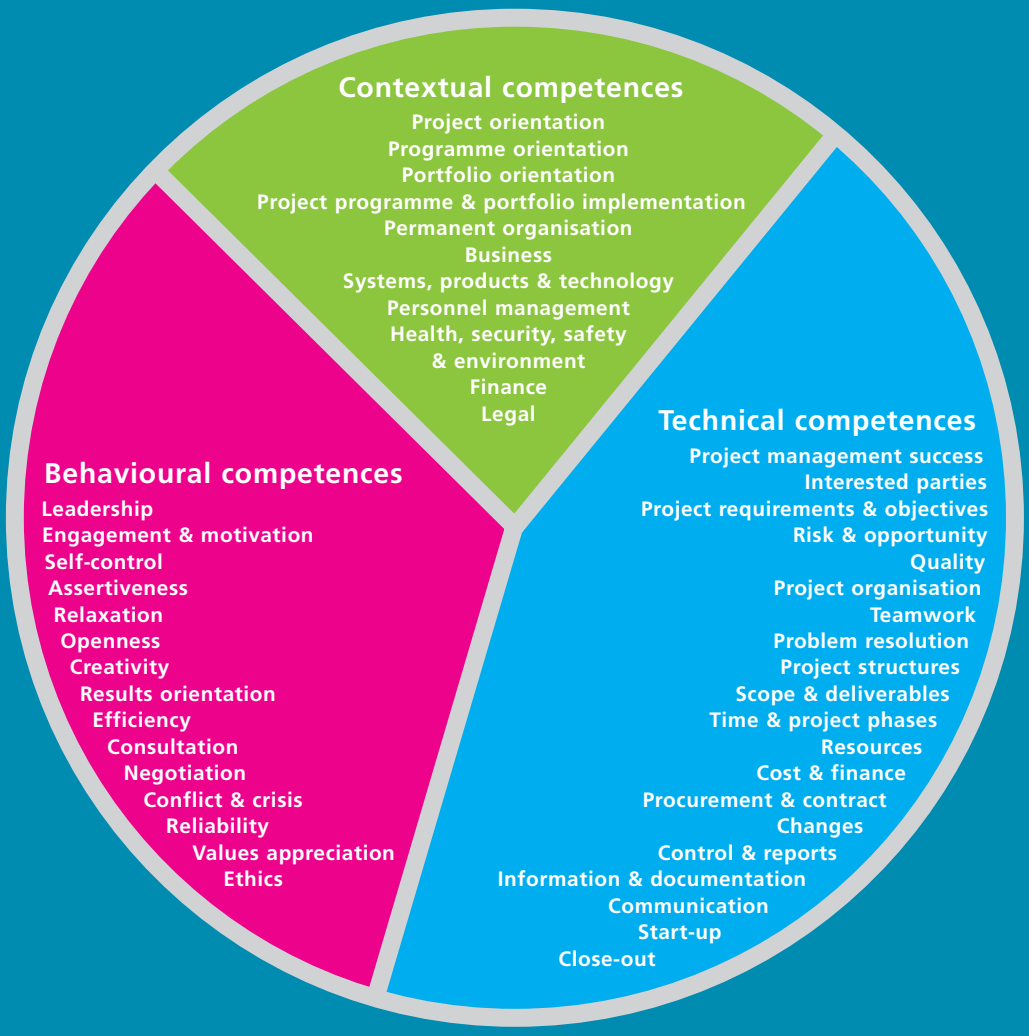


The Eye of Competence



The Eye of Competence represents the integration of all the elements of project management as seen through the eyes of the project manager when evaluating a specific situation. The eye represents clarity and vision.

ICB

IPMA Competence Baseline

Version 3.0

IPMA
International Project Management Association

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Preface

Incentive for the new version

As Lao Tse stated: A long way starts with one step. The IPMA started defining and assessing the competence required for a project management certificate more than ten years ago. The IPMA Competence Baseline Version 2.0 was based on the competence baselines of four European project management associations. It was used for a decade as the basis for the further development and later for the validation, of the national certification systems in about thirty countries. The main focus of the IPMA Competence Baseline Version 2.0 was on the description of the knowledge and experience required to deal with the technical issues of project management. In addition, the personal attitudes required of a project manager and the overall context in which project management operates were addressed.

Now, project managers manage their projects, programmes and portfolios in a fast changing context with many interested parties and external influencing factors. The projects are more numerous, more complex and more varied in nature. The demands on the behavioural competence of the managers and team members in organisations have become more pronounced and demanding in the last decade. On the other hand, we are facing a strong sense of individualism. The need for an actual, comprehensive description of the competence for managing projects, programmes and portfolios in this changing context is obvious.

This has created the demand for an adequate standard of professional behaviour. The 'personal attitudes' as documented in the IPMA Competence Baseline Version 2.0 are becoming more important. The project manager's success largely depends on the competence available in this range. To develop and realise good project plans and results, the project manager's behavioural competences, such as motivation and leadership, are an essential addition to his technical competence. Finally the project manager has to deal successfully with the organisational, economic and social context of the project.

For these reasons the International Project Management Association (IPMA) chose the project management competences from three ranges: the technical range, the behavioural range and the contextual range. We required forty-six elements to describe the competence of a project manager, the professional specialist who plans and controls a project. He is the person who acts in a transparent manner for the sake of the whole project, programme or portfolio to satisfy the expectations of the customers, the partners delivering goods and services for the project and the other interested parties. The project manager is able to involve specialists when needed and is respected by them when he has to take, sometimes difficult, decisions. He also has to motivate specialists to use their knowledge and experience for the benefit of the project, programme or portfolio.

Acknowledgements

IPMA wishes to acknowledge the editorial committee that produced IPMA Competence Baseline Version 2.0. This was the first official version published in February 1999, with a small modification made in April 2001. The Editorial committee for this version consisted of:

- Gilles Caupin
- Hans Knoepfel
- Peter Morris
- Erhard Motzel
- Olaf Pannenbäcker.

The Editorial committee responsible for Version 3 consisted of:

- Gilles Caupin
- Hans Knoepfel
- Gerrit Koch
- Klaus Pannenbäcker
- Francisco Pérez-Polo
- Chris Seabury.

The revision project owner was Brigitte Schaden, IPMA Vice-President for Certification.

IPMA especially acknowledges Anthony Skidmore for his technical review and Bart Verbrugge from Van Haren Publishing who helped us project managers to transform our manuscript into a book.

The most important contribution to the IPMA Competence Baseline Version 3 came from the IPMA member associations who gave directions, showed a sustained commitment to the revision project and submitted many helpful suggestions and reasons for its improvement.

Message from the revision team

Project management is a fascinating and challenging profession. This document is intended to help project managers to develop the professionalism required along their way.

March 2006
For the IPMA Competence Baseline Version 3 **Editorial committee:**

Gerrit Koch, project manager

Executive Summary

The International Project Management Association (IPMA) is replacing the IPMA Competence Baseline (ICB) Version 2.0b from the year 2001 by this, the ICB Version 3.0 which has major changes to the content.

The ICB provides the official definition of the competences expected from project management personnel by the IPMA for certification using the universal IPMA four-level-certification system.

The 40 IPMA Member Associations were actively involved throughout the project to develop Version 3.0 of the IPMA Competence Baseline. Their contributions have ensured that the text reflects their requirements and practices in assessing project management competence.

The IPMA Competence Baseline is the common framework document which all IPMA Member Associations and Certification Bodies abide by to ensure that consistent and harmonised standards are applied. As such, the majority of its content focuses on the description of the competence elements.

To meet the needs of those interested in the practical application of the ICB, the certification process is described for each level, together with a taxonomy and a self-assessment sheet.

Professional project management is broken down into 46 competence elements, covering the technical competence for project management (20 elements), the professional behaviour of project management personnel (15 elements) and the relations with the context of the projects, programmes and portfolios (11 elements).

The eye of competence represents the integration of all the elements of project management as seen through the eyes of the project manager when evaluating a specific situation. The eye also represents clarity and vision. After processing the information received, the competent and responsible professional in project management takes appropriate action.

The IPMA Competence Baseline is the basis for certification by the certification bodies of the Member Associations, who use these competence elements in assessing candidates. National cultural differences are addressed in National Competence Baselines by adding specific competence elements and content to the ICB. Validation of the National Competence Baselines by IPMA ensures their conformity to the ICB and the global recognition of certificates awarded by the national certification systems.

The ICB should be of most use to individuals and assessors when undertaking an assessment. However, it can also be used as a guide for the preparation of training materials, for research purposes and as a general reference document for people seeking information about applied project management.





Table of contents



Chapter 1
Introduction

For clarity, project managers will always be referred to in the male gender (him, himself or his) but it is clearly understood that the female gender would equally apply (her, herself or hers).

The IPMA Competence Baseline (ICB) is neither a textbook nor a cookbook. It offers access to the technical, behavioural and contextual competence elements of project management. The ICB is not intended to prevent an individual from thinking independently or having his own opinion; examples are listed to help, not to limit.

This chapter provides an overview explaining the reasons why a certification system for assessing competence in project management was established and describes the basic terms, requirements and concepts of the certification system of the International Project Management Association (IPMA).

Since the IPMA started with the development and implementation of its universal certification system the main goal was to certify project management personnel with a globally accepted four-level-certification (4-L-C), that can also be used in a career development system for project management personnel. The main interested parties are:

- Project management personnel — interested in a universally accepted certification system
- Management of organisations — interested in delivering and receiving good project management services and in personnel development
- Certification assessors — interested in a clearly understandable certification content and process
- Universities, schools, trainers — interested in providing a sound basis for an accepted qualification

The ICB should be of most use to individuals and assessors when undertaking an assessment. However, it can also be used as a guide for the preparation of training materials, for research proposals and as a general reference document for people seeking information about applied project management.

The eye of competence represents the integration of all the elements of project management as seen through the eyes of the project managers when evaluating a specific situation. The eye also represents clarity and vision. See Fig. 1.1.

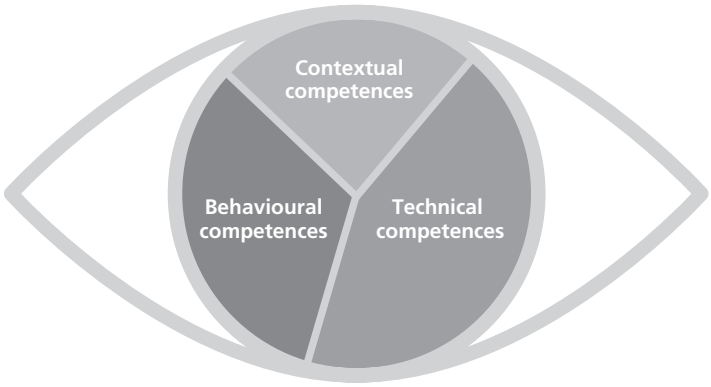


Figure 1.1 *The Eye of Competence*

1.1 Projects

The number of projects, programmes and portfolios is growing at an exponential pace, worldwide. In the past thirty years project management has been a discipline which has developed tremendously and increased in visibility.

More and more different kinds of projects are managed professionally. In the past construction and defence projects dominated the scene. Now they are still important but are in the minority. We are dealing with projects in, for instance, information and communication technology (ICT), organisational development, product development, marketing changes, production development, research, events, political projects, legislation projects, educational projects and social projects in many different sectors of the economy.

The question "Is project management necessary?" is rarely asked today. The relevant questions are:

- What are the deliverables, methods and tools of professional project management?
- What constitutes quality in project management?
- How competent should the project management personnel be for a given project, phase and area of responsibility?
- How good is the project management of a particular project?

1.2 Professional project management

To be professional, the discipline of Project Management has to have rigorous standards and guidelines to define the work of project management personnel. These requirements are defined by collecting, processing and standardising the accepted and applied competence in project management.

Project quality is defined as fulfilling the requirements agreed for the project. Project management quality is defined as fulfilling the requirements agreed for the management of the project. The optimum situation for a project organisation is that all the people, the project teams and resource pro-

viders involved in project management are competent to carry out their work and to take individual responsibility.

In the ICB, the knowledge and experience expected from the managers of projects, programmes and portfolios and the project management staff are shown. The ICB contains basic terms, tasks, practices, skills, functions, management processes, methods, techniques and tools that are used in good project management theory and practice, as well as specialist knowledge and experience, where appropriate, of innovative and advanced practices used in more specific situations.

1.3 Basic terms

The basic terms for certification in the project management area are derived from the ISO/IEC 17024 standard 'General requirements for bodies operating certification of persons' and are as follows:

- Competence is the demonstrated ability to apply knowledge and/or skills, and where relevant demonstrated personal attributes.
- A certification scheme contains the specific requirements related to particular categories of people to which the same standards and rules, and the same procedures apply.
- The certification process encompasses all activities by which a certification body establishes that a person fulfils specified competence requirements.
- The assessment is the mechanism which determines a candidate's competence by one or more means such as written, verbal, practical and observational.
- A qualification demonstrates the personal attributes, education, training and/or work experience of the individual.

The assessment does not measure or predict the future. It evaluates the past and present knowledge and experience of the candidate based on the evidence presented by the candidate and checked by the assessors. This evaluation is a good indicator that future projects will be managed successfully. In addition it is a good basis for planning professional development.

1.4 Benefits of the certification

Enrolment in the certification programmes is an incentive for the managers of projects, programmes and portfolios and the members of the project management teams to:

- expand and improve their knowledge and experience;
- continue their education and training;
- improve the quality of project management;
- last but not least – achieve the project objectives more effectively.

The benefits of the certification programmes are:

- for the project management personnel: to obtain an internationally recognised certificate acknowledging their competence in project management;
- for the suppliers of project management services: a demonstration of their employees' professional competence;

- for the customers: more certainty that they will receive 'state-of-the-art' services from a project manager.

1.5 Fundamental Principles of the IPMA Competence Baseline (ICB)

IPMA developed the ICB from National Competence Baselines and then enhanced it in a continuous improvement process. A key benefit for clients is that the basis for the candidates' competence is not specific to particular companies, organisations, disciplines, sectors of the economy or countries.

The culture of companies, organisations, disciplines, sectors of the economy and countries are taken into account in the interviews and assessment reports, as well as by choosing one assessor from the relevant sector (the second assessor is from another sector). The cultural aspects of a country can be included in a National Competence Baseline (NCB).

The official ICB language is English and every Member Association (MA) may decide to use the ICB directly for its certification. The MA can also decide to develop an NCB based on the ICB. The rules for developing an NCB are then as follows:

- there is a one-to-one relationship between the competence elements in the ICB and the NCB;
- the MA may add on content to the existing ICB competence elements up to a total of 10% to reflect the local situation and ways of doing business;
- the MA may add on up to a total of 10% of additional competence elements to reflect the local situation and practices;
- the MA may adapt to the local situation and practices in translating the ICB to its NCB.

The validation of the MA's NCB is under the formal responsibility of IPMA during the implementation phase.

The ICB focuses on the competence description, but includes a summarised description of IPMA's universal certification system in Chapter 3. This provides an insight to the reader, into how the ICB is applied in the certification process. The IPMA regulations and guidelines and the regulations and guidelines of the certification bodies will be developed after the publication of the ICB (this volume) which will itself be further developed. The regulations and guidelines of IPMA and the certification bodies of the Member Associations that are in force at the time of the certification process concerned are applied.

In the ICB Version 3 the sunflower has been replaced by the eye of competence. The eye is a more appropriate symbol for the ICB, as it relates to the human being, who is the most important part in any assessment of competence in project management.

The ICB defines forty-six competence elements, complemented by the key relations between them and described in three ranges grouping technical, behavioural and contextual competences.

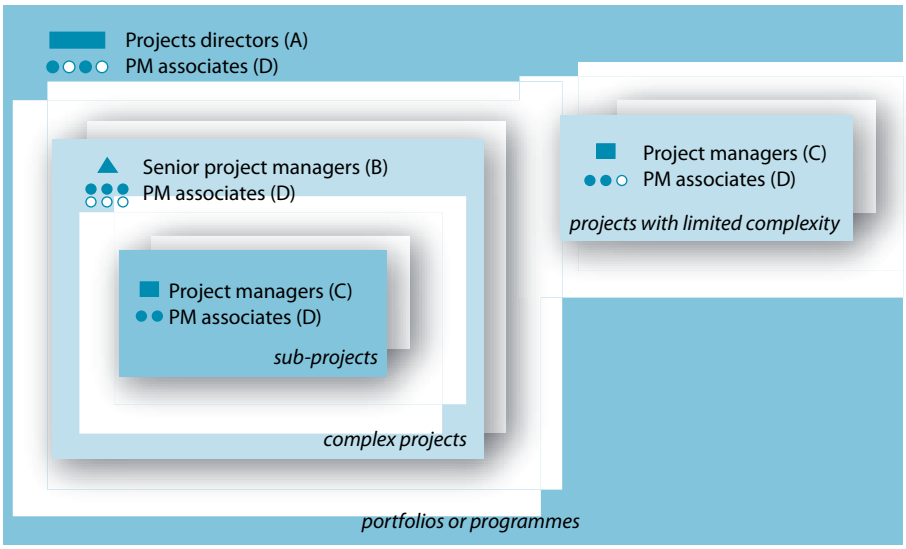
Each competence element includes a title, a description of the content, a list of possible process steps and experience criteria required per level. The key words and the key relations to other elements are listed at the end of each element for comprehensive reading.

The ICB does not recommend or include specific methodologies, methods and tools. The subject areas, methods for determining tasks and, where they illustrate the latter well, some examples of methods are described. Methods and tools may be defined by the organisation. The project manager should choose the appropriate methods and tools for a particular project situation.

1.6 IPMA's universal four-level-certification (4-L-C) system

The certificates awarded to individuals are based on an assessment of their competence in typical project management activities that occur in their daily working lives. In the IPMA Certification System, the following four categories of people, to which the same particular standards apply, are specified:

- **Projects Director (IPMA Level A):** means that the person is able to direct an important portfolio or programme, with the corresponding resources, methodologies and tools, that is the subject of the certification rather than the management of a single project. To take on this responsibility an advanced level of knowledge and experience would be required.
- **Senior Project Manager (IPMA Level B):** means that the person is able to manage a complex project for which the criteria are defined in Chapter 3. Sub-projects are normal, i.e. the project manager is managing by sub-project managers rather than leading the project team directly.
- **Project Manager (IPMA Level C):** means that the person is able to lead a project with limited complexity which signifies that he has demonstrated the corresponding level of experience in addition to the ability to apply project management knowledge.
- **Project Management Associate (IPMA Level D):** means that the person is able to apply project management knowledge when he participates in a project in any capacity and common knowledge is not sufficient to perform at a satisfactory level of competence.



(▬) Projects director (IPMA Level A)
(▲) Senior project manager (IPMA Level B)
(■) Project manager (IPMA Level C)
(●) Project management specialist (IPMA Level D)
(○) Highly qualified, experienced and recognised expert in a special field (IPMA Level D)

Figure 1.2 *IPMA's universal four-level-certification (4-L-C) system*

Project management is the primary objective of the certification scheme, not the project itself. The levels are not restricted to hierarchical thinking. A project management specialist on the level D (●) may be, apart from his good general knowledge in project management, a highly qualified, experienced and recognised expert (○) in a specialised field. For example, he may have an additional qualification in cost management. On each level project management involves carrying out a range of tasks and taking decisions, in a local, regional, national or international context.

The levels provide a suitable framework for developing career paths and organisational maturity models as well as for personnel development programmes of individuals, companies and other organisations.

1.7 Requirements

For each function and responsibility, the key question for the self-assessment and third party assessment is "How competent is the individual and for what work tasks?". The basis for answering this question is:

- The description of the project management work tasks (competence element descriptions);
- The description of the required degrees of competence per IPMA Level (Taxonomy, Appendix 4);

- The description of how to assess the value of the level of competence on a scale from 0 to 10 (Chapter 3).

In the ICB there are three ranges containing related competence elements:

- 20 **technical** competence elements deal with the project management matter, on which the professionals are working;
- 15 **behavioural** competence elements deal with the personal relationships between the individuals and groups managed in the projects, programmes and portfolios;
- 11 **contextual** competence elements deal with the interaction of the project management team within the context of the project and with the permanent organisation.

For each competence element, the knowledge and the experience are assessed, using a scale where values from 0 (no competence) to 10 (absolute maximum) are used. The values in between these extremes are defined in Chapter 3.

Knowledge does not mean just correctly reproducing facts, but also understanding relationships, knowing how to apply project management in practical situations and interpreting methods. The evidence that the individual has the required level of knowledge is normally provided by answering questions.

The project manager doesn't gain much experience from doing the same type of project for many years. He should apply the knowledge in real and different situations (e.g. projects of different sizes, different kinds of projects, different organisations, branches of the organisation and/or cultures).

1.8 Education and training

A full separation between certification, education and training is required. The assessor's task is limited to assessing the existing competence of the candidate. As a matter of course the candidates need education and training in project management to be successful in the certification process. However, no specific kind of education or training is required for the certification.

Although no direct relationship exists, the education and training institutions probably want to improve the chance of their scholars, students or course participants achieving a certain certificate, for example:

- The project management programme of an advanced professional school or a training course aspires to prepare its students well for the IPMA Level D certification.
- A project management master programme or postgraduate course wants to ensure that its candidates are well prepared to pass the IPMA Level C (and B) certification.

In relation to the second example, it should be noted that education and training cannot replace the individual having an adequate level of experience that is necessary for passing the certification of IPMA Levels C to A.

1.9 Assessment

The assessment is carried out by at least two assessors who are experienced experts, certified in project management. One assessor comes from the sector of the economy to which the report of the candidate is related, the other is from a different sector. The assessor has to be certified at least to the level at which he certifies candidates. In addition to evidence submitted in writing, the candidates present themselves in person for interview with the assessor. The individual interview is the most important part of the assessment.

The assessment should be planned and structured in a manner which ensures that all scheme requirements are objectively and systematically verified with sufficient documented evidence produced to confirm the competence of the candidate (ISO/IEC 17024, article 6.2.3).

The assessment components are:

- **Entry requirements:** Mainly based on a certain number of years of relevant experience (for the respective IPMA Level; it can be related to the educational level attained by the candidate). This is carried out by self- assessment.
- **Written exam:** Several types of questions (multiple choice questions, direct text questions, open essays, intellectual tasks) with reference to the ICB, to be answered by the candidate in a limited period of time.
- **Report:** Covering the subjects that describe the management of a real project, programme or portfolio (depending on the IPMA Level), with reference to the ICB, on an appropriate number of pages.
- **Workshop (optional):** Problem solving as part of a small team on an example project, observed by one or several assessors, revealing the actions of the candidates in different roles, especially the role of the (sub-) project manager.
- **Interview:** Answers to specific, representative questions prepared on the basis of the candidate's report (can be extended to the self-assessment, written exam questions, workshop results, replies from referees) with reference to the ICB.

The assessors do not train or coach the candidates. They mark written exams, perform workshops, ask questions of the candidates, evaluate their reports, answers, actions and presentations, make a proposal on the outcome (pass or fail) and provide the main reasons for a negative decision. The certification body takes the final decision.

1.10 World wide cooperation

The qualification and competence programmes have been a major topic in the discussions of the project management associations around the globe for many years.

IPMA has been in existence since 1965. Its vision is to generate and promote professionalism in project management. This major undertaking would not be possible without the IPMA member associations, of which there are approximately forty spread throughout the world. The IPMA family works together to develop and maintain a universal standard of project management competence. Most of the member associations signed an agreement with IPMA on the validation of their quali-

fication and competence programmes, and are operating a multi-level certification programme in project management.

IPMA is exchanging views and professional experience with other project management associations that created project management knowledge, competence and maturity models which are designed for global use, especially the Project Management Institute (PMI) headquartered in the United States, the Australian Institute of Project Management (AIPM) and the project management association in Japan.

1.11 Professional literature in project management

IPMA publishes professional literature references for the certification on its website (www.ipma.ch). Each certification body publishes a professional literature list which is useful for acquiring and updating knowledge in project management.
IPMA is collaborating with the International Journal of Project Management.
Several member associations are publishing regional or national journals and magazines on Project Management.





Chapter 2
Key concepts

The aim of this chapter is to describe a limited number of key concepts necessary for an understanding of the ICB. Each competence element, as described in Chapter 4, contains a description of the competence element itself.

2.1 Competence

Competence has its origins in the latin word 'Competentia' which means "is authorised to judge" as well as "has the right to speak";.... so the world hasn't changed so much in this regard. We're looking for competent project managers to orchestrate project activities. Over the last ten years competence descriptions and competence management have changed Human Resource Management in many organisations.

A competence is a collection of knowledge, personal attitude, skills and relevant experience needed to be successful in a certain function. To help candidates to measure and develop themselves and to help assessors to judge a candidate's competence, the competence is broken down into competence ranges. The ranges are mainly dimensions which together describe the function and which are more or less independent. Each range contains competence elements that cover the most important competence aspects in the particular range.

In the third version of the ICB it was decided to describe competent project management in three different ranges:

- The **technical competence range** - to describe the fundamental project management competence elements. This range covers the project management content, sometimes referred to as the solid elements. The ICB contains 20 technical competence elements.
- The **behavioural competence range** - to describe the personal project management competence elements. This range covers the project manager's attitude and skills. The ICB contains 15 behavioural competence elements.
- The **contextual competence range** - to describe the project management competence elements related to the context of the project. This range covers the project manager's competence in managing relations with the line management organisation and the ability to function in a project focused organisation. The ICB contains 11 contextual competence elements.

These three ranges are represented figuratively in the eye of competence, see fig. 1.1.

2.2 Competence element

Every competence element in each range is described in terms of the knowledge and experience required. After a general description, stating the meaning and the importance of the competence element, it is broken down into *Possible process steps* to help the candidate as well as the assessor to understand how the competence element can be applied in a project and *Topics addressed* to aid further reading and internet searching. The knowledge and experience required at each IPMA Level is described in *Key competence at Level* statements. There is finally a *Main relations* section which lists related competence elements. The behavioural competence elements are, for the sake of assessment, also supported by pairs of statements related to *Adequate behaviours* versus *Behaviours requiring improvement*.

Possible questions that could be asked about individual competence elements are:

Q. Isn't there overlap between competence elements?
A. Yes, there certainly will be. If the competence elements are considered to cover a range, then there will inevitably be overlap.

Q. Are all competence elements of equal weight?
A. This is intended to be the case, but a project situation or specific type of project can raise some competence elements to the crucial category. Apart from this, for some competence elements there is more literature or knowledge than for others.

Q. Can a competence element provide guidance to me on how to carry out a project?
A. No, the ICB is not a cookbook on how to do projects. However, the description of the *Possible process steps* can help the candidate to apply and implement a competence. The Topics addressed help the candidate to find the relevant literature to learn more about the competence element.

All 46 competence elements are considered to be core in describing competent project management.

2.3 Competence baseline

The IPMA is built on the practices and involvement of some 40 national project management associations and respects national cultural differences. This means that there must be space to add a national section per competence element as well as to add extra competence elements to reflect any cultural differences.

On the other hand IPMA guarantees that IPMA certificates issued in one country are valid everywhere. This requires a firm basis for harmonisation of the national certification systems. Project management personnel should be able to manage successfully in other organisations, other sectors of the economy and in other countries.

To deal with this balance of interests the ICB is considered to be the compulsory part allowing several add-ons.

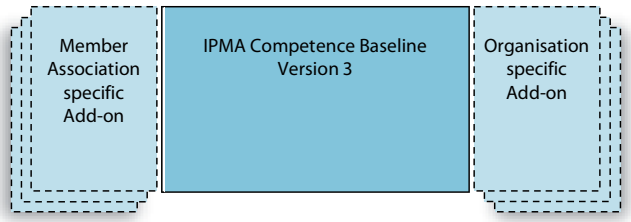


Figure 2.1 *ICB and Add-ons*

2.4 Competence level

IPMA chose to define four levels of competence:

- **At IPMA Level A** - the candidate has to have demonstrated successful use of the competence elements in the coordination of programmes and/or portfolios. The candidate has guided programme and/or project managers in their development and in the use of the competence elements. The candidate has been involved in implementing the competence elements or relevant methodology, techniques or tools in projects or programmes. The candidate contributed to the development of the project manager's profession by publishing articles or presenting papers on his experiences or by outlining new concepts. Specific knowledge or experience criteria and behavioural patterns for assessment are listed in the specific element in Chapter 4.
- **At IPMA Level B** - the candidate has to have demonstrated successful use of the competence elements in complex project situations. The candidate has guided (sub) project managers in their application and implementation of the competence.
- **At IPMA Level C** - the candidate has to have demonstrated successful use of the competence element in project situations with limited complexity. The candidate might need to be guided in the further development of the competence element.
- **At IPMA Level D** - only knowledge related to the competence element is assessed (by written examination).

In Chapter 3 the certification process and criteria leading to certification at the different levels are described.

2.5 Taxonomy criteria

The taxonomy of competence is graded along a scale from 0 to 10 for knowledge as well as experience. This is graded for each competence element as follows:

- 0 means that a candidate has no knowledge and/or experience
- 1 to 3 means that a candidate has a low level of knowledge and/or experience
- 4 to 6 means that a candidate has a medium level of knowledge and/or experience

- 7 to 9 means that a candidate has a high level of knowledge and/or experience
- 10 means that a candidate has to be the absolute maximum of knowledge and/or experience

The required level of knowledge or experience differs per IPMA certification level. The requirements get higher or are at least the same for the IPMA Levels from D to A.

The knowledge and experience of the individual should become deeper (from knowing facts to the ability to evaluate and apply methods) and broader (from one to several different kinds of projects).

The taxonomy is elaborated on further in Appendix 4.

2.6 Assessment of competence

The assessment of the 46 competence elements and any added national competence elements requires a distinguishing certification process. Knowledge and experience can be assessed from the individual's *Curriculum vitae*, the written exam, the 360-degree feedback or the workshop, the project report, the references and the interview itself, see Chapter 3.2. The 360-degree feedback involves three other people who rate the candidate's competence. If three people who know the candidate well from different viewpoints consider the candidate to be beyond reasonable doubt at a certain level, this could aid the assessors.

The effectiveness of the assessment can benefit from the so called **STAR**-method. The assessor asks the candidate to describe a ***S****ituation* from the project report he has produced stating the ***T****ask* the candidate had to carry out in that situation, what ***A****ctivity* he performed in that situation and what ***R****esult* was achieved. This gives a result oriented view based on what the candidate did to master a challenging situation.

To ensure the exchangeability of certificates it is recommended that foreign assessors are used as well as exchanging exam materials and experience between national associations.

2.7 Project, programme or portfolio

In Chapter 4 in the contextual area the competence elements 3.01 Project orientation, 3.02 Programme orientation and 3.03 Portfolio orientation, address the competence needed from project management personnel to participate in an organisation that takes up these orientations as part of its organisational model. Competence element 3.04 Project, programme & portfolio implementation, describes the competence required regarding the implementation of these concepts.

This chapter aims to describe definitions of Project, Programme and Portfolio as well as interrelations between the three concepts.

To distinguish an IPMA level A candidate from an IPMA level B candidate, it is crucial for the IPMA to ensure that there is substance behind the terms project, programme or portfolio. At IPMA level A the candidate has to have shown effective use of the competence elements in directing projects in

programmes and/or portfolios, within the context of the permanent organisation and in relation to the strategy of the organisation.

A portfolio can contain programmes as well as projects. Thus the correct wording would be a Portfolio of projects and/or programmes. For ease of reading this is addressed in the ICB as portfolio. This also applies to related terms such as portfolio manager.

2.7.1 Project

A project is a time and cost constrained operation to realise a set of defined deliverables (the scope to fulfil the project's objectives) up to quality standards and requirements. Project management typically involves project management personnel from project management associates up to senior project managers, projects directors (IPMA Level D to B). However, an organisation may decide to appoint a projects director (IPMA Level A) to manage a crucial project or programme.

2.7.2 Programme

A programme is set up to achieve a strategic goal. A programme consists of a set of related projects and required organisational changes to reach a strategic goal and to achieve the defined business benefits. Programme management typically involves senior project managers or projects directors (IPMA Level B or A)

2.7.3 Portfolio

A portfolio is a set of projects and /or programmes, which are not necessarily related, brought together for the sake of control, coordination and optimisation of the portfolio in its totality. Important issues on a portfolio level are reported to the senior management of the organisation by the portfolio manager, together with options to resolve the issues. This enables them to reach a decision on what should be done based on factual information.

An organisation can have several portfolios in existence at the same time. For instance there could be one portfolio on a corporate level for all projects and programmes that involve several organisational units or that have to be under the direct supervision of the highest management level, as well as portfolios for each organisational unit for projects and/or programmes taking place in that unit and under the control of the unit's management.

The function of portfolio manager is a permanent function in the line management organisation. The actual projects and/or programmes in the portfolio will exist for a limited time, while the portfolio itself remains. This function typically involves a projects director (IPMA Level A) combining knowledge and experience in projects with the alignment of the portfolio to the organisation's strategy. The portfolio manager needs to have high competence in project management.

The main issues and differences from a management perspective can be seen in Table 2.1. The ICB Version 3 describes archetypes, so the candidate needs to be aware that there can and will be differences in practice.

Table 2.1 *Project, Programme and Portfolio - main issues and differences*

	Project	Programme	Portfolio
The goal of a	Project is to produce deliverables	Programme is to achieve strategic change	Portfolio is to coordinate, optimise and align with strategy
Vision and strategy	are related through the business case of a project	are realised by a programme	are aligned to and monitored in the portfolio
Business benefits	are largely excluded from a project	are largely included in a programme	are largely excluded from the portfolio
Organisational change	is often excluded from a project	is usually included in a programme	is excluded from the portfolio
Time, costs	are defined in the business case and are manageable in a project	are roughly defined within the strategy; are broken-down to individual projects within the programme	are based on priorities and strategic targets in the portfolio

Explanation:

The goal of a **project** is to produce the deliverables defined in the business case. Strategic considerations as well as the benefits for the organisation are transferred to the business case. Therefore strategy itself isn't an issue for the project manager. If the project does support the business strategy, it may get a higher priority in relation to other projects, which makes life easier for the project manager, but the project still has to deliver according to the business case. The project manager is not responsible for achieving the business benefits of the project, which accrue to and are largely realised by the organisation once the project is delivered.

In most organisations the project owner is held accountable for realisation of the benefits. The project is often not about changing the organisation; it may however, include educating people to fulfil their roles in a different way. If the project concerns organisational change, then the change to be implemented as an outcome of the project is managed by line management, not by the project team. Where the deliverables are well defined and specified at the outset and the organisation doesn't change these too much during the course of the project, the delivery of the project to the required timescale and costs are usually manageable.

A **programme** of projects is put together to realise a strategic goal set out by the organisation. To achieve this, it initiates a group of interrelated projects to deliver the products/outcomes needed to attain this goal and it defines the organisational changes needed to facilitate the strategic change. The programme defines the business benefits management process as well as tracking the business benefits. The programme manager usually directs the projects via project managers, facilitates the interaction with line managers to realise the change and is responsible for benefits management; not for the realisation of the benefits, which is again the accountability of line management.

Examples of such programmes are the development of a whole range of related products, a national campaign against drug addiction, a new transportation system, a noise abatement campaign, or the standardisation of the information in a complex area of knowledge. After an agreed period of time

the programme is delivered in its entirety with an outcome that conforms to the strategy and the programme is terminated.

Portfolio management is concerned with coordinating the projects and programmes of an organisation to optimise throughput, balance the risk profile of the portfolio and to manage the alignment of projects in relation to the organisation's strategy and their delivery within budgetary constraints. At this level, the number, complexity and impact of projects has increased considerably; management controls have to be in place. The portfolio manager has processes, mechanisms and systems in place to display to senior management how the portfolio will achieve the strategic goals of the organisation. He will offer options for senior management review and decision as to which new projects should be accepted into the portfolio, which ongoing projects should continue and which projects should be discarded to achieve a balance of projects which match the strategy and which can be delivered within the limits of the resources and budget available....there are always too many projects on the 'wish list' and some have to be discarded. The portfolio manager is concerned with optimising the total use of resources. In mature organisations the portfolio manager also facilitates the assessment of the effect of changes in vision and strategy on the portfolio. A portfolio contains many projects that are accepted, prioritised, coordinated, supervised and managed collectively.The portfolio is overseen by an individual or body (a project director or an executive board) with the authority and accountability to sanction the use of resources and budgets to deliver those projects. Examples of portfolios are: all the large project demands of a division, all the internal ICT projects of a company, all the projects of a non-profit organisation, all the construction projects of a city. The portfolio of projects in an R&D organisation can be managed applying the same processes.

Of course the world is not black and white, there are many shades of grey and in practice there will be many differing opinions about these distinctions. Everybody will be able to point out experiences that do not conform to this matrix. The levels described (project, programme and portfolio) are meant as pure forms of which there are many variations.

2.8 Project management office

A project management office (or programme management or portfolio management office) is part of a permanent organisation. Its roles are typically to provide support, to set standards and guidelines for the managers of the different projects and programmes, to collect project management data from the projects, to consolidate these and to report to some governing body. It has to ensure that the projects are aligned to the organisation's strategy and vision. This is generally performed through business case management.

2.9 Project or programme office

A project or programme office is often part of the organisation of a large project to support the project or programme management team.

2.10 Project success

To assess competence is one thing, but the ultimate goal of a project or programme manager is to be successful. For that reason within IPMA, project success is defined as "the appreciation by the vari-

ous interested parties of the project outcomes". This definition is more challenging than "to produce the project deliverables within time and budget", which is only part of it.

Chapter 3
Certification

This chapter is a short description of IPMA´s universal four-level certification system. It provides summary information about the normal framework for the application of the ICB Version 3 in the certification system for:

- organisations who want to get information on the certification opportunities for their personnel;
- clients who wish to know the certification background of IPMA certified project managers;
- professionals who want to get a general understanding of how the ICB Version 3 is applied and how the certification and self-assessment processes work;
- certification bodies, global companies and assessors who are using the ICB Version 3 as a basis for their assessment process and would like to see the global certification picture.

3.1 IPMA Universal Certification System

The role for each level is derived from typical activities, responsibilities and requirements used in practice.

3.1.1 IPMA Level A

Table 3.1 *Role of the projects director and IPMA Level A requirements*

IPMA Level A **Certified Projects Director**	
Has at least five years of experience in portfolio management, programme management or multi-project management, of which three years were in responsible leadership functions in the portfolio management of a company / organisation or a business unit/ or in the management of important programmes.	*Entry requirements*
Shall be able to manage portfolios or programmes.	***Core competence***
Is responsible for the management of an important portfolio of a company / organisation or a branch thereof or for the management of one or more important programmes.	*Additional requirements*
Contributes to strategic management and makes proposals to senior management. Develops project management personnel and coaches project managers.	
Develops and implements project management requirements, processes, methods, techniques, tools, handbooks, guidelines.	

The emphasis of this role is not on a single project but on a whole portfolio or programme of projects running concurrently. Management by projects is a core concept for the management of a permanent organisation, especially of a project oriented company. Management by projects also encourages the exchange of experiences between personnel in areas such as project management requirements, processes, methods, techniques and tools, which aids in the development of project management personnel and leads to improvements in project management quality. Management by projects encompasses portfolio management, multi-project management and the management of programmes, as well as the activities of project offices.

The main conditions for a candidate for portfolio or programme manager (IPMA Level A) are:

- An important group of projects is contained in the portfolio or programme, and the candidate is responsible for coordinating and directing them.
- The candidate makes proposals to the overseeing body for their decision (or where appropriate decides himself) the start, priority, continuation or interruption and termination of the projects of his portfolio or programme.
- The candidate is responsible for the selection and continuing development of project management requirements, processes, methods, techniques, tools, regulations and guidelines in the organisation as well as for the implementation of project management in general, in his range of projects.
- The candidate coordinates and influences (or is responsible for) the selection, training and employment of the project managers who manage his range of projects, as well as for their performance appraisal and remuneration.
- The candidate is responsible for the coordination of all the projects of his portfolio or programme and ensuring their compliance to the strategy of the business/organisation, as well as for establishing professional controlling and reporting mechanisms in his range of projects.

The portfolio or programme must be important enough to provide evidence of competent management. The important parameters to consider are:

- Amount of time the candidate dedicates to the portfolio or programme;
- Number of active projects;
- Different kinds and sizes of projects;
- Complexity of projects;
- Number of project managers and size of organisational unit managed;
- Annual amount of investment in the portfolio or programme.

The complexity of projects is used for defining the boundaries between the IPMA Levels C and B. A complex project fulfils all of the following criteria:

a. Many interrelated sub-systems / sub-projects and elements should be taken into account within the structures of a complex project and in relation to its context in the organisation.
b. Several organisations are involved in the project and/or different units in the same organisation may benefit from or provide resources for a complex project.
c. Several different disciplines work on a complex project.

d. The management of a complex project involves several different, sometimes overlapping, phases.
e. Many of the available project management methods, techniques and tools needed are applied in the management of a complex project. In practice this would mean that more than sixty percent of the competence elements would be applied.

3.1.2 IPMA Level B

Table 3.2 *Role of the senior project manager and IPMA Level B requirements*

IPMA Level B **Certified Senior Project Manager**	
Has at least five years of project management experience, of which three years are in responsible leadership functions of complex projects.	*Entry requirements*
Shall be able to manage complex projects.	***Core competence***
Is responsible for all project management competence elements of a complex project.	*Additional requirements*
Has a general management role as manager of a large project management team.	
Uses adequate project management processes, methods, techniques and tools.	

All criteria relate to the subject of managing projects. A research project may be a most challenging and complex piece of work in terms of its content. However, the management of this project may have limited complexity. It is not necessary or sufficient that a project is big (in the sense of scope or budget) for it to be complex. The order of magnitude is merely an indication of complexity. A project may have been complex to manage, but the candidate did not really manage it as a complex project. Therefore the evidence he has provided in his project report is not sufficient to justify a certificate at IPMA Level B being awarded.

Specific explanations of the above criteria are:
a. The management of a large number of interfaces is typical for complex projects, as well as a number of sub-projects that are not managed by the senior project manager of the entire project but by his sub-project managers.
b. In projects with limited complexity the project manager is leading the project team members directly. In complex projects the senior project manager deals with sub-project managers, numerous individuals, different units in the organisation and sometimes separate organisations.
c. If all of the people involved in the project are from the same discipline the management of the project is not normally complex. However, it becomes complex if the client is in a different part of the organisation and/or external consultants play an essential role in the project.
d. In a complex project the sub-projects can be in different stages (sub-project phases). The senior project manager is not competent enough if he is only able to manage the conceptual phase, or the execution phase, or some of the kinds of situations that arise (such as crises). The certified senior project manager (IPMA Level B) must have shown that he is able to manage different phases and all kinds of important project management situations.

e. For a complex project it is normally useful to apply most of the competence elements of the ICB Version 3. The competence of the candidate in applying the relevant processes, methods, techniques and tools for these elements/aspects has to be demonstrated to a sufficient extent.

3.1.3 IPMA Level C

Table 3.3 *Role of the project manager and IPMA Level C requirements*

IPMA Level C **Certified Project Manager**	
Has at least three years of project management experience. Is responsible for leadership functions of projects with limited complexity.	*Entry requirements*
Shall be able to manage projects with limited complexity and/or to manage a sub-project of a complex project in all competence elements of project management.	***Core competence***
Is responsible for managing a project with limited complexity in all its aspects, or for managing a sub-project of a complex project.	*Additional requirements*
Applies common project management processes, methods, techniques and tools.	

The project should be complex enough to require the application of a considerable number of competence elements. This number is defined in more detail in Chapter 3.2.

3.1.4 IPMA Level D

Table 3.4 *Role of the project management associate and IPMA Level D requirements*

IPMA Level D **Certified Project Management Associate**	
Experience in the project management competence elements is not compulsory; but it is an advantage if the candidate has applied his project management knowledge to some extent already.	*Entry requirements*
Shall have project management knowledge in all competence elements.	***Core competence***
Can practice in any project management competence element. May work in some fields as a specialist.	*Additional requirements*
Works as a project team member or a member of the project management staff.	
Broad project management knowledge and the ability to apply it.	

3.2 Certification Process

3.2.1 Overview

The certification process is composed of several steps for the assessment of a candidate. The assessment steps are applied to the IPMA competence levels A, B C, and D. The IPMA certification system is not completely fixed. Some process steps are compulsory, marked with an x, whilst others are optional, marked with an (x). The certification bodies choose whether they take the options and/or

add supplementary options, and define a clear certification process for each level. In addition, the certification processes can be changed by a decision of IPMA or the certification body.

The status of certification at the end of the year 2005 can be seen in Table 3.5.

Table 3.5 *Universal IPMA Four-Level-Certification system (2005)*

Title	Capabilities	Certification Process			Validity
		Stage 1	Stage 2	Stage 3	
Certified Projects Director (IPMA Level A)	Competence = knowledge, experience	Application, *Curriculum vitae*, project list, references, self-assessment	Projects director report	Interview	5 years
Certified Senior Project Manager (IPMA Level B)			Project report		
Certified Project Manager (IPMA Level C)			Written exam. Options: work-shop, short project report		
Certified Project Management Associate (IPMA Level D)	Knowledge	Application, *Curriculum vitae*, self-assessment	Written exam		not limited option: 10 years

During the ICB Version 3 revision several suggestions and proposals were made. Proposals that received a large degree of support are included in this chapter of the ICB Version 3, but these proposals are still subject to a future decision.

The re-certification process is different from the first certification process. It concentrates on the project management activities and assignments the individual has undertaken and his continuing professional development since the last certification.

In the following text, these conventions are used:

- 'applicant' is used up to the point where the individual is accepted into the initial exam process;
- 'candidate' is used for the individual who has been accepted into the initial exam process;

- 'certificate holder' is used for the individual who holds a certificate;
- 're-certification candidate' is used for the individual undergoing re-certification.

Table 3.6 *Compulsory and optional steps in the initial certification process*

Initial certification process steps	IPMA Certification Level			
	A	B	C	D
Application form, *Curriculum vitae*	x	x	x	x
List of projects, programmes, portfolios; references	x	x	x	-
Self-assessment	x	x	x	x
Admittance to attend the certification process	x	x	x	x
Written exam	(x)	(x)	x	x
Workshop	(x)	(x)	(x)	-
360-degree assessment	(x)	(x)	(x)	-
Report	x	x	x	-
Interview	x	x	x	-
Certification decision: delivery, registration	x	x	x	x

x = compulsory, (x) = option

Table 3.7 *Compulsory and optional steps in the re-certification process*

Re-certification process steps	IPMA Certification Level			
	A	B	C	D
Expiry information	x	x	x	(x)
Application form, *Curriculum vitae*, references	x	x	x	(x)
Updated project, programme and portfolio list	x	x	x	(x)
Updated self-assessment	x	x	x	(x)
Updated 360-degree assessment	(x)	(x)	(x)	(x)
PM activities and assignments	x	x	x	-
Continuing professional development evidence/record	x	x	x	(x)
Complaints, references	x	x	x	(x)
Interview (where the individual is on the pass/fail borderline)	x	x	x	-
Certificate decision: delivery, registration	x	x	x	(x)

x = compulsory, (x) = option

In the IPMA certification system no training conditions are imposed. The candidate has a free choice as to how his training is undertaken.

3.2.2 Application form, Curriculum vitae, references

The application form is intended to identify the applicant and the IPMA certification level for which he applies. The application form of the certification body should contain the personal details required.

In the application form the applicant also declares that he is well aware of the conditions of the certification process and the obligations of an individual certified in project management. These include the delivery of project, programme and portfolio data and the requirement to pay a certification fee. The applicant should also be aware that lists of certificate holders are publicly available, of the consequences of misusing a certificate and of any interruptions in the continuity of his engagement in project management.

A *Curriculum vitae* is required, covering his education, professional qualifications and career details and should be attached to the application form.

Further, the applicant should provide the names of two individuals who will provide references and from whom the certification body can get further information in the case of doubt.

The full content of the application is signed off by the applicant.

3.2.3 List of projects, programmes, portfolios, references

The list of projects, programmes and portfolios as well as the references is part of the application documentation. The list should show all projects, programmes and portfolios the applicant was engaged in during the period of project management experience required for the respective level, in a format provided by the certification body.

For each project, programme or portfolio the individual has been engaged in, detailed information should be given about the project, programme or portfolio characteristics (such as deliverables, phases, cost, budgets, interested parties, management complexity), the applicant's project management role and his responsibilities within the project, programme or portfolio, and about the duration and intensity of the applicant's engagement.

3.2.4 Self-assessment

The self-assessment for each level and each stage in the applicant's professional life is a common requirement in the IPMA certification system. The applicant should be able to assess his own competence with increasing accuracy.

The self-evaluation sheet is included as Appendix 3.

3.2.5 Admittance to attend the certification process

The application form, the list of projects, programmes and portfolios, the references and the self-assessment sheet are the documents used for evaluating the eligibility of the applicant for the certification process. After a formal check by the certification secretariat and evaluation by at least two

assessors the applicant will get written approval to participate in the certification process for the appropriate level.

3.2.6 Written exam

The exam is usually a written test of several hours duration. It is composed of several kinds of questions:

- Direct questions (multiple choice, assessment of ability to think logically, answers in 1-2 sentences or selection from a short list);
- Open essay (e.g. about a project proposal, project calculation, process description);
- Intellectual task (such as a mini-case study).

Computer assisted evaluation can be used mainly for the first category. The characteristics of the written exam are shown in Table 3.8.

Table 3.8 *Characteristics of the written exam at IPMA Levels C and D*

	IPMA Level C	IPMA Level D
Duration	At least 3-5 hours	At least 4-6 hours
Number of assessors for the written exam	1 (2 in case of doubt)	1 (2 in case of doubt)
	Coverage	
Direct questions	all elements	all elements
Open essays	2-4 elements per range	3-5 elements per range
Intellectual tasks	1-2 elements per range	1-2 element per range

The coverage indicates how many project management competence elements are addressed in the written exam.
The compulsory exam addresses all competence elements of the ICB Version 3.

3.2.7 Workshop

The workshop is an optional part of, or an addition to, the certification process for levels A, B or C, included at the request of the interested parties and the scheme committee of the certification body.

The duration of the workshop is one day. The candidates show their PM competence by working in parallel groups of not more than five members. Starting from an outline project description, they develop the project plans using multimedia techniques.

Two assessors observe the candidates, who manage the case study and present their results. The assessors evaluate the project management competence of the candidates against a representative number of competence elements.

3.2.8 360-degree assessment

The 360-degree assessment is an optional part of, or in addition to, the certification process for levels A, B or C, included at the request of the interested parties and the scheme committee and/or used in cases of particular importance, doubt or appeal.

The 360-degree feedback is a computer based questionnaire with around 100 questions regarding the project management competences. This questionnaire has to be completed by four different people: the candidate, his manager, an associate of the project team and a customer of the project. The candidate chooses these individuals himself. He delivers the information regarding them, together with their e-mail addresses to the certification body. Each addressee is sent a code to allow them internet access to the 360-degree questionnaire.

For each question, each addressee gets two statements to choose from. Based on their answers, the certification body will assess to what extent the candidate has developed and applied the various project management competences up to the required level. The 360-degree feedback is used as an input for the IPMA Level A, B and C interview.

3.2.9 Report

The reports describe the application of project management competence in real cases:

- IPMA Level A: to a portfolio or to a programme with a considerable number of projects.
- IPMA Level B: to a project for which complex project management is adequate.
- IPMA Level C: to a project for which project management with limited complexity is adequate.
- IPMA Level D: no report.

The report is an important basis for the interview. In the report typical project management situations, tasks, actions and results, the roles of the candidate and other involved parties, the methods and tools applied and the experience and conclusions gained, are described for a large number of competence elements of the ICB Version 3. The length of the report is variable due to differences in typing ability, complexity/type of project and style of writing. see, Table 3.9.

Table 3.9 *Characteristics of the report at IPMA Levels A, B and C*

	IPMA Level A	IPMA Level B	IPMA Level C
Number of assessors	2	2	2
Length	variable	variable	variable
Body	20 to 30 pages	15 to 25 pages	10 to 15 pages
Appendices	10 to 20 pages	10 to 15 pages	5 to 10 pages
	Coverage		
Minimum number of competence elements per range addressed	16 technical 11 behavioural 8 contextual	14 technical 8 behavioural 6 contextual	12 technical 5 behavioural 4 contextual

If the two assessors cannot agree on a common result, a third assessor will be involved. An assessor can informally seek the guidance of another assessor concerning the report.

3.2.10 Interview

In the interview the assessors ask questions they have previously prepared related to the report, the self- assessment of the candidate, and eventually the written exam answers, the workshop outcomes, the 360-degree assessment and/or references.

A presentation of projects by candidates is not necessary, due to the fact that the assessors have obtained enough information about them in the earlier steps of the certification process. The candidate can illustrate his answers by presenting examples of documents in addition to the report (e.g. a handbook, status report) during the interview. The duration of the interview is approximate due to variances of language, project and style of interaction.

Normally, a real project management situation concerning one or more competence elements with tasks, actions, and results will be described as the background to a question. A situation will be selected at an appropriate point in the life-cycle of the real project, programme or portfolio that is discussed.

The project management competence elements of the ICB Version 3 that are addressed in the interview are a sample based on the general objectives of the assessment of the certification body and the information provided by the candidate or collected from the references. The characteristics of the interview are shown in Table 3.10.

Table 3.10 *Characteristics of the interview at IPMA Levels A, B and C*

	IPMA Level A	IPMA Level B	IPMA Level C
Number of assessors	2	2	2
Duration (without reduction in time where there is a workshop)	2 to 2.5 hours	1.5 to 2 hours	1 to 1.5 hours
	Coverage		
Technical competence elements	5-6	6-7	7-8
Behavioural competence elements	4-5	3-4	2-3
Contextual competence elements	4-5	3-4	2-3
Total	13-16	12-15	11-14

3.2.11 Certification decision

The certification body makes a decision on whether the candidate can continue or must quit the certification process after defined steps of the certification process on the basis of the total evaluation of the assessors.
The role of the certification body is the assessment of the individual, it does not provide coaching or training.

The assessors involved in an assessment are independent and do not respond to questions from the candidates. They can pass on information to the candidate about missing or insufficient information in his application that has been identified by the certification body and invite him to add it during the next step in the process. The certification body provides the information about the certification process to the candidate and answers any questions he may have.
An assessor normally evaluates the knowledge and experience component per competence element in common.

The certification body has rules for the situation where the two assessors do not reach a common view on the outcome. As an exception, guest assessors can be invited to observe or to participate in the interview (trainee assessor, quality manager of the certification body, foreign guest assessors). The management of the certification body decides on the outcome based on the information gathered during the certification process. Those who make the final certification decision have not participated in the assessment of the candidate.

If a candidate wants to know the reasons for a failure, the lead assessor responds to the candidate, accompanied by a representative of the certification body.

IPMA encourages the exchange of assessors between certification bodies. The respective assessor should document his observations in a short report made available to both certification bodies.

3.2.12 Re-certification process steps

The certification body monitors the expiry date of certificates and informs the certificate holder well in advance of the re-certification date.

The re-certification process is different from the first certification process. It concentrates on the project management activities and assignments and continuing professional development of the individual that have occurred since the last certification or re-certification.

Before the mid-point of the period during which the certificate is valid, the certification body sends a notice to the certificate owner suggesting that a mid-term status review of his project management activities and continuing PM education should be carried out and that eventually a change to another level could be possible. The information provided to the certificate holder reminds him of the re-certification process and mentions the possibility of changing his certification level.

The steps of the re-certification process are as follows:

- In the application form for re-certification, the re-certification candidate also declares that he is well aware of the conditions of the re-certification process and the status of an individual certified in project management. As an attachment, an updated *Curriculum vitae* is required.
- The project, programme and portfolio list is updated and presented according to the level of re-certification.
- The self-assessment is updated.
- The 360-degree assessment is updated.

- The professional activities that have occurred during the actual period of certificate validity are reported for the (function), responsibilities and tasks of the re-certification candidate in projects, programmes and portfolios, the complexity of the projects, programmes and portfolios and the time the certificate holder (as a percentage of total work time) was involved in them.
- The continuing education of the re-certification candidate to maintain and improve his level of competence in project management during the actual period in which the certificate was valid is reported. This includes any training he has undergone, experience gained, and any contributions he has made to his own ongoing development in project management.
- The re-certification candidate privides a list of individuals who can provide references, who are aware of his competence in project management and who can be contacted by the assessors of the certification body if necessary. If there were complaints in writing about his project management competence or professional conduct, they should be listed in his re-certification application.
- In a case where there is doubt about the renewal of a certificate, the assessors prepare questions to clarifying whether the re-certification candidate still fulfils the requirements for his IPMA competence level. The re-certification candidate can also provide additional evidence on his competence level, his development and professional conduct.
- The certification body makes a decision on whether the certificate can be renewed or not on the basis of the total evaluation of the assessors.

3.3 General scheme of certification

The content and the taxonomy of the ICB Version 3 are designed to assess the total professional competence of individuals applying project management in practice. The competence elements are grouped as follows:

The **technical competences** covering:
- the whole project, programme or portfolio to meet interested parties' requirements;
- the integration of work in a temporary project, programme or portfolio organisation;
- the production of single project deliverables in the project organisation;
- the progress through all phases of the project, all stages of a programme, all periods of the portfolio considered.

The **behavioural competences** are listed in order of decreasing focus on the individual, as well as increasing number of people involved:
- the elements that are merely related to the project manager himself;
- followed by the competence elements most related to his direct contacts in and around the project;
- followed by the competence elements most commonly used in relation to the whole project and parties involved including its context;
- to finish with the elements that have their origins in the economy, society, culture, history.

The **contextual competences** are grouped in terms of :
- the role of project management in permanent organisations;
- inter-relations of project management and the organisation's business administration.

Table 3.11 shows how the three ranges and their elements are listed.

Table 3.11 *Overview of the competence elements*

1. Technical competences	2. Behavioural competences	3. Contextual competences
1.01 Project management success	2.01 Leadership	3.01 Project orientation
1.02 Interested parties	2.02 Engagement	3.02 Programme orientation
1.03 Project requirements & objectives	2.03 Self-control	3.03 Portfolio orientation
1.04 Risk & opportunity	2.04 Assertiveness	3.04 Project, programme & portfolio implementation (PPP implementation)
1.05 Quality	2.05 Relaxation	3.05 Permanent organisation
1.06 Project organisation	2.06 Openness	3.06 Business
1.07 Teamwork	2.07 Creativity	3.07 Systems, products & technology
1.08 Problem resolution	2.08 Results orientation	3.08 Personnel management
1.09 Project structures	2.09 Efficiency	3.09 Health, security, safety & environment
1.10 Scope & deliverables	2.10 Consultation	3.10 Finance
1.11 Time & project phases	2.11 Negotiation	3.11 Legal
1.12 Resources	2.12 Conflict & crisis	
1.13 Cost & finance	2.13 Reliability	
1.14 Procurement & contract	2.14 Values appreciation	
1.15 Changes	2.15 Ethics	
1.16 Control & reports		
1.17 Information & documentation		
1.18 Communication		
1.19 Start-up		
1.20 Close-out		

Each project management **competence element** is composed of knowledge and experience. The total competence **required** per range should be split between the ranges in the following proportions:

Table 3.12 *Weighting of competence ranges at IPMA Levels A, B, C and D*

Competence ranges	IPMA Level A %	IPMA Level B %	IPMA Level C %	IPMA Level D %
Technical	40	50	60	70
Behavioural	30	25	20	15
Contextual	30	25	20	15

The knowledge and experience requirements depend on the levels as well.

Table 3.13 *Knowledge and experience scores required at each IPMA Level*

Components of competence	IPMA Level A (0 to 10)	IPMA Level B (0 to 10)	IPMA Level C (0 to 10)	IPMA Level D (0 to 10)
Knowledge	7	6	5	4
Experience	7	6	4	(optional)

The values in Table 3.14 represent the average scores expected of a candidate at each IPMA Level.

Both knowledge and experience should grow from the level D to the level A. The knowledge and experience requirements become deeper (from knowing the facts to developing the ability to apply and evaluate methods) and broader (from one to several different kinds of projects) from IPMA Level D to IPMA Level A. The project management competence elements are the same for all levels. But the questions posed by the assessors and their expectations of candidates answers are of a different order.

The **degree of competence** is defined by general descriptions of knowledge and experience and evaluated with values on a scale from 0 to 10.The characteristics of each value range are defined by the combination of verbs and nouns.

Table 3.14 *Description of the scale of valuation*

Values	Knowledge characteristics	Experience characteristics
(0)	none	none
1 2 low (l) 3	The candidate knows the element and is able to present and explain known criteria for this element. **Verbs:** Recognise, name, count-up, structure, describe, define, explain, look-up, reproduce. **Nouns:** Terms, denominations, facts, criteria, standards, rules, methods, processes, relations.	The candidate has some experience which he has obtained from a project management role in a few projects in one sector of the economy or unit of an organisation during one or several phases of these projects. **Description:** Some experience, from being involved as an assistant, in some phases, of a few projects, with a good awareness of project management.
4 5 medium (m) 6	The candidate has a solid level of knowledge and is able to recognise and to apply the relevant criteria as well as check the results **Verbs:** Apply, use, implement, calculate, verify, interpret, differentiate, solve. **Nouns:** Situations, applications, principles, criteria, rules, methods, conclusions.	The candidate has an average level of experience and an average record which he obtained from many important project management areas of several projects in at least one important sector of the economy during most phases of these projects **Description:** Considerable experience, in a responsible project management position, in most phases, of several different projects, with limited complexity, with a good awareness of project management.
7 8 high (h) 9	The candidate understands the role in detail and is able to evaluate, to create and to integrate the relevant criteria and can interpret and evaluate the results. **Verbs:** Analyse, derive, design, develop, combine, compose, investigate, evaluate, assess, propose, decide. **Nouns:** Situations, conditions, assumptions, ideas, opinions, cases, models, alternatives, problems, results, procedures, judgements.	The candidate has a broad range of experience and a good track record which he has gained from responsible project management roles in many different kinds of projects, during most or all phases of these projects. **Description:** Extensive experience in project management positions with a high level of responsibility, in most phases, of several different projects and/or programmes or portfolios,with a thorough understanding of project management.
(10)	Absolute maximum	Absolute maximum

The extreme values of the scale are very rarely used in real assessments. First the assessor determines whether the candidate has low, medium or high competence for a certain element. This coarse evaluation is then refined, for example 'medium (m)' can be fine tuned to:

- 4: low medium
- 5: medium medium
- 6: high medium

In a similar way 'low (l)' and 'high (h)' can be fine tuned.The values from 0 to 10 represent a continuous linear scale which means that the competence difference of 6 (high medium) to 7 (low high) is one point. The competence difference between 7 (low high) and 8 (medium high) is also one point, i.e. the same amount.

Some situations can be assessed mainly within the area of one competence element. The candidate describes which:

- subjects he has addressed; the general bases in the ICB are the introductory text and the *Topics addressed* in each competence element;
- actions he undertook; the general bases in the ICB are the *Possible process steps* in each competence element;
- results he obtained; the specific bases in the ICB are in the objectives and conditions defined in the report of a project, programme or portfolio submitted by the candidate.

Below are set out some examples, based on real situations, of how the assessment process is used in practice.

Example 1 Technical competence element 1.11 'Time & project phases':

- The subject was the time schedule with associated activities, relations and timing for the sub-project X, the time interval Y of a certain project phase, and conditions and objectives Z (location, season, contracts, resources, critical path, targets).
- The process evolved from an unsatisfactory situation where the sub-project X had only an outline critical path provided by the senior project manager and two milestones, to the satisfactory situation where the sub-project X had a critical path with sufficient detail and resources and an agreed review procedure. In this situation, the project manager was confident that he could deliver the project within the timescale set out by the senior project manager.
- The result was a well based, professional and accepted critical path for the time interval Y, but the time target was missed due to difficulties at customs, where examination of people and goods took longer than expected, leading to delays.This led to a recommendation to adjust the schedule for the next such project, and could apply to all critical paths for this kind of project and phase.
- The following relations to other competence elements were taken into account in the assessment: 'project requirements & objectives', 'resources', 'communication', 'self-control' and 'legal'.

Example 2 Behavioural competence element 2.08 'Results orientation'

- The subject was results orientation with defined expectations, results specified, project situation recognised, plans in place for delivery of the results, and an openness to improve the sub-

project X. The critical path Y of certain project phases, conditions for success and objectives Z (local and team culture, interested parties, agreements, resources) were known.

- The process led from the unsatisfactory situation where the sub-project X had a multitude of individual goals and activities and a tendency to restrict itself to focusing on the daily work schedule, following routine processes, to the satisfactory state where the sub-project X had both individual and common goals.Team members also displayed the willingness and capacity to understand the expected end results,were able to set and achieve the intermediate targets on the critical path and to appreciate the contributions made by key individuals towards delivery of the final results.
- The outcome was an improved and accepted results oriented behaviour for the time interval Y, but results orientation could still be improved.This was achieved in the next phase of the project and led to the recommendation to the sub-project managers that they should put more emphasis on the communication and observation of results orientation in the future (which paid off).
- The following relationships to other competence elements were taken into account: 'leadership', 'assertiveness', 'efficiency', 'control & reports' and 'communication'.

Example 3 Contextual competence element 3.09 'Health, security, safety & environment'

- The subject is the health of people, the safety and security of people and goods and the interaction with the natural and man-made environment of the sub-project X, the time interval Y of a certain project phase, and conditions and objectives Z (interested parties, groups and organisations, laws, agreements, health and safety guidelines of the permanent organisation).
- The process led from an unsatisfactory state of ignorance of the issues, negligence and the absence of professionalism in the sub-project X in the areas of health, security, safety and the environment to the satisfactory state where the parties involved in the sub-project X had an active interest in managing the risks that the project posed to the health, security and safety of the population and the environment. As a result, they established goals and took a systematic approach to the issues, which involved relaxation, ergonomics, light levels, noise levels, security and sustainability, in cooperation with the permanent organisation.
- The result was a more outward looking and original project work attitude in the sub-project team X in the time interval Y, and the permanent organisation decided to develop and implement a small but effective health, security, safety and environment action programme in all of its projects.
- The following relations to other competence elements were taken into account: 'creativity', 'systems, products & technology', 'ethics', and 'business'.

More complex situations are assessed by taking into account several competence elements simultaneously. The general basis of this is the *main relations to* in the ICB competence element descriptions, as set out in Example 4.

Example 4

The status report is a topic of the competence element 1.16 'Control & reports'. This report can be generated on the basis of:

- the general and specific reporting procedures for the management of the respective projects, coordinated with the finance department.
- the information on the development of the scope and deliverables, critical path, budget, risks and opportunities, and changes to the project made before the reporting date.
- the status of reliability, leadership and efficiency in the project.

The situation is positioned in the project life-cycle and the competence element list, as is shown in Table 3.15:

Table 3.15 *Competence elements and project life cycle*

Project		**Initiation and start-up**	**Plan & control**		**Close-out**
Project phase		**preparation**	**design**	**execution**	**completion**
		Start, plan & control, finish	Start, plan & control, finish	Start, plan & control, finish	Start, plan & control, finish
1	**Technical competence**				
1.03	Project requirements & objectives			x	
1.04	Risk & opportunity			x	
1.05	Quality			x	
1.09	Project structures			x	
1.10	Scope & deliverables			x	
1.11	Time & project phases			x	
1.13	Cost & finance			x	
1.14	Procurement & contract			x	
1.15	Changes			x	
1.16	Control & reports			**Status report**	
1.18	Communication			x	
2	**Behavioural competence**				
2.01	**Leadership**				
2.08	Results orientation			x	
2.09	Efficiency			x	
2.13	Reliability			x	
2.14	Values appreciation			x	
3	**Contextual competence**				
3.02	Programme orientation			x	
3.03	Portfolio orientation			x	
3.05	Permanent organisation			x	
3.10	Finance			x	
3.11	Legal			x	

Comments:

- Assessments will involve clusters of competence elements.
- Questions are prepared to check main relations to allow assessment of clusters of competence elements.
- Position the situation within the project life-cycle, programme stages or portfolio periods.

The assessment scores based on the specific competence elements is summarised for each range. An example of this is shown in Table 3.16:

Table 3.16 *Example of Summary of assessments scores*

Contextual competence elements		Report			Interview			Average
		LA	CA	AR	LA	CA	AR	AR
3.01	Project orientation	5.5	6.0	6.0	5.0	5.5	5.25	
3.02	Programme orientation	---	---	---	---	---	---	
3.03	Portfolio orientation	5.5	6.5	6.5	---	---	---	
3.04	PPP implementation	5.5	5.0	5.5	---	---	---	
3.05	Permanent organisation	6.0	6.0	6.0	6.0	6.75	6.5	
3.06	Business	5.5	7.0	6.0*	---	---	---	
3.07	Systems, products & technology	5.5	6.5	6.0	---	---	---	
3.08	Personnel management	---	---	---	---	---	---	
3.09	Health, safety, security & environment	6.0	6.5	6.0	7.25	6.75	6.75	
3.10	Finance	6.5	6.5	6.5	---	---	---	
3.11	Legal	6.5	6.5	6.5	---	---	---	
	Average score	5.7	6.2	6.0	6.1	6.3	6.2	6.1

LA = lead assessor, CA = co-assessor, AR = agreed result (after bilateral discussion)

* Following a discussion, the assessors agreed on a consensus score instead of a mathematical average. This procedure was necessary because of the large difference between their scores.

These can then be summarised in the final evaluation sheet, as shown in Table 3.17.

Table 3.17 *Example of Final evaluation sheet*

Competence Range	Self assessment	Report			Interview			Average	Weighting factor*	Average
	By candidate or from 360-degree review	LA	CA	AR	LA	CA	AR	AR		AR
Technical	…	…	…	…	…	…	…	6.3	0.50	3.15
Behavioural	…	…	…	…	…	…	…	6.5	0.25	1.625
Contextual	6.3	5.7	6.2	6.0	6.1	6.3	6.2	6.1	0.25	1.525
Grand total										6.3

The weighting factors applied are based on the percentage distributions between the three competence ranges for a level B candidate, as set out in Table 3.12.

For the candidate to pass the whole certification process the requirements are that:

- the eligibility criteria are met;
- a minimum average per range is attained;
- a minimum total average is achieved
  (i.e. 7 for IPMA Level A, 6 for IPMA Level B, 4.5 for IPMA Level C, 4 for IPMA Level D,);
- the administrative conditions are fulfilled (e.g. payment of the fee for the certification).

For the re-certification candidate to pass the whole re-certification process the requirements are that:

- the eligibility criteria are met;
- a minimum average for both project management activities / assignments and continuing education is attained;
- compliance with the code of professional conduct is fulfilled (e.g. in case of complaints);
- a minimum total average is achieved;
- the administrative conditions are fulfilled (e.g. payment of the re-certification fee).

3.4 Certification Organisation

IPMA Certification is carried out by the certification bodies of the professional member associations. It is validated by IPMA based on internationally recognised standards.

The IPMA certification validation organisation is illustrated in Fig. 3.1.

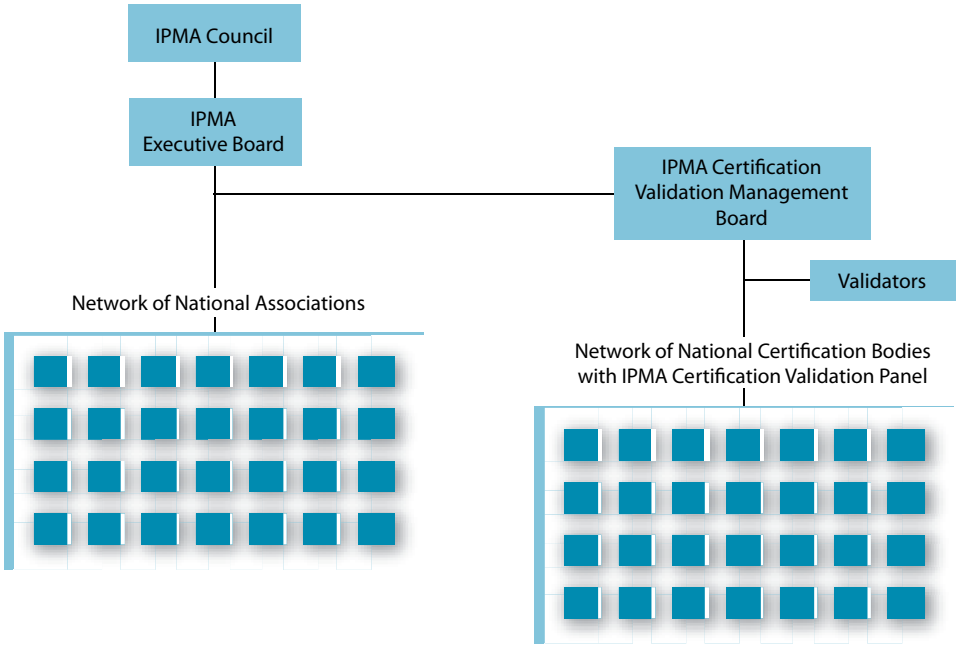


Fig. 3.1 *IPMA certification validation organisation*

The organisational units and functions are:

- the national certification bodies which are designated by the member associations and are responsible for the qualification and certification programme.
- the IPMA Certification Validation Panel consisting of the representatives of the national certification bodies and their assessors, which exchanges experience and makes recommendations for improving IPMA's certification and validation system.
- the validators who visit the national certification bodies, audit their qualification and competence programme and recommend improvements.
- the IPMA Certification Validation Management Board which operates and improves IPMA's universal system and validates the operations of the national certification bodies.
- the IPMA Executive Board, with a Vice-President for Certification, and the IPMA Council of Delegates who make the general decisions concerning the qualification and competence programme and appoint the Certification Validation Management Board.

The **certification body** is completely responsible for its standards and assessments. The main organisational units of a certification body are:

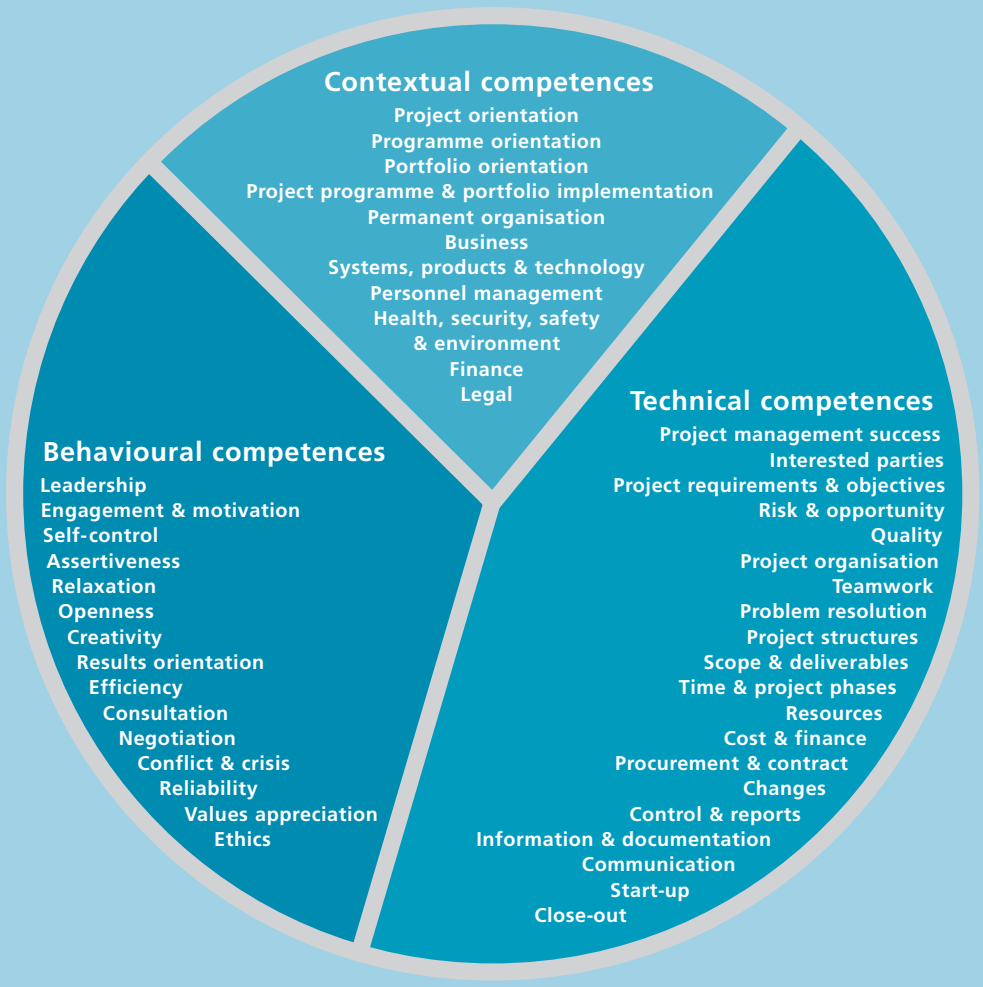
- the management
- the scheme committee
- the appeal committee
- the assessors
- the secretariat

The certification bodies fulfil the requirements of the ISO/IEC 17024 standard.

Chapter 4

Element descriptions

This chapter contains descriptions of all the competence elements in the three ranges, technical, behavioural and contextual.



4.1 Technical competence elements

This section describes the technical competence elements. In the 'Technical' range the competence elements are described which are needed to initiate and start, to manage the execution of, and to close a project. This order can differ depending on the kind, size and complexity of a project and other influencing factors. The importance or weight of a competence is completely dependent upon the specific project situation.

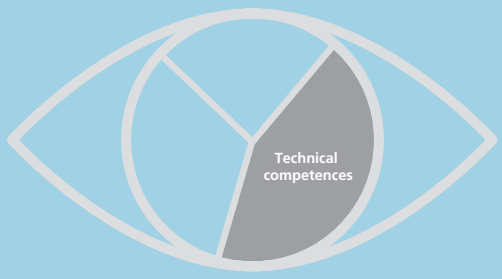


Table 4.1 *Technical competence elements*

1.01	Project management success	1.11	Time & project phases
1.02	Interested parties	1.12	Resources
1.03	Project requirements & objectives	1.13	Cost & finance
1.04	Risk & opportunity	1.14	Procurement & contract
1.05	Quality	1.15	Changes
1.06	Project organisation	1.16	Control & reports
1.07	Teamwork	1.17	Information & documentation
1.08	Problem resolution	1.18	Communication
1.09	Project structures	1.19	Start-up
1.10	Scope & deliverables	1.20	Close-out

Understanding of these competence elements in a specific project situation is the basis for the assessment.

Every competence element in this range is written based on a general description, a list of *Topics addressed* and *Possible process steps*. The knowledge and experience required at each IPMA Level is described in *Key competence at Level* statements and is completed by a *Main relations to* section, which shows the association to other competence elements. These competence elements are considered to always be related. The *Main relations to* section is meant to aid comprehensive reading and to help in assessing a candidate's competence. It is related to the specific content and context (i.e. the corresponding elements) of the situation.

It is important for the assessor to follow the definition of each competence element for the assessment of project management personnel.

The descriptions of effective technical competence at the different IPMA Levels are as follows:

- **At IPMA Level A**: the candidate has to have shown effective application of the technical competence elements in the coordination of projects and/or programmes, within the scope of a portfolio or a programme, and alignment to the permanent organisation. The candidate has guided (sub) programme and/or project managers in their technical PM competence development. The candidate has also been involved in implementing technical elements or relevant tooling, techniques or methodologies in projects, programmes and a portfolio.
- **At IPMA Level B**: the candidate has to have shown effective application of the technical competence elements in complex project situations and within the scope of the project. The candidate has guided (sub) project managers in their development of technical PM competence.
- **At IPMA Level C**: the candidate has to have shown effective application of the technical competence elements in project management situations of limited complexity. The candidate might need to be guided in the further development of technical PM competence.
- **At IPMA Level D**: only knowledge of the technical elements and its application is assessed.

Specific knowledge or experience criteria for assessment are listed in the competence element descriptions. The levels represent defined steps along a continuum of increasing knowledge and experience.

1.01 Project management success

Project management success is the appreciation of the project management results by the relevant interested parties.

The project, programme and portfolio management pursue success and avoid failure in their projects and management. They want to be sure they know what criteria will be considered in determining their success or failure and how it will be assessed. Defining these criteria distinctly and clearly is a major requirement at the outset. To achieve the project objectives within the agreed limits of the project are the overall project success criteria.

Project management success is related to project success; however, it is not the same. It is possible to carry out successful project management work for a project that has to be terminated due to a new strategic direction being taken by the organisation. . . the project is no longer relevant.

The management of a project can be interpreted as a sub-project of the total project. The context, scope, deliverables, responsibilities, deadlines, cost and effectiveness of the project to be managed are defined. The project management (PM) activities are planned and controlled.

Integration is crucial for project management success; it involves combining project requirements, activities and results to achieve the objectives and a successful outcome. The higher the complexity and the more varied the expectations of the interested parties, the more a sophisticated approach to integration is needed. Project management oversees the activities required to put together the detailed project management plan.

Different terms are used for 'project management plan'. The project management integrates all individual plans, such as the quality plan, the interested parties' management plan, the project communication plan, the procurement plan, the contract plan, the deliverables plan.

The project management plans have to be accepted and approved by those involved and communicated to the relevant interested parties, with the appropriate degree of detail provided for each of them.

Possible process steps:

1. Analyse the project and its context, including existing decisions and documentation.
2. Develop a PM concept, based on the project requirements, discuss the proposal with the relevant interested parties and agree the PM contract with the customer.
3. Plan the management of the project and establish the PM team, methods, techniques and tools.
4. Plan the integration procedures including context management, remove incompatibilities.
5. Execute and control PM plans and changes, report on PM performance.

6. Collect results achieved and their interpretation and communicate to relevant interested parties.
7. Evaluate PM successes and failures, transfer and apply lessons learnt to future projects.

Topics addressed:

Expectations of interested parties
Integration
PM assessment
PM audit
PM plan, project plans
PM planning and contracting
PM standards and regulations
PM success and failure criteria

Key competence at level:

A Has successfully directed the management of project management success for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the project management success criteria of a complex project.
C Has successfully managed the project management success criteria of a project with limited complexity.
D Has the knowledge required concerning the management of project management success and can apply it.

Main relations to:

1.02 Interested parties, 1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.05 Quality, 1.07 Teamwork, 1.09 Project structures, 1.14 Procurement & contract, 1.15 Changes, 1.18 Communication, 1.19 Start-up, 1.20 Close-out, 2.01 Leadership, 2.03 Self-control, 2.04 Assertiveness, 2.05 Relaxation, 2.06 Openness, 2.08 Results orientation, 3.01 Project orientation, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.04 PPP implementation, 3.06 Business

1.02 Interested parties

Interested parties ('interested parties' is the ISO approved term adopted in ICB; 'stakeholders' is a synonym used for interested parties; 'client' and 'customer' are also used in the text to identify a subset of interested parties) are people or groups, who are interested in the performance and/or success of the project, or who are constrained by the project.

The project manager should identify all the interested parties, what their different interests are in the project and put them into order of importance to the project.

Taking this competence element into account will improve the chances of a successful project outcome. The project is constrained by its context and may be adjusted to meet the interested parties' needs. Their expectations also need to be managed.

Internal and external networks, both formal and informal, which are associated with the project (companies, agencies, managers, experts, employees, opinion leaders) are developed.

All the interested parties can influence the project either directly or indirectly. Influences such as interested parties' interests, project management organisational maturity and project management practices, standards, issues, trends and power have a bearing on the way the project is conceived and developed.

Project management should be diligent in maintaining an overview regarding interested parties and the people representing the interested parties. This is especially the case if a new party becomes involved with the project or if a representative changes, then the project manager should consider the possible impact of the change and ensure that the new party or person is well informed about the project.

Possible process steps:

1. Identify and prioritise the interested parties' interests.
2. Analyse their interests and requirements.
3. Communicate to interested parties, which of their requirements will be fulfilled or not fulfilled by the project.
4. Develop a strategy to cope with the interested parties.
5. Include interested parties' interests and expectations in the requirements, objectives, scope, deliverables, time schedule and costs of the project management plan.
6. Place under risk management the threats and opportunities represented by the interested parties.
7. Identify the decision escalation process between the project team and the interested parties.
8. Ensure the interested parties are satisfied in each project phase.
9. Carry out the interested parties' management plan.

10. Execute, communicate and manage changes in the interested parties' plan.
11. Document the lessons learnt and apply to future projects.

Topics addressed:

Internal and external networks
Interested parties communications strategy
Interested parties interests and satisfaction
Interested parties management plan
Expectation management
Position of the project in the programme, portfolio and in the organisation of the business
Project context

Key competence at level:

A Has successfully directed the management of the interested parties for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the interested party involvement in a complex project.
C Has successfully managed the interested party involvement in a project with limited complexity.
D Has and can apply the knowledge required concerning the management of interested party involvement in projects.

Main relations to:

1.01 Project management success, 1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.05 Quality, 1.06 Project organisation, 1.10 Scope & deliverables, 1.13 Cost & finance, 1.14 Procurement & contract, 1.15 Changes, 1.18 Communication, 2.01 Leadership, 2.02 Engagement & motivation, 2.04 Assertiveness, 2.06 Openness, 2.07 Creativity, 2.08 Results orientation, 2.12 Conflict & crisis, 2.13 Reliability, 2.14 Values appreciation, 3.01 Project orientation, 3.02 Programme orientation, 3.03 Portfolio orientation

1.03 Project requirements & objectives

Requirements management consists of the identification, definition and agreement of the project to meet the needs and expectations of interested parties, especially those of the customers and users.

Project requirements are derived from client needs, which are driven by opportunities and threats. A business case and a project strategy are developed. A **strategy** is a high level view of how to attain the vision/targets of the organisation at some point in the future. The strategy is reviewed at various time intervals (e.g. in a systems life-cycle, during the project life-cycle and in each of its phases), as well as in specific areas, for example in procurement.

The project goal is to provide value to the interested parties. A project strategy is a high level view of how to attain the project goal. The **project objective** is to produce the agreed end results, especially the deliverables, in the timescale required, within budget and within acceptable parameters of risk. The project objectives are the set of targets that the project, programme and portfolio managers should attain to provide the expected project benefits to the interested parties.

The project development phase covers development of the project plans and carrying out the feasibility study. A realistic project appraisal is important in the first phases of a project. Project appraisal covers the analysis of a proposed project, and the decision to invest in the project in preference to other competing projects or to other parts of the business. It is a pre-requisite that there is adequate justification to support the request for project authorisation.

Once a project has been approved for investment, the project owner should produce a project charter, which defines the scope of the project, its objectives and deliverables, budget, timeframe, review points and team membership.

An ongoing project review process will provide an assessment of achieved project objectives as compared with the project objectives and success criteria agreed at the outset. The outcome of a project may be considered more successful by some interested parties, but less successful by others.

Possible process steps:

1. Gather project requirements, document them and have them agreed.
2. Develop a business case and project strategies and place them under change management.
3. Define project objectives, appraise the project, carry out a feasibility study, and establish a project plan.
4. Communicate progress and changes.
5. Validate requirements at key points in the project life-cycle.
6. Assess compliance with project objectives and requirements and seek authorisation for the project.
7. Set up project review process.
8. Document the lessons learnt and apply to future projects.

Topics addressed:

Assessment and prioritising
Business case
Project charter
Project context, context conditions
Project definition, agreement on project objectives and context conditions
Project plans
Project requirements management
Project strategy
Value management, benchmarks (e.g. ROI), balanced score card

Key competence at level:

A Has successfully directed the management of project requirements and objectives for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed defining the project requirements and objectives of a complex project.
C Has successfully managed defining the project requirements and objectives of a project with limited complexity.
D Has the knowledge required concerning the management of project requirements and objectives and can apply it.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.04 Risk & opportunity, 1.05 Quality, 1.08 Problem resolution, 1.10 Scope & deliverables, 1.11 Time & project phases, 1.13 Cost & finance, 1.14 Procurement & contract, 1.15 Changes, 1.16 Control & reports, 1.19 Start-up, 1.20 Close-out, 2.02 Engagement & motivation, 2.03 Self-control, 2.04 Assertiveness, 2.06 Openness, 2.08 Results orientation, 2.14 Values appreciation, 2.15 Ethics, 3.01 Project orientation, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.05 Permanent organisation, 3.06 Business, 3.07 Systems, products & technology, 3.09 Health, security, safety & environment, 3.10 Finance

1.04 Risk & opportunity

Risk and opportunity management is an ongoing process taking place during all phases of the project life cycle, from initial idea to project close-out. At project close-out the lessons learnt in risk and opportunity management throughout the project are an important contribution to the success of future projects.

The project manager is responsible for keeping himself and all the project team members working proactively, alert to risks and opportunities, committed to the risk management process, for involving interested parties in that process and, when needed, for getting appropriate experts as consultants to support project risk management.

A widely used technique to reduce the uncertainty surrounding any particular risk is based on the successive principle, the reduction of the uncertainty of an estimate when the item subject to the estimate is broken down into its component parts. The sum of the variances of the estimates of the sub-items is less than the variance of the total item. To reduce the variance of the project cost estimation, those cost items with the higher variances are broken down to reduce the uncertainty of the estimates. The breakdown process is successively repeated until the variances of all the cost components are below an acceptable limit. The same technique is applied to the estimates of the duration of the activities that determine the project schedule in order to reduce the uncertainty in the estimate of the project duration.

Qualitative risk and opportunity assessment ranks the risks and opportunities according to their importance, as a function of their impact and probability of occurrence. That ranking is used to decide what strategy should be used to cope with each risk and opportunity. For instance, for risks, eliminate the risk, mitigate it, share it, transfer or insure against the risk, develop a contingency plan or passively accept the risk. Adopt similar strategies for opportunities. Those risks that are not acceptable and those opportunities that are to be pursued require an appropriate response plan. The response plan can affect many project processes requiring the exertion of competences in the three competence element ranges. The execution of the risk and opportunity response plan has to be controlled and continuously updated when new risks and opportunities emerge or when the importance of those already identified varies.

Quantitative risk and opportunity assessment provides a numerical value measuring the effect expected from risks and opportunities.

Monte Carlo analysis and decision trees and scenario planning are examples of powerful quantitative risk and opportunity assessment techniques.

Possible process steps:

1. Identify and assess risks and opportunities.
2. Elaborate risk and opportunity response plan and have it approved and communicated.
3. Update the different project plans affected by the approved risks and opportunities response plan.
4. Assess the probability of attaining time and cost objectives, and keep doing it during the project.
5. Continuously identify new risks, reassess risks, plan responses and modify the project plan.
6. Control the risk and opportunity response plan.
7. Document lessons learnt and apply to future projects; update risk identification tools.

Topics addressed:

Contingent response plans
Cost and duration contingency reserves
Expected monetary value
Qualitative risk assessment tools and techniques
Quantitative risk assessment tools and techniques
Residual risk and fallback plan
Risk and opportunity owners
Risk and opportunity response strategies and plans
Risk and opportunity taking attitudes, risk aversion
Risk identification techniques and tools
Scenario planning
Sensitivity analysis
Strengths, weaknesses, opportunities, threats analysis (SWOT)
Successive principle

Key competence at level:

A Has successfully directed the management of risk and opportunity for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the risk and opportunity situations of a complex project.
C Has successfully managed the risk and opportunity situations of a project with limited complexity.
D Has the knowledge required concerning the management of risks and opportunities in projects and can apply it.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.03 Project requirements & objectives, 1.08 Problem resolution, 1.11 Time & project phases, 1.13 Cost & finance, 1.14 Procurement & contract, 1.15 Changes, 1.16 Control & reports, 2.01 Leadership, 2.03 Self-control, 2.07 Creativity, 2.11 Negotiation, 2.12 Conflict & crisis, 3.03 Portfolio orientation, 3.05 Permanent organisation, 3.06 Business, 3.09 Health, security, safety & environment, 3.10 Finance, 3.11 Legal

1.05 Quality

Quality of the project is the degree to which a set of inherent characteristics fulfils the project requirements. Project quality management embraces all phases and parts of the project from the initial project definition, via the project processes, the management of the project team, the project deliverables and the closure of the project. Project quality management is the responsibility of the project, programme and portfolio management as a part of the management of total quality. Management of quality is based on the participation of all members of a project team who should regard quality as the foundation of the project. It ensures long-term business success through client satisfaction. The basis for project quality is the quality management practices of the permanent organisation that is involved in and contributes to the project processes and results. The quality management of the permanent organisation determines the quality policy, objectives and responsibilities, as well as its implementation by means of quality planning, use of standard operating procedures (SOP's), control measures and improvement using its quality management systems. Critical areas of project quality management are the interfaces between projects, programmes or portfolios and the permanent organisation. The risk of ignoring quality is that of not achieving the project, programme or portfolio objectives.

The intended functionality of the product should be validated against its actual functionality at appropriate stages during the course of the project with the customer, to ensure compliance with the product requirements. Validation of project quality is carried out via procedures such as quality assurance (QA) and project and product audits. Where appropriate, computer aided design (CAD) can be used, scale models and/or prototypes produced (e.g. for items of consumer goods, piece of machinery) of the whole product or components and tested to validate the design of the product and to adjust it to satisfy customer requirements at all stages of the project. Where the product is ICT software, early versions can be submitted for user testing to detect flaws which can be overcome in later versions. Where the product is in the form of documentation, draft versions can be reviewed, errors detected and corrected in later versions.

Testing is needed to prove that the deliverables meet the original specification and to uncover any defects so as to correct them early and avoid expensive reworking that can be necessary if defects are detected later. The testing and sign-off procedures to be carried out should be defined early in the project, preferably when defining the contract.

Possible process steps:

1. Develop the quality plan.
2. Select, build and test:
   - Prototypes/models
   - Versions
   - Documentation.
3. Get approval for, build and test the final version.
4. Carry out quality assurance and control.

5. Carry out testing, document and seek approval for the results.
6. Recommend and apply corrective actions and report on actions to eliminate defects.
7. Document the lessons learnt and apply to new projects.

Topics addressed:

Computer aided design, prototyping, modelling and testing
Defect detection methods and defect remediation methods
Effectiveness and cost of quality management
Metrics
Process quality management
Product quality management
Standards operating procedures
Version control

Key competence at level:

A Has successfully directed the management of project quality for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the project quality situations of a complex project.
C Has successfully managed the project quality situations of a project with limited complexity.
D Has the knowledge required concerning the management of project quality and can apply it.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.08 Problem resolution, 1.14 Procurement & contract, 1.16 Control & reports, 1.17 Information & documentation, 2.06 Openness, 2.08 Results orientation, 2.10 Consultation, 2.11 Negotiation, 2.13 Reliability, 2.14 Values appreciation, 2.15 Ethics, 3.04 PPP implementation, 3.05 Permanent organisation, 3.06 Business, 3.07 Systems, products & technology, 3.09 Health, security, safety & environment, 3.10 Finance

1.06 Project organisation

The project organisation is a group of people and associated infrastructure with an arrangement (hierarchy]) of, authority, relationships and responsibilities aligned to the business or function's processes. This competence element covers the design and the maintenance of the most appropriate roles, organisational structure, responsibilities and capabilities for the project.

Project and programme organisations are unique and temporary and adapted to the phases of the project life-cycle or the conditions of the programme cycle. Portfolio organisations are similar to permanent organisations and often a part of them. However, the orientation in any organisation should be mainly towards projects. The project organisation and resources requested for its delivery need to reflect the project objectives. If the project objectives require project delivery over a short timescale, where cost is not a consideration, then the project may require high levels of resource and a large organisation. Where a project is carried out over an extended timescale and the budget is constrained, the resources provided may be limited and the organisation small.

The processes and decision models that are managed and applied in an organisation should be well designed, properly implemented, continuously improved and based on experience. The project organisation normally has a shorter life and changes more rapidly than the permanent organisation.

The design of the project organisation should take into account cultural and environmental influences; it usually changes as the project evolves through its life-cycle. It is fine-tuned to fit in with different types and terms of contract.

In some situations it may be possible, and preferable, to relocate the project organisation so that the people involved are all in close proximity; this enhances team working and communication. On the other hand the units of some project organisations may be geographically dispersed and even on different continents, posing an even bigger challenge to project management.

The performance of a project organisation depends on the personnel working in it. The competence of the people who are nominated to participate in the project has to be verified and their availability checked with line management. Ideally, the project manager and line manager of the function supplying resource to the project will discuss the suitability of an individual to fulfil a particular role in the project team. The knowledge, skills and experience of the individual will be reviewed, whilst the project manager will also consider the personality of the individual and fit with other team members. However, it is often the case that the project manager has no involvement in the selection of people allocated to him to form the team and has to develop a project team with inexperienced members who may have conflicting personalities.

Possible process steps:

1. Determine what sort of project organisation and resources are required.
2. Identify all the organisational units which will provide resources to the project.
3. Define the roles, responsibilities, interfaces, levels of authority and procedures in the project.
4. Obtain resources from organisational units.
5. Define and regulate the interfaces with the units of the permanent organisation.
6. Communicate decisions, lead the project organisation.
7. Maintain, update and change the project organisation during the project life-cycle if needed.
8. Continuously seek to improve the project organisation.
9. Document the lessons learnt and apply to future projects.

Topics addressed:

Decision models
Interface management
Organisation chart
Procedures, processes
Resource evaluation and continuous learning
Responsibility matrix
Standard meeting schedule
Task descriptions

Key competence at level:

A Has successfully directed the management of project organisation for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the project organisation situations of a complex project.
C Has successfully managed the project organisation situations of a project with limited complexity.
D Has the knowledge required concerning the management of the project organisation and can apply it.

Main relations to:

1.02 Interested parties, 1.07 Teamwork, 1.09 Project structures, 1.12 Resources, 1.14 Procurement & contract, 1.19 Start-up, 1.20 Close-out, 2.01 Leadership, 2.02 Engagement & motivation, 2.04 Assertiveness, 2.05 Relaxation, 2.07 Creativity, 2.09 Efficiency, 2.10 Consultation, 2.14 Values appreciation, 3.03 Portfolio orientation, 3.05 Permanent organisation, 3.06 Business, 3.08 Personnel management

1.07 Teamwork

Projects are performed by teams of people, who are usually brought together specifically for the purpose of the project. **Teamwork** covers the management and leadership of team building, operating in teams and group dynamics. Teams are groups of people who work together to realise specific objectives.

Project team building is often done by the use of project start-up meetings, workshops and seminars for the project manager, team members and sometimes other interested parties. Team spirit (i.e. getting people to work well together) can be achieved through individual motivation, team goal setting, social events and supporting strategies.

Problems may arise due to technical or economic difficulties or stressful situations occurring. Issues may also arise due to cultural and educational differences, different interests and/or ways of working, or members being located great distances apart.

Team development should follow a defined process, for example: forming, storming, norming and performing (see possible process steps below).

The project manager needs to continually develop the team and its members, from an initial phase of team building, to team working throughout the life of the project, to the conclusion of the project, where team members are released to return to their organisational units for re-assignment to other projects. During their time working in the project, the performance of team members should be regularly reviewed by the project manager in consultation with the line manager, and development, coaching and training needs assessed and appropriate action taken. Where the performance of a team member is below the required standard, remedial action may be necessary.

Possible process steps:

1. Form – develop a common sense of purpose, belonging and commitment.
2. Storm – assign roles, responsibilities and tasks to aid control, decision-making and conflict resolution.
3. Norm – openness in how team members can work together.
4. Perform – develop interdependency to obtain outstanding results.
5. At the conclusion of the project, hand over the project deliverables to the line organisation and disband the team.
6. Document the lessons learnt and apply to future projects.

Topics addressed:

Ability to work in teams
Cooperation with the management
Decision making and representing roles
Geographical separation
Group dynamics
Individual profile assessment

Key competence at level:

A Has successfully directed the management of teamwork for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the teamwork situations of a complex project.
C Has successfully managed the teamwork situations of a project with limited complexity.
D Has the knowledge required concerning the management of teamwork in projects and can apply it.

Main relations to:

1.01 Project management success, 1.08 Problem resolution, 1.12 Resources, 1.13 Cost & finance, 1.14 Procurement & contract, 1.18 Communication, 2.01 Leadership, 2.02 Engagement & motivation, 2.03 Self-control, 2.05 Relaxation, 2.12 Conflict & crisis, 2.14 Values appreciation, 2.15 Ethics, 3.02 Programme orientation, 3.04 PPP implementation, 3.07 Systems, products & technology, 3.08 Personnel management

1.08 Problem resolution

Most of the work in the project life-cycle deals with the definition of work tasks and **problem resolution**. Most of the problems that arise are likely to involve the timescale, cost, risks or deliverables of the project or an interaction between all four factors. Options to resolve the problem may involve reducing the scope of the project deliverables, increasing its timescale or providing more resources.

Various methods of problem solving can be used. These may involve adopting systematic procedures to identify the problem and its root cause, a creative session to develop ideas and options to resolve the problem (such as 'brainstorming'; 'lateral thinking'; 'thinking hats') reviewing options, selecting a preferred option and taking appropriate action to deal with the problem. However, before deciding on what course of action to take, the interested parties must be consulted and their approval sought.

If obstacles arise during the problem solving process, they may be overcome by negotiation, escalation to an appropriate interested party for decision, conflict resolution or crisis management.

The project team can use such problem solving sessions as a learning exercise for the team. Successful problem resolution also tends to unite the team.

Possible process steps:

1. Include procedures for detecting problems in the project plan.
2. Identify when situations arise where there is a need for problem solving.
3. Analyse the problem and identify its root cause.
4. Apply creative methods to capture ideas to solve the problem.
5. Evaluate the ideas and select a preferred option, involving interested parties at appropriate steps in the process.
6. Implement and review the effectiveness of the selected solution and make adjustments as necessary.
7. Document the whole process and ensure that lessons learnt are applied to future projects.

Topics addressed:

Identifying and assessment of alternative options
Moving between the whole project to the detail and back again
Thinking in terms of systems
Total benefit analysis
Value analysis

Key competence at level:

A Has successfully directed the management of problem resolution for important programmes and/or portfolios of an organisation or an organisation unit.

B Has successfully managed the problem resolution situations of a complex project.

C Has successfully managed the problem resolution situations of a project with limited complexity.

D Has the knowledge required concerning the management of problem resolution in projects and can apply it.

Main relations to:

1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.05 Quality, 1.07 Teamwork, 1.09 Project structures, 1.14 Procurement & contract, 1.15 Changes, 2.05 Relaxation, 2.06 Openness, 2.07 Creativity, 2.08 Results orientation, 2.09 Efficiency, 2.10 Consultation, 2.12 Conflict & crisis, 2.14 Values appreciation, 3.01 Project orientation, 3.03 Portfolio orientation, 3.06 Business

1.09 Project structures

The portfolio, programme and project managers coordinate the different structures in their respective areas.

The **portfolio** (and often sub-portfolios) consists of projects and programmes of different types, cost, risk, benefit, timescale, size, strategic importance, novelty, territorial importance and so on. The portfolio manager will have the ability to analyse and display the portfolio information in different ways for senior management review and decision. The portfolio will be an ongoing part of the organisation's activities, with a flow of projects and programmes entering the portfolio as they are sanctioned and leaving the portfolio once they are completed.

The **programmes** consist of related projects and associated activities and will have some of the attributes of the portfolio, but on a smaller scale. Programmes will also have a finite timescale, unlike the portfolio and will have associated benefits to be delivered.

Projects can be broken down into their constituent parts from different standpoints, e.g. work breakdown, project organisation, project cost, information and documents structure.

The **project structures** are a key mechanism for creating order within the project. Hierarchical structures serve to ensure nothing is omitted from the project.

The **work** can be broken down into tasks, work packages and activities. These units or clusters of them will be allocated to a resource provider, the work will be scheduled, costs estimated, work planned, commissioned, controlled and completed. The work and actual costs will be reported and accepted under the guidance of the project, programme and portfolio managers.

The **project organisation** can be broken down into sub-projects and modules (e.g. combinations of planning; finance; infrastructure; ICT support; research; development; process development; manufacturing facilities; purchase and supply; product management and/or others, depending on the type of project) representing the discrete parts of the project and/or the permanent organisational units to which project/sub-project team members belong. Each of the sub-projects and/or modules will have a manager and team members. Where the project manager and/or team members are inexperienced, the project structures should be very detailed to ensure all aspects are comprehensively covered.

The project can be broken down into its various **phases** along the critical path, representing interim deliverables, key decision points (stop/go), investment decisions and so on.

The **costs** can be broken down in terms of timing of spend, internal versus external, discretionary versus non-discretionary, capital versus revenue.

The **information** flows associated with the project can be broken down into data sets, information derived from the data, knowledge built on the information, leading to understanding that ultimately underpins key decisions. Where the data are complex and voluminous, a relational database may be required and enquiry and data mining tools may be employed to interrogate the data.

The **documentation** associated with the project will conform to standard formats, for the project definition, project management plan, various types of team meetings, project reviews, executive reviews, documentation associated with project deliverables and so on. The documents may also need to be reviewed, stored and access controlled in either a physical and/or electronic archive.

Possible process steps:

1. Analyse the portfolio, programme or project and define the different structures which are appropriate.
2. Assign an owner to each of the structures.
3. Define the requirements for each of the structures and how they will operate.
4. Develop a means of displaying the structures.
5. Elaborate, analyse and select the structures.
6. Communicate and control project structures.
7. Maintain the structures.
8. Document the lessons learnt and apply to future portfolios/programmes/projects.

Topics addressed:

Coding systems
Databases, data input and output definition
Hierarchical and non–hierarchical structures
Multi-dimensional structures
Width and depth of structures
Work breakdown structures

Key competence at level:

A Has successfully directed the management of project structures for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the creation of project structures for a complex project.
C Has successfully managed the creation of project structures for a project with limited complexity.
D Has the knowledge required concerning the management of project structures and can apply it.

Main relations to:

1.01 Project management success, 1.06 Project organisation, 1.10 Scope & deliverables, 1.13 Cost & finance, 1.15 Changes, 1.16 Control & reports, 1.18 Communication, 2.01 Leadership, 2.03 Self-control, 2.07 Creativity, 2.09 Efficiency, 2.13 Reliability, 3.04 PPP implementation, 3.07 Systems, products & technology

1.10 Scope & deliverables

The project **scope** defines the boundaries of a project. If the boundaries of the project, programme, or portfolio are not properly defined and if additions to and deletions from the project, programme or portfolio are not properly documented, then the situation tends to get out of control. From the point of view of the interested parties the scope embraces the totality of all the deliverables, which are included in a project. The solutions within the scope gradually evolve from the initial concept of the project to the final deliverables, through the documents that define those deliverables in more and more detail as they are developed. From the view of the interested parties the scope and deliverables represents the total content (functional, technical and user interface characteristics), included in the project. The project should deliver all that is described within its scope. In some types of project the scope also includes the geographical and users environment where new systems or changes to existing systems delivered by the project will be operated. In defining the scope of a project it is also important to stipulate what is out of its scope

The **deliverables** of a successful project, programme or portfolio are tangible or intangible assets created by the project, programme or portfolio for the customer. They are represented by drawings, schematics, descriptions, models, prototypes, systems and products of various kinds. Deliverables are not only the product sold or service put into use after project closure, but also the operational processes, organisational changes and human resource changes needed for a successful organisation to operate. The project deliverables may be classified in terms of their priority (must have; nice to have; if there is time), by agreement with the interested parties. Those of lower priority may not be delivered if there are time constraints. The configuration and specification of the deliverables have to comply with the project requirements and objectives. Project management should understand and manage the content of the project, the work requirements and the timescale.

Configuration is defined as the functional and physical structure of project deliverables as described in the project documentation and is realised in the deliverables produced by the project. Configuration management helps to minimise deficiencies and errors in the design of a deliverable through a systematically organised document production and approval procedure. Change management helps to keep track of changes in the scope as well as in the configuration of the project.

Possible process steps:

1. Define interested parties' requirements and objectives.
2. Agree appropriate deliverables with the interested parties.
3. Define project scope and control its scope in all project phases.
4. Update the deliverables and scope when changes are agreed with the interested parties.
5. Control the quality of the deliverables.
6. Formally hand over the deliverables to the interested parties.
7. Document the lessons learnt and apply to future projects.

Topics addressed:

Change management
Configuration management
Deliverable design and control methods
Documentation and coherence of results
Interfaces
New or changed deliverables and their functions
New or changed organisational functions and solutions
New or changed physical products or services and their functions
Scope definition

Key competence at level:

A Has successfully directed the management of project scope and deliverables for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the scope and deliverables situations of a complex project.
C Has successfully managed the scope and deliverables situations of a project with limited complexity.
D Has the knowledge required concerning the management of project scope and deliverables and can apply it.

Main relations to:

1.02 Interested parties, 1.03 Project requirements & objectives, 1.11 Time & project phases, 1.13 Cost & finance, 1.14 Procurement & contract, 1.15 Changes, 1.16 Control & reports, 1.17 Information & documentation, 1.19 Start-up, 1.20 Close-out, 2.02 Engagement & motivation, 2.08 Results orientation, 2.09 Efficiency, 2.10 Consultation, 2.13 Reliability, 3.04 PPP implementation, 3.05 Permanent organisation, 3.06 Business, 3.07 Systems, products & technology, 3.09 Health, security, safety & environment

1.11 Time & project phases

Time covers the structuring, sequencing, duration, estimating and scheduling of activities and/or work packages, including the assignment of resources to activities, establishing project deadlines and monitoring and controlling their timely execution. These aspects should be displayed on the project critical path diagram.

Different project life-cycle models exist which are specific to a particular type of industry (construction; manufacturing; logistics) or part of a business (R & D; Supply Chain; ICT support). Different timescales and phases will apply within these project life-cycle models.

A **project phase** is a discrete time period of the project sequence, which is materially separate from other periods. It produces both major project deliverables and decisions which are the basis for the next phase. Phases have defined objectives and may have specified time limits. Different phase models may be used for different kinds of (sub) projects which increases the complexity of their coordination. Milestones can be used to work towards specific targets or phase limits or intervals in between.

In practice the project phases can overlap (e.g. concurrent stages, fast-tracking). In programmes the phases normally apply to projects rather than to programmes. Portfolios are controlled by time intervals. There is usually an annual cycle of meetings and decision points for planning the portfolio for the coming year, perhaps with a forward view of several years, depending on the type of business or organisation. The portfolio will also have review points during the current delivery cycle to ensure that the overall portfolio of projects is on track, that resources are properly allocated and to allow remedial action to be taken where necessary.

The aim of time scheduling is to determine what activities need to be carried out and when and to put these activities into a logical sequence on a time line. Scheduling includes the interfaces between sub-projects and amongst work packages, as well as the duration and timing of activities. Time schedules depend on the relative priority of the work, the availability of resources with appropriate skills and sometimes on the seasons of the year, where work may be weather dependent. Where there is uncertainty about the timescale required for a particular phase or activity, a time 'buffer' or 'float' should be introduced into the schedule.

Possible process steps:

1. Define and sequence the activities and/or work packages.
2. Estimate duration.
3. Schedule the project or phase.
4. Allocate and balance resources.
5. Compare target, planned and actual dates and update forecast as necessary.
6. Control the time schedule with respect to changes.
7. Document the lessons learnt and apply to future projects.

Topics addressed:

Critical path planning
Life-cycle models
Milestones
Phase models
Resource supply: demand balancing
Time contingency 'buffers' or 'float'
Time control methods
Time planning methods

Key competence at level:

A Has successfully directed the management of the project phases and time schedules for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the project phases and the time schedule situations of a complex project.
C Has successfully managed the project phases and the time schedule situations of a project with limited complexity.
D Has the knowledge required concerning the management of project phases and time scheduling and can apply it.

Main relations to:

1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.12 Resources, 1.13 Cost & finance, 1.15 Changes, 1.16 Control & reports, 1.19 Start-up, 2.02 Engagement & motivation, 2.03 Self-control, 2.05 Relaxation, 2.09 Efficiency, 2.10 Consultation, 3.01 Project orientation, 3.04 PPP implementation, 3.08 Personnel management, 3.10 Finance

1.12 Resources

Resource management consists of resource planning, with the identification and allocation of resources with the appropriate capability. It also includes optimising the way resources are utilised in the time schedule as well as the continuous monitoring and control of these resources. Resources embraces people, materials and the infrastructure (such as materials, equipment, facilities, services, information technology, information and documents, knowledge, funds) required to carry out project activities.

Project management should make sure that individuals have the necessary technical, behavioural and contextual competences and are provided with adequate information, tools and training to perform the tasks required of them successfully.

Possible process steps:

1. Identify what resources are required, including the specific project management effort. The competences required of the personnel in the project team should also be made explicit.
2. Schedule the resources.
3. Obtain agreement with line management for resource assignments to the project.
4. Place the estimates and the resource assignments plan under change control.
5. Manage assignments, with special emphasis on the productivity of newly appointed personnel.
6. Control the resources with respect to changes.
7. Where resources have been over or under-estimated escalate to programme or portfolio level for resource (re-) allocation.
8. Modify the resource estimates database at project close-out with figures for the resources actually used.
9. Document lessons learnt and apply to future projects.

Topics addressed:

Resource buffer (on the critical path)
Resource control methods
Resource estimates database (for planning and balancing resources)
Resource estimating methods
Resource rates

Key competence at level:

A Has successfully directed the management of the project related resources for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the resource situations of a complex project.
C Has successfully managed the resource situations of a project with limited complexity.
D Has the knowledge required concerning the management of project resources and can apply it.

Main relations to:

1.06 Project organisation, 1.07 Teamwork, 1.13 Cost & finance, 1.14 Procurement & contract, 2.03 Self-control, 2.05 Relaxation, 2.11 Negotiation, 2.12 Conflict & crisis, 2.14 Values appreciation, 3.01 Project orientation, 3.07 Systems, products & technology, 3.08 Personnel management

1.13 Cost & finance

Project **cost and finance** management is the sum of all the actions required for planning, monitoring and controlling costs during the project life-cycle, including project assessment and cost estimates in the early phase of the project.

Project **cost management** estimates the cost of each work package, the sub-systems and the whole project and establishes the budget for the overall project. It also involves reconciling planned versus actual costs incurred at various points in the project and estimating the remaining cost, as well as updating the final cost estimate. The cost of the deliverables should be measurable and calculable. The cost of any change should be calculated, agreed and documented.

Project costs should be fully over-headed, to include an appropriate allocation for items such as office services and support. An unallocated sum of money is held as a reserve for any contingencies or possible claims that arise in the cost budget. Such funds may also become available due to favourable outcomes where risks are concerned or where opportunities are realised. They can cover potential cost overruns where there are risks or uncertainties in the project.

The project, programme and portfolio management can contribute to analysing the new operations and maintenance cost situation after the end of the projects and programmes. During the project life-cycle, the allocation of cost items to project or actual operational accounts can be an issue.

The amount of work paid for must be consistent with what the project has actually delivered and the agreed contractual terms of payment. Project management applies methods to monitor, check and understand the actual state of delivery, what work should be invoiced and the actual use of resources (such as sub-contractor billing, hours from time sheets). This is the basis for project cost reporting and controlling.

Project **financial management** ensures that in all project phases project management knows how much financial resource is required for each time interval. The resources required depend on the project cost, the time schedule and the payment conditions. Project management also analyses the available financial resources and manages any under or overspend.

There should be funds (a 'buffer' or 'float') available for unexpected demands during the project life-cycle. Advance payments need to be handled with special care. In terms of expenditure, the cash-in and cash-out flow is calculated and evaluated. Appropriate actions and a feedback system complete the management activities.

Project financing covers the process of raising funds in the most prudent and favourable way. Various options exist for financing projects, programmes and portfolios, such as from internal funds, from subsidiaries, via bank loans or via build-operate-transfer and build-own-operate-transfer (BOT or BOOT) consortia. The treasury function of the organisation would normally become involved in,

or lead such activities. These options need to be reviewed for the particular project and an appropriate one selected in good time for the start of the project.

Possible cost management process steps:

1. Analyse and decide on project, programme or portfolio cost management system.
2. Estimate and evaluate costs of each work package, including overheads.
3. Establish cost monitoring and controlling elements, as well as inflation and currency management if necessary.
4. Define cost objectives.
5. Calculate actual resource usage and costs or expenses incurred (accounting).
6. Take all changes and claims into account.
7. Analyse variances and causes, reconcile actual versus planned cost.
8. Forecast cost trends and final costs.
9. Develop and apply corrective actions.
10. Update the cost estimate with respect to changes.
11. Document lessons learnt and apply to future projects.

Possible financial management process steps:

1. Analyse financing options/models for project, programme or portfolio.
2. Negotiate with possible sources of funds and determine conditions attached.
3. Select source of project funding.
4. Allocate budget to cost items, analyse advance payments.
5. Calculate financial resource usage and cash-in and cash-out flows of the project, programme or portfolio.
6. Establish and control process and authorisation for payments.
7. Recognise or establish and control book-keeping and financial auditing systems.
8. Take into account modification of financial resource usage and budgets available during the project life-cycle.
9. Validate and manage budgets, covering incurred costs.
10. Document lessons learnt and apply to future projects.

Topics addressed:

Budget for project cost
Cash flows in and out
Cash 'buffer' or 'float'
Chart of accounts
Cost control methods
Cost estimating methods
Cost structures
Currencies
Design to cost
Earned value
Final cost forecast

Financial resources
Financing models
Inflation in prices

Key competence at level:

A Has successfully directed the management of the costs and financial resources for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the cost and financial resource situations of a complex project.
C Has successfully managed the cost and financial resource situations of a project with limited complexity.
D Has the knowledge required concerning the management of project cost and financial resources and can apply it.

Main relations to:

1.02 Interested parties, 1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.09 Project structures, 1.10 Scope & deliverables, 1.11 Time & project phases, 1.12 Resources, 2.02 Engagement & motivation, 2.10 Consultation, 2.12 Conflict & crisis, 2.14 Values appreciation, 2.15 Ethics, 3.01 Project orientation, 3.04 PPP implementation, 3.05 Permanent organisation, 3.10 Finance

1.14 Procurement & contract

Procurement involves obtaining the best value for money from suppliers of goods or services to the project. There is a need to formalise the work performed for the goods and services provided by the organisations involved, clearly defining what is expected from them, the control to be exerted by the receiving organisation and the obligations of each party.

Procurement is usually carried out via a purchase and supply team, which can be part of the project or programme and will be part of the permanent organisation. The purchase and supply team will have its own strategy and business processes. They will identify with the project or programme manager potential suppliers, seek quotations, put bids out to tender, select a supplier, negotiate long-term agreements with favoured suppliers and minimise inventory via 'just in time' delivery. Where the organisation is a public entity, they would need to ensure that they conform to any legislation covering the tender process. Where problems arise, they would be expected to negotiate its resolution with suppliers.

A **contract** is a legally binding agreement between two or several parties to perform work or supply goods and services under specified conditions. A contract may be in the form of a verbal agreement, or exist as a document signed by the parties involved. Financial penalty clauses for not conforming to the terms of the contract are usually included. In large projects, main contractors may be appointed who would sub-contract parts of the work to others. The onus would be on the main contractor to ensure that any sub-contractors conform to the terms of the overall contract.

The purpose of contract management is to control the process of formalising a contract and once agreed, managing the contract during the project life-cycle. The legal department of the organisation would normally be involved in drawing up and formalising the contract with the various parties involved and in any action resulting from default by a customer or supplier.

Internal agreements (i.e. an agreement between parties of the same legal entity) for acquiring/ delivering goods and services are included in this competence element.

A good contract manager will be intimately acquainted with the terms of the contract, but will use his judgement on whether to invoke penalty clauses, should the customer or a supplier default in some way. He has to consider the circumstances under which the default has occurred and the relationship he has with the customer or supplier (long term strategic partnership versus one-off contract).

Possible process steps:

1. Identify and define what needs to be procured.
2. Put bids out to tender.
3. Select suppliers.
4. Establish contract administration.

5. Execute contract.
6. Manage changes.
7. Accept contract completion.
8. Close contract.
9. Document the lessons learnt and apply to future projects.

Topics addressed:

Acceptance procedure and tests
Change management
Claim management
Contract performance review
Contract terms, including default penalties
Make / Buy analysis
Penalties
Procurement policies and practices
Strategic partnerships
Supply chain agreements
Tendering process

Key competence at level:

A Has successfully directed the management of the procurement and contracts for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the procurement and contract situations of a complex project.
C Has successfully managed the procurement and contract situations of a project with limited complexity.
D Has the knowledge required concerning the management of project procurement and contracts and can apply it.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.05 Quality, 1.06 Project organisation, 1.07 Teamwork, 1.08 Problem resolution, 1.10 Scope & deliverables, 1.15 Changes, 1.16 Control & reports, 1.19 Start-up, 1.20 Close-out, 2.04 Assertiveness, 2.08 Results orientation, 2.11 Negotiation, 2.13 Reliability, 2.15 Ethics, 3.01 Project orientation, 3.06 Business, 3.09 Health, security, safety & environment, 3.11 Legal

1.15 Changes

Changes are often necessary in a project due to unanticipated occurrences. It may be necessary to change the project specification or the contract terms with suppliers or customers. Changes must be monitored against the original project baseline as set out in the business case.

At the start of a project, the change management process to be adopted should be agreed with all relevant interested parties. A proactive change management process that anticipates the need for change is preferable to a process that reacts only once the need for change is obvious.

A change to the scope of a project or to the specification of a deliverable is made via such a formal process. The change process embraces everything that results from the change required or new opportunity identified, and includes agreement on the change decision process, agreement on the need for change, the decision to accept the change and its implementation; this applies for all kinds of changes. Change management identifies, describes, classifies, assesses, approves or rejects, realises and verifies changes against agreements. Changes can be requested by any party and have to be managed as both proposed and approved changes, as well as properly communicated to all interested parties. For the management of a change, its direct and indirect effects on the whole project, programme or portfolio and its context are taken into account. The impact of the changes on the project deliverables, configuration, time schedule, cost, finance plan and risks are determined by comparison with the project baseline. Once the changes have been accepted, the project management plan is adjusted accordingly.

Possible process steps:

1. Decide on change management policy and process to be used.
2. Identify all proposed changes.
3. Analyse their consequences to the project.
4. Seek authorisation for the changes, where necessary.
5. Get changes accepted or rejected.
6. Plan, execute, control and close approved changes.
7. Report status of changes after completion.
8. Monitor effect of changes against project baseline.
9. Document lessons learnt and apply to future projects.

Topics addressed:

Change authority
Change management
Change order management
Change request
Configuration management
Product redesign

Key competence at level:

A Has successfully directed the management of changes in important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the changes of a complex project.
C Has successfully managed the changes of a project with limited complexity.
D Has the knowledge required concerning the management of project changes and can apply it.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.08 Problem resolution, 1.09 Project structures, 1.10 Scope & deliverables, 1.11 Time & project phases, 1.12 Resources, 1.13 Cost & finance, 1.16 Control & reports, 1.17 Information & documentation, 2.03 Self-control, 2.07 Creativity, 2.08 Results orientation, 2.09 Efficiency, 2.10 Consultation, 2.11 Negotiation, 2.14 Values appreciation, 3.05 Permanent organisation, 3.06 Business

1.16 Control & reports

This element covers the integrated control and reporting of the project. **Control** is based on project objectives, plans and contracts. It measures actual project progress and performance, compares it against the baseline, and takes any necessary remedial action.

Reporting provides information and communication about the status of work on the project and forecasts developments up until the end of the project or programme. Reporting also includes financial audits and reviews of the project.

Where the project manager and/or team are very experienced, it may be sufficient and acceptable to interested parties to 'report by exception'. This means only issuing a report when there is something that needs to be reported, rather than being monitored via regular status or update reports.

Control and reporting of the status of portfolios is carried out for the current period and includes a forecast for an appropriate number of years.

An integrated project controlling and reporting system covers all project objectives and the corresponding success criteria for the relevant project phases and requirements of all interested parties.

Possible process steps:

1. Establish an effective project reporting system.
2. Monitor project status and performance on specific dates.
3. Analyse objectives, plans and identify any deviations; run trend forecasts.
4. Plan alternatives and run simulations (what-if and trade-off analysis).
5. Develop and apply corrective actions.
6. Eventually adjust project objectives.
7. Report project status and performance to interested parties.
8. Document the lessons learnt and apply to future projects.

Topics addressed:

Actuals
Contingency
Corrective actions
Forecast
Monitoring
Project status

Key competence at level:

A Has successfully directed the management of the control and reporting for important programmes and/or portfolios of an organisation or an organisation unit.

B Has successfully managed the control and reporting situations of a complex project.

C Has successfully managed the control and reporting situations of a project with limited complexity.

D Has the knowledge required concerning the management of project control and reporting and can apply it.

Main relations to:

1.01 Project management success, 1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.05 Quality, 1.09 Project structures, 1.10 Scope & deliverables, 1.11 Time & project phases, 1.13 Cost & finance, 1.14 Procurement & contract, 1.15 Changes, 1.17 Information & documentation, 1.18 Communication, 2.01 Leadership, 2.08 Results orientation, 2.09 Efficiency, 2.13 Reliability, 2.14 Values appreciation, 2.15 Ethics, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.04 PPP implementation, 3.06 Business, 3.10 Finance

1.17 Information & documentation

Information management includes modelling, gathering, selecting, storing and retrieving project data (formatted, unformatted, graphical, hard copy, electronic copy).

Care must also be taken in deciding who gets what information. There is a tendency to overwhelm people with too much information. Interested parties should receive only the information that they need, in a suitable form, to allow them to take whatever action is required of them.

A **documentation** system should have rules as to what information it contains, in which kind and type of document and the format in which this information is presented in the document. The kind of document is defined as 'fit for purpose'; the type of document as paper, film or electronic. Documentation management describes the processes of producing, distributing, identifying, filing, archiving, determining access and confidentiality criteria, retrieving and destroying documents.

Documentation includes all the data, information, knowledge and wisdom accrued during the whole project life-cycle, especially that which concerns project configuration and changes and all the management documents.

The information and documentation team will normally be a permanent component of the organisation. The project, programme or portfolio manager should appoint an individual to interface with this team and/or set up processes to ensure compliance with the organisation's policies and any regulatory requirements on information and documentation.

Possible process steps involved in information:

1. Plan the project management information system for the project, programme or portfolio.
2. Ensure compliance with the organisation's policies and any regulatory requirements on information.
3. Implement the project management information system.
4. Control the use of the project management information system.
5. Audit the use of the project management information system.
6. Document the lessons learnt and apply to future projects.

Possible process steps involved in documentation:

1. Develop a documentation management plan
2. Ensure compliance with the organisation's policies and any regulatory requirements on documentation.
3. Classify documents.
4. Issue documents.
5. Store documents, either in hard copy and /or electronic format.
6. Control documentation updates and versions.

7. Archive documents.
8. Document the lessons learnt and apply to future projects.

Topics addressed:

Confidentiality
Document design and format
Document identification and modification
Filing and archiving
Hand-over to client
Information databases
Information structure and management plan
Regulatory requirements
Security
Semantics

Key competence at level:

A Has successfully directed the management of information and documentation for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the information and documentation situations of a complex project.
C Has successfully managed the information and documentation situations of a project with limited complexity.
D Has the knowledge required concerning the management of project information and documentation and can apply it.

Main relations to:

1.05 Quality, 1.10 Scope & deliverables, 1.15 Changes, 1.16 Control & reports, 1.18 Communication, 1.19 Start-up, 1.20 Close-out, 2.03 Self-control, 2.10 Consultation, 2.13 Reliability, 2.15 Ethics, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.04 PPP implementation, 3.05 Permanent organisation, 3.11 Legal

1.18 Communication

Communication covers effective exchange and understanding of information between parties. Effective communication is vital to the success of projects, programmes and portfolios; the right information has to be transmitted to relevant parties, accurately and consistently to meet their expectations. Communication should be useful, clear and timely.

Communication may take many forms; oral, written, text or graphic, static or dynamic, formal or informal, volunteered or requested using a variety of media such as paper or electronic means. Communication may take place in conversations, meetings, workshops and conferences, as well as with the exchange of reports, meeting minutes or informal opinions.

The project, programme and portfolio management prepares a communication plan.

A document listing who will get what and when, can be a useful tool to ensure effective communication.

It is important to consider confidentiality in relation to communication. If confidential information is wrongly communicated to a third party that should not be in receipt of the communication, it may have an adverse effect on the organisation (loss of industrial secrets, marketing information, intellectual property).

The management of meetings includes the preparation for the meeting, the conduct of the meeting, reporting the meeting and following up the actions that result from it.

Possible process steps:

1. Set out the communication plan at the start of the project or programme, or as one of the portfolio processes.
2. Identify the target population for communication and their location.
3. Determine what needs to be communicated and the context.
4. Choose the place, time, duration and means of communication.
5. Plan the communication process and prepare material.
6. Check the infrastructure and send/transmit communication.
7. Seek feedback on the effectiveness of the communication.
8. Evaluate and take appropriate action.
9. Document the lessons learnt and apply to future projects.

Topics addressed:

Appropriate communication
Body language
Communication plan
Formal and informal communications
Listening
Meetings
Presentations
Security and confidentiality
Verbal communication
Written communication

Key competence at level:

A Has successfully directed the management of communication for important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the communication situations of a complex project.
C Has successfully managed the communication situations of a project with limited complexity.
D Has the knowledge required concerning the management of project communication and can apply it.

Main relations to:

1.02 Interested parties, 1.07 Teamwork, 1.09 Project structures, 1.16 Control & reports, 1.17 Information & documentation, 1.19 Start-up, 1.20 Close-out, 2.02 Engagement & motivation, 2.04 Assertiveness, 2.06 Openness, 2.07 Creativity, 2.09 Efficiency, 3.01 Project orientation, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.04 PPP implementation, 3.05 Permanent organisation

1.19 Start-up

Start-up provides the basis for a successful programme or project. It is frequently characterised by uncertainty, with information that is sketchy or not yet available. Interested party requirements may be ill-defined, their expectations unrealistic and timescale undeliverable, whilst early optimism and enthusiasm needs to be tempered with reality. A well-prepared and effectively managed start-up workshop and the recruitment of the right programme/project team personnel can improve the chances of a successful programme/project life-cycle. The start-up workshop should focus on developing the programme/project charter and preparing the programme/project management plan, setting out the team roles and critical path for the programme/project.

In portfolios, the phase structure is normally replaced by time intervals, typically related to budgeting and/or the business planning and delivery cycle. An annual planning and delivery calendar, with key meetings and decision points identified for strategic, resource and budget planning and control is the norm. Close interaction between project, programme and portfolio management is crucial to ensure senior management endorsement for the projects, programmes and portfolio(s).

After the decision to continue with the programme or project, the start-up of the next phase is carried out with the following in mind: the specific objectives for the next phase of the programme/project, any organisational changes necessary, the need to reconfirm or modify the programme/project charter and programme/project management plans, updating the detailed time schedule and cost plan and engagement with the resources.

Where there are phase time limits, a programme/project transition process should be managed by the programme/project management team.

Possible process steps:

1. Initiate start-up process.
2. Communicate the programme/project objectives and their/ its context.
3. Create a shared vision or mission for the programme or project in the plans.
4. Develop a detailed programme or project management plan.
5. Gain acceptance for the programme/project and programme/project management plan.
6. Get the programme/project team working together and focus on the purpose of the programme/project.
7. Secure resources, finance, equipment and facilities.
8. Ensure adequate start-up of the programme/project, its projects/sub-projects and project phases.
9. Agree programme/project charter and programme/project management plan, review at every phase of the programme/project and its projects/sub-projects and modify as necessary.
10. Document the lessons learnt and apply to future programmes/projects.

Topics addressed:

Programme/Project charter
Programme/Project management plan
Start-up workshop

Key competence at level:

A Has successfully directed the management of the start-ups in important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the start-up of an entire complex project and of its phases.
C Has successfully managed the start-up of an entire project with limited complexity and of its phases.
D Has the knowledge required concerning the management of start-up of an entire project and of its phases and can apply it.

Main relations to:

1.01 Project management success, 1.03 Project requirements & objectives, 1.06 Project organisation, 1.07 Teamwork, 1.10 Scope & deliverables, 1.11 Time & project phases, 1.13 Cost & finance, 1.14 Procurement & contract, 1.17 Information & documentation, 1.18 Communication, 2.02 Engagement & motivation, 2.04 Assertiveness, 2.06 Openness, 2.07 Creativity, 3.04 PPP implementation, 3.05 Permanent organisation

1.20 Close-out

Close-out refers to the completion of the project or programme or of a phase of the project, after the results of the programme, project or phase have been delivered.

Each phase of a project or sub-project should be formally closed with an evaluation and documentation of the phase carried out, checking that objectives have been achieved and customer expectations met. The proposals for the next phase(s) of the project should be reviewed and any issues requiring a decision submitted to the appropriate body for authorisation.

For the close-out of the project or programme, aspects to consider, where a formal contract has been signed, include transfer of responsibilities from the contractor to the project owner, the commencement of the warranty period and the final payments that need to be invoiced. Hand-over ('as built') documentation needs to be produced and training (e.g. in the use of the product, ICT system etc...) provided to those people who will use the output of the project. These are essential to ensure that the benefits of the investment made in the project or programme are realised.

Project results and experience gained are evaluated and lessons learned are documented so that they can be used to improve future projects. The members of the project team will be required for new projects and should be formally released from their roles and responsibilities.

Possible process steps:

1. Start to use deliverables.
2. Formalise project completion process, hand over operational documents and agree process to resolve open issues.
3. Obtain customer feedback.
4. Update/Agree deliverable related services such as 'as built' documentation*, training courses, product support.
5. Update/Agree on conditions of warranty.
6. Close contracts with contractors and suppliers.
7. Complete all financial transactions and update the final costs.
8. Hold a project close-out meeting.
9. Release human resources and other assets, dissolve project organisation, obtain release from project management role and hand over responsibility to project owner.
10. Archive project records.
11. Issue final report.
12. Update the lessons learnt database and apply to future projects.

* 'As built' documentation = represents what has actually been delivered

Topics addressed:

'As built' project documentation
Contract compliance review, acceptance procedure and tests
Contract terms, penalties
Hand-over documents
Statement of acceptance

Key competence at level:

A Has successfully directed the management of the close-outs in important programmes and/or portfolios of an organisation or an organisation unit.
B Has successfully managed the close-out situations of a complex project.
C Has successfully managed the close-out situations of a project with limited complexity.
D Has the knowledge required concerning the management of project close-out and can apply it.

Main relations to:

1.01 Project management success, 1.03 Project requirements & objectives, 1.06 Project organisation, 1.10 Scope & deliverables, 1.13 Cost & finance, 1.17 Information & documentation, 2.02 Engagement & motivation, 2.08 Results orientation, 2.10 Consultation, 2.14 Values appreciation, 3.04 PPP implementation, 3.05 Permanent organisation, 3.10 Finance, 3.11 Legal





4.2 Behavioural competence elements

This section describes the behavioural competence elements. These are based on a number of reference documents describing behaviour and include the personal attitude elements which were in ICB Version 2. We have selected a set of behavioural competence elements which are relevant to project management and can be applied to the project manager, the team members, the interested parties and the way they interact in the context of the project. The description of each behavioural competence element was written in a way which is relevant to the profession of project management. The behavioural competence elements are listed in order of decreasing importance, as well as increasing number of people involved. This results in the following sequence of behavioural competence elements:

Table 4.2 *Behavioural competence elements*

2.01	Leadership	2.09	Efficiency
2.02	Engagement & motivation	2.10	Consultation
2.03	Self-control	2.11	Negotiation
2.04	Assertiveness	2.12	Conflict & crisis
2.05	Relaxation	2.13	Reliability
2.06	Openness	2.14	Values appreciation
2.07	Creativity	2.15	Ethics
2.08	Results orientation		

The importance of these behavioural competence elements however, can and will differ depending on the situation. The basis for professional behaviour is a project situation and in this case, the relevant 'technical' and 'contextual' competence elements have to be taken into account and may be different because of the particular project situation.

Effective behaviour in a specific project situation is the basis for the assessment. Every competence element in this range is written based on a general description, a list of *Topics addressed* and *Possible process steps*. The knowledge and experience required at each IPMA Level is described in *Key competence at Level* statements and is completed by a *Main relations to* section, which shows the association to other competence elements. These competence elements are considered to always be related. The

Main relations to section is meant to aid comprehensive reading and to help in assessing a candidate's competence. It is related to the specific content and context (i.e. the corresponding elements) of the situation. The behavioural competence elements are also supported by paired descriptions of *Adequate behaviour* versus *Behaviour requiring improvement*, to aid the assessor. The paired descriptions help to assess the candidate's behavioural competences during the workshop or in the interview. The paired descriptions are also helpful in formulating STAR-questions.

The descriptions of effective behavioural competence at the different IPMA Levels are as follows:

- **At IPMA Level A**: the candidate has to have shown effective application of the behavioural competence elements in the coordination of projects and/or programmes, within the scope of a portfolio or a programme, and alignment to the permanent organisation and in relation to the strategy of his organisation. The candidate has guided (sub) programme and/or project managers in their behavioural development. The candidate has also been involved in implementing the behavioural competence elements or methodology in projects or programmes and contributed to the development of the project manager's profession by publishing or presenting his experiences or new concepts regarding the behavioural competence elements. Specific knowledge or experience criteria and behavioural patterns for assessment will be listed in the behavioural competence element descriptions.
- **At IPMA Level B**: the candidate has to have shown effective application of the behavioural competence elements in complex project situations and within the scope of the project. The candidate has guided (sub) project managers in their behavioural development.
- **At IPMA Level C**: the candidate has to have shown effective application of the behavioural competence elements in in project management situations of limited complexity. The candidate might need to be guided in the further development of appropriate behaviours.
- **At IPMA Level D**: only knowledge of the behavioural competence elements and its application is assessed.





2.01 Leadership

Leadership involves providing direction and motivating others in their role or task to fulfil the project's objectives. It is a vital competence for a project manager.

Leadership is required throughout the life of a project. It is particularly important when a project encounters problems, when change is required or where there is uncertainty about a course of action. Leadership is needed to exert all of a project managers competences in a way that they can be seen and embraced by the team.

Besides displaying leadership with the project team, the project manager needs to be seen as a leader in representing the project opposite senior management and interested parties.

The project manager must know what leadership styles exist and decide which one is appropriate for the project, the team being managed and when dealing with senior management and interested parties, in all types of situations. The leadership style adopted includes patterns of behaviour, communication methods, attitude to conflict and criticism, ways of controlling team members' behaviour, decision making processes and amount and type of delegation. Every project manager should be a leader, but not every leader is a project manager!

Possible process steps:

1. Determine what leadership style is appropriate for the particular situation (with the team, senior management; interested parties).
2. Ensure it is compatible with your own style and abilities.
3. Use the chosen leadership style.
4. Review performance and seek feedback (from the team, senior management, interested parties; as appropriate) and modify leadership style if necessary.
5. Use training and coaching opportunities to improve your own leadership competence.
6. Provide coaching and training for team members in leadership.
7. Review and seek continuous improvement in your own and team members' competence in leadership.
8. Document the lessons learnt and apply to future projects.

Topics addressed:

Coaching
Delegation
Feedback
Leadership styles
Motivation
Natural authority
Power

Recognition
Tenacity
Vision

Key competence at level:

A Has practiced, managed and directed leadership effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of leadership. The candidate has also been involved in implementing leadership in projects or programmes.

B Has practised and managed leadership effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of leadership.

C Has practised leadership effectively in non-complex project situations.

D Has the required knowledge concerning leadership.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.04 Risk & opportunity, 1.06 Project organisation, 1.07 Teamwork, 1.09 Project structures, 1.16 Control & reports, 2.02 Engagement & motivation, 2.04 Assertiveness, 2.06 Openness, 2.08 Results orientation, 2.11 Negotiation, 2.12 Conflict & crisis, 2.15 Ethics, 3.04 PPP implementation, 3.06 Business

Behavioural patterns:

2.01 LEADERSHIP	
Adequate behaviours	**Behaviours requiring improvement**
Can delegate tasks, has confidence in others and coaches them to develop and live up to expectations	Does not delegate and doesn't coach or develop others
Has a vision, expresses it very clearly, supports it well and brings it to life	Can be self-absorbed, changes direction easily, Has no vision, doesn't support ideas
Has natural authority, people listen to him and have confidence in him	Has to prove his points repeatedly, people doubt him
Delegates SMART (Specific, measurable, achievable, realistic, time-bound) work packages appropriate to a team member's capabilities and gives them the freedom to do it their way	Doesn't manage using SMART principles and narrows the scope of action of his subordinates by obligating and controlling
Is a skilled moderator	Cannot moderate processes or conflicts
Combines power and charisma	Appears weak and insignificant
Is inspiring, makes people proud to work with him	People don't feel attracted by his personality
Knows how to reward and take corrective action in ways acceptable to the team members	Doesn't reward, and takes corrective action in the wrong way or in an inappropriate setting
Takes total responsibility, delegates responsibilities and tasks accordingly	Passes on all responsibilities and objectives directly to his team member
Secures the project's objectives and protects team members in negotiating changes	Blames team members and allows pressure from others to change objectives, assignments or the project specification
Controls team members' behaviour in a conscious and constructive way, has discipline and allows time for communication	Doesn't have a clear idea of the effect of his controlling actions, pretends there is a lack of time, avoids discussion
Engages the team members in decisions or has a reason for taking decisions himself	Decides all issues himself and does not communicate decisions to team members
Adopts a leadership style appropriate to the specific team and work situation, is open to feedback	Always leads in a predictable way and is defensive about his own leadership behaviour
Acts as an example and is acknowledged as leader in the team and by the interested parties	His behaviour is not considered appropriate by others. He does not display leadership with the team or interested parties
Acts and speaks calmly, formulates responses well and with authority	Speaks too quickly, uses unfinished sentences and gesticulates too much
Keeps calm during a crisis, avoids visible panic	Panics and loses self-control

2.02 Engagement & motivation

Engagement is the personal buy-in from the project manager to the project and from the people inside and associated with the project. Engagement makes people believe in the project and want to be part of it. It is necessary to bring a vision to life and to motivate people to get together behind a common goal. Motivation of the project team depends on how well the individuals bond together and their ability to deal with both the high and low points of the project.

Engagement with and motivation of the individuals involved in the project has to be honest and will then result in a good working atmosphere and increased productivity of both individuals and the team as a whole. **Motivating** an individual requires the project manager to be aware of the person's skills and experience, their personal attitude, circumstances and their intrinsic motivation.

Possible process steps:

1. Be aware of the requirements of the various interested parties and the circumstances and interests of individuals in the project.
2. Be explicit about which interested parties or personal interests can't or won't be served.
3. Examine possibilities to include the interests of all parties, define quick wins and incentives.
4. Be sure to understand what parts of the project different members of the team have bought into and be alert to changes in motivation levels.
5. Appreciate, communicate and/or document achievements promptly and adequately.
6. Work on a culture which takes pride in the project and the teams achievements, provide regular feedback to the team and its individuals and keep everyone involved.
7. Be aware of possible changes in interested parties or their interests and act accordingly.
8. Document the lessons learnt and apply to future projects.

Topics addressed:

Accountability
Delegation and empowerment
Enthusiasm
Motivation models
Team building
Positive attitude
Verbalisation and visualisation of objectives

Key competence at level:

A Has practiced, managed and directed engagement and motivation effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of competence in engagement and motivation. The candidate has also been involved in implementing engagement and motivation in projects or programmes.

B Has practised and managed engagement and motivation effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of engagement and motivation skills.
C Has effectively applied engagement and motivation in non-complex project situations.
D Has the required knowledge concerning engagement and motivation.

Main relations to:

1.02 Interested parties, 1.03 Project requirements & objectives, 1.06 Project organisation, 1.07 Teamwork, 1.10 Scope & deliverables, 1.11 Time & project phases, 1.13 Cost & finance, 1.18 Communication, 1.19 Start-up, 1.20 Close-out, 2.03 Self-control, 2.04 Assertiveness, 2.05 Relaxation, 2.08 Results orientation, 2.13 Reliability, 2.14 Values appreciation, 2.15 Ethics, 3.01 Project orientation, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.06 Business, 3.08 Personnel management

Behavioural patterns:

2.02 ENGAGEMENT & MOTIVATION	
Adequate behaviours	**Behaviours requiring improvement**
Actively manages the buy-in of various interested parties	Limits engagement to project and/or personal interests; doesn't have an eye for the interests of others
Welcomes initiatives and stimulates engagement from others	Limits people to defined tasks; doesn't recognise initiatives. Doesn't delegate, takes the credit and blames others
Is enthusiastic and positive, works with a smile and is service oriented without losing sight of project objectives	Makes people nervous, focusing primarily on problems and risks or is enthusiastic but loses sight of project objectives
Welcomes criticism as a form of engagement	Can't cope with criticism, doesn't turn it to an advantage for the project
Actively manages motivation levels	Doesn't deal with decreasing motivation
Makes the project plan a team effort	Imposes a project plan on the team
Shows realistic positive behaviour; always looks for options when problems arise	Reports problems without offering options; waits for others to take decisions
Knows when and how to involve others	Works alone
Shows willpower for the sake of the project	Gives up easily and is easily demotivated
Stimulates team involvement and the cooperation of different disciplines	Hinders or delays constructive team work, avoids cooperation of different disciplines
Gives others responsibility and delegated authority, takes the blame and shares the credit	Doesn't delegate, takes the credit and blames others

2.03 Self-control

Self-control or self-management is a systematic and disciplined approach to cope with daily work, changing requirements and to deal with stressful situations.

The project manager is responsible for maintaining an awareness of the stress levels in the team and taking appropriate remedial action to pre-empt any situation where it is likely to get out of control. Where there is a loss of self-control, the project manager must take appropriate action with the individual concerned and ensure that he does not lose self-control.

The effective use of your own resources leads to successful management of your own life and an appropriate balance between work, family and leisure time. Stress can be systematically managed with the appropriate knowledge, experience and methods. The project manager is responsible for his own self–control, the way he exerts self-control in teamwork and the self-control of the team members.

Possible process steps:

1. Analyse the stressful situation: where and why does stress and loss of self-control occur?
2. Analyse your own working behaviour, and determine what causes you to become stressed and lose self-control.
3. Provide adequate resources (capacity and capability) for the project team.
4. Perform an analysis of strengths and weakness in the team and get individuals to set their own goals.
5. Identify actions to reduce stress.
6. Communicate openly and honestly with people involved to reduce stress levels.
7. Share some of your responsibilities and tasks; delegate them with appropriate authority.
8. Be well organised yourself and display appropriate behaviours.
9. Learn from stressful situations and loss of self-control; use knowledge to minimise impact of such situations when they happen in future.

Topics addressed:

Attitude towards work
Balance and priorities
Cost management
Mental models
Self-management
Teamwork
Time management
Working under stress

Key competence at level:

A Has practiced, managed and directed self-control effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of self-control. The candidate has also been involved in implementing self-control in projects or programmes.

B Has practised and managed self-control effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of self-control.

C Has practised self-control effectively in non-complex project situations.

D Has the required knowledge concerning self-control

Main relations to:

1.01 Project management success, 1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.07 Teamwork, 1.09 Project structures, 1.11 Time & project phases, 1.12 Resources, 1.15 Changes, 1.17 Information & documentation, 2.04 Assertiveness, 2.05 Relaxation, 2.09 Efficiency, 2.11 Negotiation, 2.13 Reliability, 2.15 Ethics, 3.01 Project orientation, 3.09 Health, security, safety & environment, 3.10 Finance, 3.11 Legal

Behavioural patterns:

2.03 SELF-CONTROL	
Adequate behaviours	**Behaviours requiring improvement**
Controls emotions, has a high frustration threshold	Appears moody, irritable and irrational, often loses self-control
Responds positively in case of acceptable criticism, reacts coolly to personal attacks, forgives	Is offended by, or is indignant to criticism, reacts aggressively to attacks, often reacts emotionally and in an uncontrolled way; bears a grudge against others
Is able to discuss issues in the team, mediates, debates	Ignores conflicts that occur; is not aware of what happens informally, incites dissent
Supports the creation of an argumentative culture in the team, always finds consensus with others	Neglects conflicts, uses power, destroys opposing positions, subordinates others
Talks openly and honestly about own and others' stress situation	Does not admit stress and does not take symptoms seriously
Balances work and private life	Is a workaholic, only looks at the work done, neglects his private life

2.04 Assertiveness

Assertiveness, the ability to state your views authoritatively, is the competence the project manager needs to ensure that he can communicate effectively with the project team and interested parties, so that decisions that affect the project are taken with full knowledge of their consequences. He avoids being led or manipulated by others into taking or recommending decisions not in the interest of the project.

Persuasiveness is the ability to achieve consensus on common goals, through debate or force of argument. Personal or common ideas and objectives may not be achieved if the power of persuasion is missing.

Persuasiveness is needed to induce others to undertake the course of action the project manager needs to follow in pursuing the projects interests.

Assertiveness and persuasion need to be exerted by the project manager throughout the life of the project.

Possible process steps:

1. Identify the objectives, results and goals which should be achieved in the project.
2. Analyse the current situation, identify what issues are likely to provoke debate and the possible consequences.
3. Consider factual arguments around particular issues; prepare your presentation, including rebuttals for possible counter arguments.
4. Assess the people involved in the discussion, their likely point of view, interests and relationships.
5. Prepare for the meeting where the issues will be discussed.
6. Present your case in a calm and self-assured manner.
7. Express thanks to meeting participants for their interest, show appreciation for their input.
8. Cultivate sustainable relationships with interested parties.
9. Continuously learn from your experiences and apply learning in the future.

Topics addressed:

Assertiveness and persuasion
Authority
Diplomacy
Negotiation
Personal conviction
Personality
Relationships
Self-belief
Self-control

Key competence at level:

A Has practised, managed and directed assertiveness effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of assertiveness. The candidate has been involved in implementing assertiveness in projects or programmes.

B Has practised and managed assertiveness effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of assertiveness.

C Has practised assertiveness effectively in non-complex project situations.

D Has the required knowledge concerning assertiveness.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.03 Project requirements & objectives, 1.06 Project organisation, 1.14 Procurement & contract, 1.18 Communication, 1.19 Start-up, 2.01 Leadership, 2.02 Engagement & motivation, 2.08 Results orientation, 2.11 Negotiation, 2.13 Reliability, 2.14 Values appreciation, 2.15 Ethics, 3.04 PPP implementation, 3.05 Permanent organisation, 3.06 Business, 3.10 Finance, 3.11 Legal

Behavioural patterns:

2.04 ASSERTIVENESS	
Adequate behaviours	**Behaviours requiring improvement**
Communicates the reason for decisions taken with team members	Does not communicate decisions to team members
Acts in an appropriate manner, is reliable, trustworthy and discrete	Acts inappropriately, appears unreliable, betrays confidences
Listens carefully to others	Neglects others' input, interrupts, talks a lot
Creates enthusiasm, motivates the team	Criticises, is unable to motivate
Has an open and positive attitude, is a realistic optimist	Appears aloof from team, ignores others, is pessimistic
Demonstrates influence and authority	Is overwhelmed and is not listened to
Considers and respects minority viewpoints	Aligns himself only with the majority view or existing powerbrokers

2.05 Relaxation

Relaxation is the ability to relieve tension in difficult situations. De-escalation of a tense situation is important in maintaining fruitful cooperation between involved parties. It can take the tension out of a situation or re-energise a group of people when it's needed.

Another important factor in good project management is that the manager is able to relax, recuperate and regroup after a particularly stressful event and ensure that the team do likewise.

In any project, stressful situations will inevitably occur. This makes differences or irritations that arise between individuals suddenly erupt into the open, the situation can become hostile and threaten the outcome of the project. A project manager should take a proactive stance to anticipate such situations arising and minimise their impact.

Team building and social events involving the whole team can also aid relaxation.

The project manager needs to ensure that he and team members maintain an appropriate work: family: leisure balance.

Possible process steps:

1. Detect tensions or fatigue within the project team.
2. Be proactive in discovering the reasons for tensions or fatigue and remove cause(s); take immediate action to minimise the problem.
3. If more time is available to consider an appropriate action plan, choose the place and means of intervention carefully and bring the people involved together or intervene with face-to-face interviews or discussions.
4. Where possible choose venues away from the work place and /or an unconventional setting to combine intervention with social or leisure activities (such as a barbeque, ten pin bowling go-carting) for maximum effect.
5. Regularly follow-up on such situations with the team and involve them in any action plan.
6. Document lessons learned and implement learning when such situations arise in the project or phases of the project in future.

Topics addressed:

Appropriate 'work : family : leisure' balance
Awareness
De-escalation
Humour
Imagination
Perceptiveness
Personal contacts
Re-energising

Key competence at level:

A Has practised, managed and directed relaxation effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of relaxation. The candidate has also been involved in implementing relaxation in projects or programmes.

B Has practised and managed relaxation effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of relaxation.

C Has practised relaxation effectively in non-complex project situations.

D Has the required knowledge concerning relaxation.

Main relations to:

1.01 Project management success, 1.06 Project organisation, 1.07 Teamwork, 1.08 Problem resolution, 1.11 Time & project phases, 1.12 Resources, 2.02 Engagement & motivation, 2.03 Self- control, 2.06 Openness, 2.07 Creativity, 2.09 Efficiency, 2.14 Values appreciation, 2.15 Ethics, 3.05 Permanent organisation, 3.08 Personnel management

Behavioural patterns:

2.05 RELAXATION	
Adequate behaviours	**Behaviours requiring improvement**
(Re)acts in a relaxed manner	Is too tense to manage the situation
Applies humour and story telling to the benefit of his project	Doesn't apply humour and story telling or does so inappropriately
Is capable of taking the heat out of a situation at the right moment	Ends up exacerbating the situation by not using interventions in the right way or at the right moment
Maintains constant awareness of difficult situations arising, performs unexpected and unconventional interventions for optimum results	Doesn't notice anything going awry, is not creative in intervening or only applies conventional methods
Pays attention to stressful situations and relieves tension where possible	Is responsible for unnecessary stress and makes no attempt to relieve stressful situations
Is able to monitor his own wellbeing and to employ self-relaxation techniques before stress takes its toll	Does not evaluate his own condition and is not able to take the necessary action
Budgets and plans activities for team building, social and leisure events alongside the work effort	Budgets and plans only for work

2.06 Openness

Openness is the ability to make others feel they are welcome to express themselves, so that the project can benefit from their input, suggestions, worries and concerns. Openness is necessary as a means of benefiting from others' knowledge and experience. Since a project manager works with various professionals, openness is an important competence: most of the team members have an area of expertise where they are more knowledgeable than the project manager. The relationships in the team are all built on mutual respect, trust and reliability.

The project manager needs to decide his policy in relation to openness. Does he have an 'open door' policy, where he is always accessible to team members? Does he operate 'management by walkabout' to maintain visibility and keep in contact with his team members? How much information does he share with the team members? The normal policy would be to share all the information he can without divulging confidences or secrets. Are there cultural reasons why openness would be inappropriate?

The project manager also needs to be open to issues such as avoiding discrimination on the grounds of age, gender, sexual orientation, religion, cultural differences or disability.

Possible process steps:

1. Develop a policy in relation to openness.
2. Begin your working day with informal contacts by 'phone or face-to-face encounters.
3. Welcome the information you receive and give your opinion on the topic of conversation.
4. Use open questions.
5. Create opportunities to stimulate openness in the team.
6. When you receive positive input, praise the person who gave it, so that everyone knows that it's appreciated..
7. Learn from each situation and modify your method of operating openness in future.

Topics addressed:

Accessibility
Broad non PM knowledge
Flexibility
Open to age, gender, sexual orientation, religion, cultural and disability differences
Transparency

Key competence at level:

A Has demonstrated openness effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of openness. The candidate has also been involved in implementing openness in projects or programmes.

B Has demonstrated openness effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of openness.
C Has demonstrated openness effectively in non-complex project situations.
D Has the required knowledge concerning openness.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.03 Project requirements & objectives, 1.05 Quality, 1.08 Problem resolution, 1.18 Communication, 1.19 Start-up, 2.01 Leadership, 2.05 Relaxation 2.07 Creativity, 2.11 Negotiation, 2.12 Conflict & crisis, 2.14 Values appreciation, 3.03 Portfolio orientation, 3.04 PPP implementation, 3.06 Business

Behavioural patterns:

2.06 OPENNESS	
Adequate behaviours	**Behaviours requiring improvement**
Is flexible, adapts easily to change, keeping in mind the interests of the project	Is rigid and change averse, forgets interests of the project
Is open to age, gender, sexual orientation, religion, cultural and disability differences	Ignores age, gender, sexual orientation, religion, cultural and disability differences
Manages cooperation, orchestrates the team	Is task oriented, manages the team like a machine
Has a broad non PM knowledge and is able to adapt his communication to be understandable to those receiving it	Can't express himself using the other's mindset and is not well understood
Is fresh, in good physical and mental condition and pays attention to personal grooming and attire: a pleasant person to work with	Physically and/or mentally unbalanced, is careless with personal grooming and attire and causes offence to co-workers
Has an open and positive attitude, is a realistic optimist	Is pessimistic, shuts his eyes to others, appears aloof
Creates confidence, imbues good will,	Appears distrustful
Actively approaches others positively, is in turn approachable	Waits for others' initiatives, is reserved and uncertain
Performs active interested party management, maintains formal and informal contacts with parties involved	Doesn't perform interested party management, avoids contacts with parties involved, has no time for informality
Accepts all team members, tolerates and stimulates other opinions in the team and promotes active participation	Lets others feel his aversion, knows concepts only; thinks he knows everything better than everyone else and does not seek input
Accepts and respects minorities, lets others become successful	Orientates himself to existing power structure

2.07 Creativity

Creativity is the ability to think and act in original and imaginative ways. The project manager exploits the creativity of individuals, the collective creativity of the project team and the organisation they work within to the benefit of his project.

The project manager needs to foster processes in the team to stimulate, record, evaluate and act upon any creative ideas the team come up with which can be of benefit to the project. Creative ideas often require the originator to sell them to the project team before they are accepted. Others in the team will often champion the idea and refine it so that it gains greater acceptance. Creativity is one of the prime competences for project success. It helps the project manager to overcome problems and motivates the team to work together in developing the creative idea into a workable solution.

When problems arise in the project, the project manager needs to judge whether a creative approach is appropriate in finding a solution. Where a creative approach is appropriate, he needs to decide what methods he wishes to use. A 'brainstorming' session may be appropriate, where members of the project team and others in the organisation who it is felt might be able to contribute meet, their ideas are captured and subsequently evaluated. The most promising ideas are then further refined and the best chosen. Whatever method is used in finding a creative solution, it involves looking at the issue from different perspectives, combining tools, knowledge, common sense, intuition and experience and applying them.

Creativity can be summed up as: "Reach for the impossible and achieve the unlikely!" Creativity must be exploited with care in the project team, so that the project focus is not diverted.

Possible process steps:

1. Recognise situations where there is a problem to be solved, a challenge to be addressed or where a new concept needs to be developed and where a creative approach is appropriate.
2. Determine who can contribute to finding a creative solution, whether from the project team or elsewhere in or outside the organisation.
3. Get the chosen group of people together, explain the problem requiring a solution and ask them to use their imagination in offering ideas.
4. Stimulate and 'brainstorm' as many ideas as possible; capturing them all without debate.
5. Assess the merits of each idea and prioritise them.
6. Discuss the feasibility and implications of implementing the best ideas and select one to go forward with.
7. Plan and execute the chosen solution.
8. Document the lessons learnt and apply in similar situations in the future.

Topics addressed:

Creativity techniques
Emotional intelligence

Holistic thinking
Imagination
Intuition
New combinations
Optimism
Verbalisation and visualisation of objectives

Key competence at level:

A Has practised, managed and directed creativity effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of creativity and/or the competence to manage creative processes. The candidate has also been involved in implementing creativity in projects or programmes.

B Has practised and managed creativity effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of creativity.

C Has practised creativity effectively in non-complex project situations.

D Has the required knowledge concerning creativity.

Main relations to:

1.02 Interested parties, 1.04 Risk & opportunity, 1.06 Project organisation, 1.08 Problem resolution, 1.09 Project structures, 1.15 Changes, 1.18 Communication, 1.19 Start-up, 2.05 Relaxation, 2.06 Openness, 2.08 Results orientation, 2.10 Consultation, 3.01 Project orientation, 3.06 Business, 3.07 Systems, products & technology

Behavioural patterns:

2.07 CREATIVITY	
Adequate behaviours	**Behaviours requiring improvement**
Is creative, welcomes challenges and has an open mind to new ideas	Sticks only to known and proven solutions and is anxious about the unknown
Is optimistic that new ideas will lead to feasible solutions	Rejects ideas as not feasible, without evaluating them
Bridges differences by defining a new concept that can be achieved whilst respecting different viewpoints	Is not capable of integrating different concepts. Chooses from different viewpoints and creates schisms in the team
Finds solutions by applying new concepts, tools and common sense in new areas	Can't accept using new concepts or tools as a way of overcoming difficult problems; doesn't use common sense
Stimulates people to come forward with ideas, recognises possibilities and organises a sound process for finding a creative solution	Always looks for proven solutions; resents uncertainty and doesn't manage creative solution finding process appropriately
Performs active scope and change management	Rejects anything out of original scope
Listens to physical stimuli and feelings, uses his intuition for problem solving and maintenance of relationships	Only accepts what can be modelled, neglects intuition and feelings. Sticks to reasoning and functional relations
Listens to and uses own intuition and sorts his own ideas as a source of creativity	Systematically rejects intuition
Uses unconventional approaches for the benefit of the project. Takes creative decisions to mitigate risk	Always accepts the status quo even if the project is at stake. Is risk averse





2.08 Results orientation

Results orientation concerns focusing the team's attention on key objectives to obtain the optimum outcome for all the parties involved. The project manager has to ensure that the project results satisfy the interested parties. This also applies to any changes agreed during the course of the project. Whilst focusing his attention on results, the project manager still needs to maintain an awareness of and react to any ethical, legal or environmental issues that affect the project.

Project results may be clustered into key performance and project results, customer results, people results and results applicable to other parties involved. These are the different results areas of IPMA's project management excellence model (see Chapter 2 for an explanation). This way the different results required by various interested parties can be defined at the outset of the project. The project manager has to manage these results to deliver satisfactory solutions.

This competence in project management behaviour is closely linked to project success. The project manager is not paid because he works hard, nor for the plans or reports he produces or for the fact that everybody works hard. He is paid to realise the project results. To deliver the results required by all interested parties, the project manager has to find out what the different participants in the project would like to get out of it for themselves. The project manager has to manage the deployment and the development of the team members taking their expectations into account.

Possible process steps:

1. Define project results (objectives, deliverables) expected by all parties, clearly and unambiguously.
2. Cluster results into those for customers, project team and other interested parties.
3. Be explicit as to which interested party's expectations will not be part of the project objectives and the various results or the deliverables to be produced.
4. Determine the critical path for the project, communicate this to all parties and get it accepted.
5. Complete the project plan paying attention to quick wins. Communicate the plan and get it accepted.
6. Repeat these steps during the project to manage risks, opportunities, changes and expectations.
7. Strive for continuous improvement by providing regular feedback to interested parties on the project team's performance.
8. Communicate good project performance and results to interested parties. Pay special attention to quick wins.
9. Compare project performance and results obtained to the agreed parameters of the project.
10. Documents lessons learnt and implement changes in future projects or phases of the project.

Topics addressed:

Continuous improvement
Communication
Delegation
Efficiency
Entrepreneurship
Integration of social, technical and environmental aspects
Management of interested parties' expectations
Management of risk, changes, configuration

Key competence at level:

A Has practised, managed and directed results orientation effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of results orientation. The candidate has also been involved in implementing results orientation in projects or programmes.

B Has managed results orientation effectively and successfully in complex project situations and within the context of the project. The candidate has guided (sub) project managers to develop results orientation.

C Has practised and managed results orientation effectively in non-complex project situations.

D Has the required knowledge concerning results orientation.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.03 Project requirements & objectives, 1.05 Quality, 1.08 Problem resolution, 1.10 Scope & deliverables, 1.14 Procurement & contract, 1.15 Changes, 1.16 Control & reports, 1.20 Close-out, 2.01 Leadership, 2.02 Engagement & motivation, 2.04 Assertiveness, 2.09 Efficiency, 2.10 Consultation, 2.13 Reliability, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.04 PPP implementation, 3.05 Permanent organisation, 3.06 Business, 3.10 Finance

Behavioural patterns:

2.08 RESULTS ORIENTATION	
Adequate behaviours	**Behaviours requiring improvement**
Behaves like an entrepreneur	Is merely following orders
Shows an ability to get things done	Doesn't get things done
Continuously looks for possible improvements and challenges the status quo	Constantly accepts things the way they are. Does not challenge the status quo
Always looks for solutions to problems so that the plan doesn't need to be altered	Isn't creative in finding solutions to problems. Turns every problem into a change
Is opportunity driven, without overlooking the risks	Is risk averse and ignores opportunities
Keeps an eye on new developments and opportunities (e.g. new technology, markets, competitors and so on) that affect the project and reacts appropriately	Keeps within accepted boundaries and misses relevant new developments and opportunities that affect the project
Actively manages interested parties	Neglects interested parties
Is competent in managing results	Isn't competent in managing results
Manages expectations openly and well, delivers to or exceeds expectations	Isn't clear in managing expectations or raises expectations too high
Keeps an eye on the detail, but not at the expense of the bigger picture	Doesn't have an eye for relevant detail. Misses big picture

2.09 Efficiency

Efficiency is the ability to use time and resources cost-effectively to produce the agreed deliverables and fulfil interested parties' expectations. It also embraces using methods, systems and procedures in the most effective way. Efficiency is a basic component of project management, at least if it's practised on relevant issues.

To ensure efficient use of all resources available to the project, there needs to be detailed planning, scheduling and cost estimating of all activities. To ensure results achieved meet expectations, efficiency must be part of the culture of the organisation, the project manager and his team.

If necessary, efficiency can be improved by training and coaching.

Possible process steps:

1. Actively seek to improve current methods, systems, processes and structures which are relevant to the project, programme or portfolio.
2. Plan the necessary activities, obtain resources and assign them to deliver a given task, adding a contingency factor where appropriate.
3. Decide on priorities and acceptable deviations regarding time, money or otherwise for the work to be done.
4. Integrate resources and energy efficient technologies into the project and account for the project's external costs.
5. Manage the execution of work and continuously seek possible resource savings, without affecting quality.
6. Monitor the work done and resources used and compare with the project plan.
7. Estimate the resources required to complete the project.
8. Report if agreed resources will not be sufficient and propose counter measures.
9. At the conclusion of the project, calculate resources actually used and re-plan similar tasks based on the new figures. Practice continuous improvement.
10. Document and communicate insights for benchmarking purposes in other projects or phases of the same project.

Topics addressed:

Benchmarking and measurements
Compromises
Contingency
Continuous improvement
Life-cycle costs
Productivity
Resource and energy efficiency
Social and environmental costs

Key competence at level:

A Has practised, managed and directed efficiency effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of efficiency. The candidate has also been involved in implementing efficiency in projects or programmes.

B Has practised and managed efficiency effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of efficiency.

C Has practised efficiency effectively in non-complex project situations.

D Has the required knowledge concerning efficiency.

Main relations to:

1.06 Project organisation, 1.08 Problem resolution, 1.09 Project structures, 1.10 Scope & deliverables, 1.11 Time & project phases, 1.13 Cost & finance, 1.15 Changes, 1.16 Control & reports, 1.18 Communication, 2.03 Self-control, 2.05 Relaxation, 2.08 Results orientation, 2.10 Consultation, 2.11 Negotiation, 3.06 Business, 3.07 Systems, products & technology

Behavioural patterns:

2.09 EFFICIENCY	
Adequate behaviours	**Behaviours requiring improvement**
Is clear about efficiency in the project and behaves accordingly	Isn't clear or doesn't communicate about efficiency, doesn't act as an example
Can delegate tasks and has confidence in others; manages by exception	Tries to carry out the tasks himself and has little confidence in others. Does not delegate
Performs appropriate change management, informs at the earliest possible moment that a plan can't be met, offering the management suggestions and alternatives. The management feels in control	Promises new functionality or deliverables without ensuring the changes can be achieved and/or without allocation of extra resources. Raises unexpected changes in the plan with management at too late a stage. The management feel they are not in control
Is punctual at starting meetings and ends them as soon as possible	Arrives at meetings late, lets them run on longer than necessary
Strives for continuous improvement; stimulates people to find improvements all the time	Has no eye for or interest in improvements; is easily satisfied by his people
Has the energy and perseverance to carry on	Appears slow, has no patience, gives up quickly
Creates enthusiasm, asks for positive inputs and is open to criticism	Is unable to motivate, criticises unjustly and is not open to criticism
Spots non-optimal use of resources and takes corrective action	Ignores idleness and doesn't react to warning signals from others
Uses efficiency in an effective manner	Practices efficiency on the wrong issues, forces people to make mistakes

2.10 Consultation

Consultation is the competence to reason, to present solid arguments, to listen to the other point of view, to negotiate and to find solutions. It is basically the exchange of opinions about project issues. Based on respect, systematic and structured thinking, analysis of facts and arguments or scenario's it leads to mutually accepted decisions. Consultation brings differences of opinion into the open. It is useful in project role-play.

Reasoning makes it possible to change a person's point of view, to be able to understand situations in any discipline and to resolve issues with a high degree of certainty. It challenges solutions and conclusions built on the basis of perception and prejudice.

Logical questions and solutions can be communicated more easily in the project organisation. They should lead to more foreseeable and manageable results. Structures and logic underpin project management, but can also make the process more difficult if they are applied too rigidly.

Possible process steps:

1. Analyse situation and context.
2. Identify goals and (next-best) options. Take account of others' goals and arguments.
3. Listen to others' arguments.
4. Identify common ground and differences.
5. Diagnose the problem, identify solutions and/or take actions to circumvent the problem.
6. Resolve differences or agree on differences and the way to resolve them.
7. Consider consequences; document and communicate.
8. Apply learning to future projects or phases of the same project.

Topics addressed:

Argument
Confrontation
Consultation methods and techniques
Deciding and creating a win-win situation
Diplomacy
Negotiation
Reasoning
Scenario planning
Systematic and structured thinking
Systems engineering

Key competence at level:

A Has consulted effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or

project managers in developing their consulting ability. The candidate has also been involved in implementing consultation in projects or programmes.

B Has consulted effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of consulting ability.

C Has consulted effectively in non-complex project situations.

D Has the required knowledge concerning consultation ability.

Main relations to:

1.05 Quality, 1.06 Project organisation, 1.08 Problem resolution, 1.10 Scope & deliverables, 1.11 Time & project phases, 1.13 Cost & finance, 1.15 Changes, 1.17 Information & documentation, 1.20 Close-out, 2.07 Creativity, 2.08 Results orientation, 2.09 Efficiency, 2.11 Negotiation, 2.12 Conflict & crisis, 2.14 Values appreciation, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.06 Business, 3.07 Systems, products & technology, 3.08 Personnel management

Behavioural patterns:

2.10 CONSULTATION	
Adequate behaviours	**Behaviours requiring improvement**
Always considers others' proposals; is fair	Pushes own proposal through at others' expense; is unfair
Is able to lead a discussion and asks for feedback. Accepts feedback without resentment	Ignores or rejects feedback
Confrontation is only used as a last resort and is always based on logic and facts	Usually avoids confrontation or hurts people by being aggressive in confrontational situations
Tactfully mentions others' misbehaviour, criticises other's constructively	Condones misbehaviour or thinks he knows everything better than others; punishes and humiliates others
Behaves positively in case of acceptable criticism, reacts coolly to attacks, forgives	Is offended by criticism, reacts in an aggressive, emotional and uncontrolled way, bears a grudge
Supports the creation of a consultative culture in the team, reaches consensus with others	Neglects conflicts, uses power, destroys opposing positions and subordinates others
Makes decisions based on logic and argument and explains decisions well	Avoids decisions or decides without sufficient consultation and explanation
Argues concisely, clearly and logically	Argues at length, misses the point, is illogical or tells stories
Brings energy to the group and harnesses the energy of all group members	Works primarily alone or perhaps with a few close cronies
Has the stamina to find solutions and takes a serious interest in the people involved	Doesn't think holistically, procrastinates, ignores objections and pretends there is a lack of time
Is well prepared and informed. Is able to lead a structured discussion	Is neither prepared nor informed and can't lead a proper discussion

2.11 Negotiation

Negotiations are the means by which parties can resolve disagreements concerned with the project or programme to arrive at a mutually satisfactory solution. A well developed ability to negotiate can help the project manager to avoid real conflicts.

Project negotiations should be conducted with due regard to each party's position. A win-win situation is the desirable result, conducted in an open manner. However, it should be recognised that some negotiations are very political and/or commercial and that compromises often have to be reached which may not leave all parties totally satisfied.

Try to establish and maintain good relations between all parties and maintain this throughout the negotiation process.

Possible process steps:

1. Decide on the desired outcome and minimum acceptable position.
2. Set out negotiation strategy.
3. Ask questions, collect data on the issues which underlie the disagreements; analyse the data.
4. Present options that address the issues.
5. Consider the options to achieve a win-win negotiation.
6. Focus on areas where you agree and maintain a positive relationship with other parties.
7. Discuss and evaluate each others responses, repeating steps in negotiation process as many times as necessary until a conclusion is reached.
8. Document lessons learnt and apply to future projects or phases of the same project.

Topics addressed:

Body language
Communication
Leadership
Negotiation techniques
Problem solving
Consensus management

Key competence at level:

A Has managed and directed others in the conduct and management of meetings and negotiations. Is a skilled negotiator. The candidate has guided (sub) programme and/or project managers in their development of negotiation ability.

B Has managed project meetings and conducted negotiations successfully. The candidate has guided (sub) project managers in their development of negotiation ability.

C Has contributed to project meetings and negotiations.

D Has the required knowledge concerning negotiation.

Main relations to:

1.04 Risk & opportunity, 1.05 Quality, 1.12 Resources, 1.14 Procurement & contract, 1.15 Changes, 2.01 Leadership, 2.03 Self-control, 2.04 Assertiveness, 2.06 Openness, 2.09 Efficiency, 2.12 Conflict & crisis, 2.14 Values appreciation, 3.04 PPP implementation, 3.06 Business, 3.10 Finance, 3.11 Legal

Behavioural patterns:

2.11 NEGOTIATION	
Adequate behaviours	**Behaviours requiring improvement**
Has the ability to negotiate and the stamina to carry the process through to a successful conclusion,	Has little ability for negotiation, appears slow, has no patience, gives up quickly
Actively helps to avoid and correct inappropriate behaviour	Looks for guilty parties, lays the blame on others
Aims for win : win situations for both parties; acts to engender longer-term business or work relations	Does not respect others' interest, aims for win : lose situation; has only a short term attitude to business or work relations
Can express himself effectively and clearly, avoids unnecessary detail	Loses the thread of arguments
Defines negotiation objectives and scenarios	Doesn't prepare adequately before starting a negotiation
Creates the right ambience for negotiation. Negotiates fairly and in a well-balanced way	Creates an uncomfortable atmosphere in the negotiations. Negotiates only from his own perspective; lacks a balanced approach
Respects the other's claims and proposals and discusses on a content level	Tries to force the other party to accept his position
Can discuss and explain his position reasonably without losing face	Defends his own position compulsively and is not ready to compromise
Is honest and fair about his own interests and objectives	Hides own interests and is not honest and open
Negotiates hard at the content level but maintains a positive personal relationship	Attitude to negotiation is to take an unyielding stance both on the substance of the negotiations and at the interpersonal level
Explores interests and perceptions to find constructive solutions	Takes a an unyielding position from the outset and wont budge on his demands
Tries to understand the other's position and perspective, listens carefully	Talks at cross-purposes and doesn't try to understand the other's position

2.12 Conflict & crisis

This competence element covers ways of handling **conflicts and crises** which can arise between different individuals and parties involved in a project or programme. Conflicts and crises can arise in projects, and in contract negotiations, despite processes and guidelines designed to prevent this happening. They can occur at all levels, largely because there are different parties working together with their own distinct aims. Conflicts can also arise when people who do not know each other come together to work on a project sometimes under enormous pressure. A process for handling conflict and crises should be set out at the start of the project. Crisis management starts with good risk analysis and scenario planning on how to handle any foreseeable crises.

A conflict is a clash of opposing interests or of incompatible personalities and may threaten the achievement of project objectives. Very often this erodes a good working environment and may result in a negative 'knock-on' effect for the individuals and companies concerned. Conflicts may occur between two or more people and/or parties.

Transparency and integrity shown by the project manager acting as a dispassionate intermediary between parties in conflict will help enormously in finding acceptable solutions. People tend to be more accepting when they are sure that the project manager has only one interest; to resolve the conflict.
Potential means of resolving conflicts involve collaboration, compromise, prevention or use of power. Each depends on achieving a balance between one's own and others interests. Co-operative conflict management requires a willingness to compromise amongst all parties.

The risk of conflicts that result from a group that can't reach consensus is especially important to address early in a projects life-cycle. The project manager can escalate the problem to higher level management and ask them to appoint a non-partisan individual to arbitrate or involve an independent body acceptable to all parties to mediate and to achieve a solution that will be accepted as binding.

A crisis in a project can be described as a time of acute difficulty, more so than would just arise just as a result of a conflict. At such time a rapid response is required and skilled judgement needs to be applied to assess the crisis, define scenarios to solve the crisis and secure the project and to decide whether to escalate the issue and how high this needs to go in the organisation. The project manager has to immediately inform the project owner.

The art of conflict and crisis management is to assess causes and consequences and obtain additional information for use in the decision making process to define possible solutions. This has to be done against a background of people and organisations who are angry or in panic mode. In a minimum amount of time the manager has to pull the information together, weigh up the options, aiming for a positive, preferably synergistic solution and, most important, stay calm, controlled and friendly. In these circumstances relaxation as well as balanced judgement are important qualities.

Topics addressed:

Arbitration
Contract
Crisis management team
Escalation procedure
Interpersonal skills
Judgement
Mediation
Motivation
Risk Analysis

Possible process steps:

1. Based on a risk analysis, describe and cover issues in the project contracts and plans on how to handle predictable types of conflicts or crises should they arise.
2. In the case of a conflict or crisis occurring in a project:
   - 2.1 Be sure that the project manager isn't personally involved and part of the conflict or crisis. In that case it is wise to let the project owner/senior management know so that they can assign someone else to resolve the conflict or crisis.
   - 2.2 Consider the conflict or crisis from all parties' viewpoints.
   - 2.3 Consider what approach to use to resolve the situation or whether to seek mediation using a third party.
   - 2.4 Consider options to resolve the situation, balancing the interests of all parties.
   - 2.5 Discuss, decide and communicate the agreed solution.
   - 2.6 Document lessons learnt and apply to future projects or phases of the same project.

Key competence at level:

A Has acted as a mediator in resolving conflict and crisis and/or advised others on conflict and crisis resolution.
B Has used multiple techniques to manage conflicts and crises on a project or programme with a successful outcome.
C Has managed conflicts or crises on a project or programme with a successful outcome.
D Has the required knowledge regarding conflict and crisis.

Main relations to:

1.02 Interested parties, 1.04 Risk & opportunity, 1.07 Teamwork, 1.08 Problem resolution, 1.12 Resources, 1.13 Cost & finance, 2.01 Leadership, 2.06 Relaxation, 2.06 Openness, 2.10 Consultation, 2.14 Values appreciation, 2.15 Ethics, 3.05 Permanent organisation, 3.11 Legal

Behavioural patterns:

2.12 CONFLICT & CRISIS	
Adequate behaviours	**Behaviours requiring improvement**
Is able to discuss issues with the team, mediates, debates and is aware of emerging conflicts	Ignores emerging conflicts, does not know what happens informally, causes dissent
Is accessible, always has enough time to listen, works with the team and other interested parties	Is always busy and isolated, only conducts formal meetings. Has no informal or social relationship with the team.
Accepts uncertainty as a challenge	Accumulates risks and problems
Is open in dealing with contradicting interests in conflicts and crises	Becomes an active participant in creating differences in the team, leading to conflicts or crises
Behaves positively in case of acceptable criticism, reacts coolly to personal attacks, forgives	Is offended by or indignant of criticism, reacts in an uncontrolled way to attacks, bears a grudge
Is fair, accepts others' proposals, accepts feedback without resentment	Pushes own proposal through at others' expense, rejects constructive feedback
Distinguishes between personal relationship and work related problems and solves them in the right order	Mixes personal relationship and content level problems
Appears confident and positive, treating those involved with respect for the individual and their roles	Is arrogant, appears vulnerable, manipulates other team members
Can use conflicts for the benefit of the project	Neglects smouldering issues, isn't prepared to defend the project to the very end.

2.13 Reliability

Reliability means delivering what you have said you will to the time and quality agreed within the project specification. Being reliable builds trust in others who know that you will live up to what you have promised to do. Reliability covers responsibility, correct behaviour, robustness and confidence. It implies minimising errors as well as openness and consistency. Reliability is a characteristic that interested parties value highly.

It increases the chances of achieving the objectives and motivates all the people and groups involved in the project. It encourages the team members to have self-control and self-confidence. This way some barriers and set-backs that occur during the project process may be avoided or dealt with more easily.

Possible process steps:

1. Is well organised, uses appropriate planning and scheduling techniques and maintains adequate communication with interested parties.
2. Collects information on the interests of the various parties associated with the project and assesses their reliability on a personal and working level.
3. Is honest and creates openness with all individuals and group representatives involved with the project, based on mutual respect.
4. Ensures that all key people participate in finding solutions or scenario planning.
5. Identifies and assesses risks and opportunities and defines suitable scenario's and actions and/or implements the consequences in the project plan.
6. Gets agreement on the solution and/or the revised plan.
7. Executes and manages the work performed systematically.
8. Communicates adequately and provides feedback on the lessons learned

Topics addressed:

Control cycles
Management style
Networking with all interested parties
Planning and organising
Quality management
Scenario planning
Systematic and disciplined working method
Target management
Tolerates mistakes

Key competence at level:

A Demonstrated reliability effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme

and/or project managers in their development of reliability. The candidate has also been involved in implementing reliability in projects or programmes.

B Has demonstrated reliability effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of reliability.

C Has demonstrated reliability effectively in non-complex project situations.

D Has the required knowledge regarding reliability.

Main relations to:

1.02 Interested parties, 1.05 Quality, 1.09 Project structures, 1.10 Scope & deliverables, 1.14 Procurement & contract, 1.16 Control & reports, 1.17 Information & documentation, 2.02 Engagement & motivation, 2.03 Self-control, 2.04 Assertiveness, 2.08 Results orientation, 2.14 Values appreciation, 2.15 Ethics, 3.05 Permanent organisation

Behavioural patterns:

2.13 RELIABILITY	
Adequate behaviours	**Behaviours requiring improvement**
Is reliable: delivers what was agreed to the required quality, on time and within budget	Isn't reliable: delivers less than promised, is late or over budget; compromises on quality
Provides well informed, timely, reports to the project owner if issues arise that will force the project to go beyond acceptable tolerances	Works according to the principle of 'laissez aller, laissez-faire'. Reports too late for the project owner to influence the outcome.
Is trustworthy, handles confidentiality discretely	Appears untrustworthy, betrays confidences
Feels responsible for project success on behalf of all the interested parties	Always blames others
Takes total responsibility, defines sub-responsibilities the right way	Passes on all obligations and objectives directly from the project owner to the team members
Controls his team members' behaviour in a conscientious and constructive way, has discipline and takes time for communication	Does not have a clear idea of the effect of his controlling actions, pretends there is a lack of time, doesn't communicate well
Transmits all types of information well	Has difficulties in transmitting information

2.14 Values appreciation

Values appreciation is the ability to perceive the intrinsic qualities in other people and understand their point of view. It also covers the ability to communicate with them and to be receptive to their opinions, value judgements and ethical standards. The central basis for values appreciation is mutual respect.

A project manager will have his own intrinsic set of values and will express those values in his dealings with project team members and interested parties. He will also be receptive to the values of others around him and encourage them to express those values in their dealings with him.

The understanding of personal, organisational and society wide values is necessary to get a project plan accepted. A project manager who understands different values as well as differences in values between people involved in the project will be able to organise and execute a project far more effectively than someone who doesn't.

Possible process steps:

1. Ensure that your own values as they relate to the project are well understood by all interested parties.
2. Consider the values, opinions, ethics and interests of different parties who have influence in the political and social sphere in the organisation and outside world.
3. Take account of prevailing values in society (as influenced by political opinion, pressure groups, interested parties and so on) as they may affect the project.
4. Introduce the values of the people you are communicating and cooperating with into the debate.
5. Understand or adopt an alternative point of view, where appropriate.
6. Respect and appreciate other opinions.
7. React quickly to changing situations and give adequate consideration to their impact on changing the context of the project.
8. Apply learning to future projects or phases of the same project.

Topics addressed:

Concern for impact
Liaison between permanent organisation and project team
Maintenance of contacts
Personal interests and goals
Personal presentation,
Political sensitivity
Pressure groups
Social sensitivity
Takes responsibility for own actions

Key competence at level:

A Demonstrated, managed and directed values appreciation effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of values appreciation. The candidate has also been involved in implementing values appreciation in projects or programmes.

B Has demonstrated and managed values appreciation effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of values appreciation.

C Has demonstrated values appreciation effectively in non-complex project situations.

D Has the required knowledge regarding values appreciation.

Main relations to:

1.02 Interested parties, 1.03 Project requirements & objectives, 1.05 Quality, 1.06 Project organisation, 1.07 Teamwork, 1.08 Problem resolution, 1.12 Resources, 1.13 Cost & finance, 1.15 Changes, 1.16 Control & reports, 1.20 Close-out, 2.02 Engagement & motivation, 2.04 Assertiveness, 2.05 Relaxation, 2.06 Openness, 2.10 Consultation, 2.11 Negotiation, 2.12 Conflict & crisis, 2.13 Reliability, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.04 PPP implementation, 3.08 Personnel management

Behavioural patterns:

2.14 VALUES APPRECIATION	
Adequate behaviours	**Behaviours requiring improvement**
Takes others' values, feelings, desires and needs seriously whilst maintaining his focus on the scope of the project	Is insensitive to other's values, feelings, desires and needs; disregards their inputs
Allows sufficient freedom for action to subordinates to enable them to carry work out in their own way	Constricts the freedom to act of his subordinates by obligating and controlling
Engages the team members and parties involved in decisions or has a good reason for taking decisions without their involvement	Takes decisions by himself and doesn't communicate them to team members or parties involved
Acts as an example and is acknowledged as a leader	His behaviour is not considered as serious and appropriate by others
Adequately balances between his own interests and those of others	Acts out of own interests and neglects the interests of others completely
Gives direct feedback	Does not provide feedback on team members work
Creates enthusiasm	Criticises, is unable to motivate
Regularly maintains contact with parties involved	Avoids contact with parties involved
Creates confidence	Appears distrustful
Is accepted by the whole team and other interested parties	Takes on the role of an outsider

2.15 Ethics

Ethics embraces the morally accepted conduct or behaviour of every individual. Ethical behaviour is the basis of every social system. In organisations, certain ethical standards are usually included in contracts of employment and cover the professional rules of conduct or behaviour that are expected of employees. They may also have a legal basis, where the organisation is required to conform to standards set out within a legal or regulatory framework. Ethics allows people to conduct the project and deliver the results in a satisfactory manner. They represent personal and professional freedom as well as limits. Ethics should be respected to allow people to function without moral conflict in the project and in relation to interested parties and society.

For certain types of project, there may be detailed regulations that apply. The project manager will need to ensure that such regulations are fully complied with and no attempt made to take short cuts.

Social and cultural differences can reveal differences in ethics. There may be an issue of conflict of loyalty, where the organisation may pressure the project manager to follow a course of action which he considers to be unethical. The project manager should be very conscious as to whether he can live with these differences or needs to resolve them.

In all instances, the project manager should act according to accepted codes of professional conduct.

Possible process steps:

1. Ensure conformity to any legal or regulatory framework that applies to the project.
2. Detect possible unethical situations arising, or proposals being made, that affect the project and individuals working on it; be sure to maintain transparency in bringing such issues into the open and resolving differences.
3. Involve relevant interested parties and raise issues with people involved personally.
4. Be very explicit in explaining which ethical issues concern you.
5. If a colleague insists on continuing on what you consider to be an unethical course of action be understanding and try to resolve the issue amicably. Where that fails, insist that the issue is escalated in the organisation for resolution and/or that mediation takes place.
6. Communicate outcomes, deal with the consequences.
7. Execute the necessary actions on the project.
8. Apply learning to future projects or phases of the same project.

Topics addressed:

Code of conduct
Confidence
Fairness
Integrity
Loyalty
Moral standards
Respect
Solidarity
Transparency

Key competence at level:

A Has demonstrated, managed and directed ethical standards effectively with the programme and project managers, within the context of the project and the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of ethical standards. The candidate has also been involved in implementing ethics in projects or programmes.

B Has demonstrated and managed ethics effectively in complex project situations and within the context of the project. The candidate has guided (sub) project managers in their development of ethical standards.

C Has demonstrated ethics effectively in non-complex project situations.

D Has the required knowledge regarding ethics.

Main relations to:

1.03 Project requirements & objectives, 1.05 Quality, 1.07 Teamwork, 1.13 Cost & finance, 1.14 Procurement & contract, 1.16 Control & reports, 1.17 Information & documentation, 2.01 Leadership, 2.02 Engagement & motivation, 2.03 Self-control, 2.04 Assertiveness, 2.05 Relaxation, 2.12 Conflict & crisis, 2.13 Reliability, 2.14 Values appreciation, 3.01 Project orientation, 3.05 Permanent organisation, 3.09 Health, security, safety & environment, 3.10 Finance, 3.11 Legal

Behavioural patterns:

2.15 ETHICS	
Adequate behaviours	**Behaviours requiring improvement**
Is conscious of ethical issues	Is not aware of, or ignores, ethical issues
Acts respectfully when bringing ethical issues and differences into the open	Makes fun of or is not, in other ways, respectful regarding ethical issues
Maintains integrity and is open about his personal or professional ethics	Compromises beyond ethical limits, is not honest in ethical issues
Holds to and respects ethical values even in times of conflict or crisis	Ignores ethical issues or acts unethically under pressure
Always lives up to agreements, doesn't abuse information or power	Doesn't live up to agreements, abuses information or power
Is transparent, fair and categorical in defining ethical standards	Isn't open, honest or is ambiguous in setting ethical standards
Shows solidarity to the team members and defends the project if necessary	Shows no solidarity and doesn't defend the project, shows only loyalty to the management
Is happy to applaud others' success, favours the total result above raising his own profile	Presents success as his own achievement, neglects the contribution of others

4.3 Contextual competence elements

This section covers the contextual competence elements. They describe the concepts of project, programme and portfolio and the linkage between these concepts and the organisation or organisations that are involved in the project.

Understanding these concepts in a specific project situation is the most important basis for the assessment.

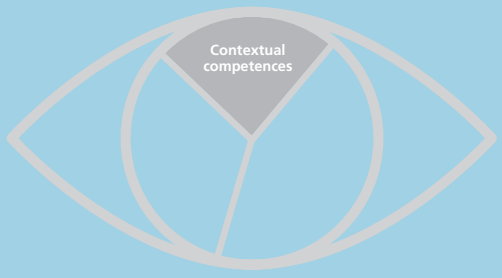


Table 4.3 *Contextual competence elements*

3.01	Project orientation
3.02	Programme orientation
3.03	Portfolio orientation
3.04	Project, programme & portfolio implementation
3.05	Permanent organisation
3.06	Business
3.07	Systems, products & technology
3.08	Personnel management
3.09	Health, security, safety & environment
3.10	Finance
3.11	Legal

The first five contextual competence elements describe the promotion of project, programme and/or portfolio management in an organisation. The last six contextual competence elements describe what the different support functions in line organisations need to know about projects.

The contextual competence elements include a general description, a list of *Topics addressed* and *Possible process steps*. The knowledge and experience required at each IPMA Level is described in *Key competence at Level* statements and is completed by a *Main relations to* section, which shows the association with other competence elements. These competence elements are considered to always be related. The *Main relations to* section is meant to aid comprehensive reading and to help in assessing a candidate's competence. It is related to the specific content and context (i.e. the corresponding elements) of the situation. Because they are two sided descriptions, the text of these competence elements exceeds the norm in their length.

Please also refer to Chapter 3, where a more in-depth description of project, programme and portfolio is provided.

The descriptions of effective contextual competence at the different IPMA Levels are as follows:

- **At IPMA Level A**: the candidate has to have shown effective application of the contextual competence elements in the coordination of projects and/or programmes, within the scope of a portfolio or a programme, and alignment to the permanent organisation. The candidate has guided (sub) programme and/or project managers in their development of the application of the contextual competence elements. The candidate has also been involved in implementing the contextual competence elements in projects or programmes and for the organisation. He is responsible for executing the organisation's or the programme's strategy in applying these contextual competence elements. Finally he is involved in advancing professional project management in relation to the contextual competence elements.
- **At IPMA Level B**: the candidate has to have shown effective application of the contextual competence elements in complex project situations and related to its scope. The candidate has guided (sub) project managers in their development of knowledge and application of the contextual competence elements.
- **At IPMA Level C**: the candidate has to prove that he has shown effective application of the contextual competence elements in in project management situations of limited complexity. The candidate might need to be guided in the further development of his knowledge and application of the contextual competence elements.
- **At IPMA Level D**: only knowledge of the contextual competence elements and its application is assessed.





3.01 Project orientation

A project is a time and cost constrained operation to realise a set of defined deliverables (the scope to fulfil the project's objectives) up to quality standards and requirements. **Project orientation** is the term used to describe the orientation of organisations to managing by projects and the development of project management competence. The way projects are coordinated in portfolios, projects are managed and the competences of the project managers are developed have a direct impact on the success of a project. Projects differ substantially from the normal operation of organisations. It is likely that an organisation manages by projects in order to be effective, to grow and change to compete in its market place, while normal line functions and operations are managed mainly for efficiency.

Projects

- Are undertakings which are in principal characterised by a unique set of parameters, such as objectives, clear deliverables, time and cost, project-specific organisation and by their differentiation from other operational activities.
- Are endeavours in which human and material resources are organised in a novel way, to undertake a unique scope of work, of given specification, within constrains of cost and time, following a standard life-cycle, so as to achieve beneficial change defined by quantitative and qualitative objectives.
- Are unique sets of co-ordinated activities, undertaken by an organisation to meet specific objectives, with defined parameters for the deliverables.
- Have attributes such as: novelty, complexity, legal constraints, inter-disciplinary team work and work sharing.
- May be classified by their type (i.e. investment, R&D, organisational, ICT projects) and other criteria (i.e. internal/external; regional/national/international).

Project Management (PM) is the planning, organisation, monitoring and control of all aspects of a project and the management and leadership of all involved to achieve the project objectives safely and within agreed criteria for time, cost, scope and performance/quality.
It is the totality of coordination and leadership tasks, organisation, techniques and measures for a project.
It is crucial to optimise the parameters of time, cost and risk with other requirements and to organise the project accordingly.

Possible process steps:

1. Assess the needs of the organisation to perform projects.
2. Consider the organisation and its culture and processes in relation to projects.
3. Make the business case for implementation of project orientation in the organisation versus other business improvement initiatives competing for management time.
4. Change the organisation, its culture and processes accordingly.
5. Monitor progress, learn from each project and apply learning to future projects.

Topics addressed:

Business process redesign
PM competence development
PM functions (e.g. support office)
PM methodology, techniques and tools

Key competence at level:

A Has led the development of the concepts of project and project management in an organisation and has directed project managers as well as interested parties successfully in the application of PM concepts. The candidate has guided (sub) programme and/or project managers in their development of these concepts. The candidate has also been involved in implementing these concepts in projects or programmes.

B Has fully understood and applied the concepts of project and project management successfully in diverse situations. The candidate has guided (sub) project managers in their development of the concepts of project and project management.

C Has applied the concepts of project and project management successfully in his work, as specified by the organisation and directed by the management.

D Has the required knowledge regarding the concepts of project and project management.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.03 Project requirements & objectives, 1.08 Problem resolution, 1.11 Time & project phases, 1.12 Resources, 1.13 Cost & finance, 1.14 Procurement & contract, 1.18 Communication, 2.02 Engagement & motivation, 2.04 Assertiveness, 2.07 Creativity, 3.02 Programme orientation, 3.03 Portfolio orientation 3.04 PPP implementation

3.02 Programme orientation

A **programme** is a set of related projects and organisational changes put in place to achieve a strategic goal and to deliver the benefits that the organisation expects. This element of competence covers the definition and attributes of programmes and of their management. Programme orientation is the decision to apply and manage the concept of managing by programmes and the development of competence in programme management. The strategic goals of an organisation are achieved by means of programmes and projects. Programme management is therefore the tool the organisation uses to implement its strategic plan.

A programme is a series of specific, interrelated undertakings (projects and additional tasks) which together achieve a number of objectives within one overall strategy or strategic goal. The programme identifies and manages the delivery of the benefits that the organisation expects.
Programme management provides the framework for implementing strategies and initiatives.
Usually the programme characteristics include:

- some of the projects which are part of the programme have not been identified or planned at the start of the programme.
- later projects in the programme depend on the outcome of an earlier project.
- end dates are defined as the point where the benefits are realised or when the commitment to fulfil the goal and to realise the benefits are handed over to the line organisation.
- the contents will be subject to large variations.
- the need to constantly monitor the relevance of projects within the programme in relation to the strategy.

Programmes versus portfolios: programme management is an instrument to implement strategic change. Portfolio management is an instrument to manage the continuity of projects and programmes in an organisation. The portfolio management function aligns the portfolio to the goals of the organisation and is responsible for the prioritisation of all projects and programmes. **Programme management and control** requires additional means and resources, such as:

- central programme controller
- change manager(s)
- programme director (or owner, sponsor)
- programme management methodology, techniques, tools and procedures
- programme manager
- programme office
- programme steering committee

Topics addressed:

Business processes
Organisation, strategic and business plans
Programme management methodology, techniques, tools and procedures
Programme management support office
Resource management

Possible process steps:

1 List and prioritise business improvement initiatives.
2 Confirm that there is a business case to apply programme management.
3 Introduce a scoring system to quantify essential (core) programmes and their benefits.
4 Align the essential programmes and benefits to the strategic goals of the organisation using the scoring system.
5 Review output with appropriate management level; make and communicate decisions.
6 Change organisation, culture and processes accordingly.
7 Initiate relevant programmes.
8 Monitor progress, learn from each programme and apply learning to future programmes.

Key competence at level:

A Has successfully led programmes and/or the development of programme management guidelines, tools and procedures in his area of responsibility. Has led or been heavily involved in and has been successful in the transformation of business strategies into programmes or portfolios. Has successfully selected and developed the programme and/or project managers in his area of responsibility.
B Has fully understood and applied the concepts of programme management. Has worked successfully in managing projects in a programme or in managing a programme.
C Knows and understands the concepts of programme management. Has preferably been exposed to programme management in his project management activities.
D Has the required knowledge regarding the concept of programme management.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.03 Project requirements & objectives, 1.07 Teamwork, 1.12 Resources 1.16 Control & reports, 1.17 Information & documentation, 1.18 Communication, 2.02 Engagement & motivation, 2.08 Results orientation, 2.10 Consultation, 2.14 Values appreciation, 3.01 Project orientation, 3.03 Portfolio orientation, 3.04 PPP implementation

3.03 Portfolio orientation

A **portfolio** is a set of projects and /or programmes, which are not necessarily related, brought together for the sake of control, coordination and optimisation. Issues on a portfolio level have to be reported to and decided upon by the general management of the organisation.

The portfolio management of projects and/or programmes covers the prioritisation of projects and/or programmes within an organisation and the optimisation of the contribution of the projects as a whole to the organisation's strategy.

Portfolio management is an on-going function akin to line management. Its purpose is to coordinate all ongoing projects and programmes for an organisation or a part of it. The relevance of each project and the assignment of necessary/scarce resources as well as consolidated reporting to top level management is the bottom-up role of the portfolio manager. Top-down he is responsible for managing the process of transforming the strategy into projects and/or programmes.

Portfolio management is mainly applied to groups of projects and programmes that may not be related in the business sense, but draw on a common pool of scarce resources. The portfolio manager coordinates all projects and possible programmes in an organisation during the processes of evaluation, selection, monitoring and control, reprioritisation and termination. The division of a complex project into sub-projects is part of normal project management.

Portfolio control requires additional tools, such as Key Performance Indicators (KPI's) and their use in adding weighting factors to the business case for projects, to ensure that the project is crucial in delivering the business strategy.

Other frequently applied tools or mechanisms are:
- balanced scorecard
- common format for presentation of reports
- consolidated portfolio report for top level management (executive summary)
- integrated project management information systems
- portfolio management office
- priority setting committee

Portfolio management develops a balanced set of projects and programmes for an organisation, that can be delivered within budgetary and resource constraints, through a tailored model that aligns project selection with strategic goals. The organisation should break down its strategy into the definition and maintenance of the Key Performance Indicators (KPI's) and their assigned weightings, to reflect the strategy. Based on these indicators each project's and/or programme's business case is assessed to check its continuing relevance. When circumstances change, the projects are adjusted accordingly.

Possible process step:

1. List and prioritise, programmes and projects in line with the organisation's strategies/goals
2. Allocate resources to the portfolio. Balance supply with demand.
3. Define standard processes, tools and reporting schemes to be used in all programmes/projects of the portfolio and establish support functions.
4. Continuously monitor and control the programmes/projects of the portfolio. Initiate corrective actions.
5. Delete programmes/projects from the portfolio when they are no longer relevant/ the business strategy has changed and ensure there is a feedback mechanism for lessons learnt.
6. Select and add new projects/programmes to the portfolio. (Go back to 1)

Topics addressed:

Balanced Scorecard
Common formats
KPI's
Organisation's strategic and business plans
Portfolio support office
Project management support office
Resource management

Key competence at level:

A Has successfully led portfolios and/or the development of portfolio management guidelines, tools and procedures in his area of responsibility. Has led, been heavily involved in and has been successful in the transformation of business strategies into programmes or portfolios. Has successfully selected and developed the programme and/or project managers under his responsibility.

B Has fully understood and applied the concepts of portfolio management. Has worked successfully in managing projects in a portfolio or in managing a portfolio himself.

C Has been involved in priority setting between individual projects and their reporting, providing information to manage the portfolio.

D Has the required knowledge regarding the concept of portfolio management.

Main relations to:

1.01 Project management success, 1.02 Interested parties, 1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.08 Problem resolution, 1.16 Control & reports, 1.17 Information & documentation, 1.18 Communication, 2.02 Engagement & motivation, 2.06 Openness, 2.08 Results orientation, 2.10 Consultation, 2.14 Values appreciation, 3.01 Project orientation, 3.04 PPP implementation, 3.06 Business, 3.10 Finance

3.04 Project, programme & portfolio implementation

This competence element covers the process of establishing and continuously improving **project, programme and portfolio** management in organisations. In any organisation, there is a process of continuous improvement involving change management. Such change management may be evolutionary and happen slowly or be more revolutionary and happen over a shorter period of time. Implementation of project, programme and portfolio management is an organisational strategy that requires the definition of a programme (**for clarity in this description it is referred to as the PPP programme**) to implement it. Continuous improvements are needed to improve capability in project, programme and portfolio management and increase the success of the organisation in carrying out its strategic plan.

Depending on the kind of organisation, project, programme and portfolio management implementation consists of becoming aware of, and improving current project management practices or of implementing new practices and procedures with associated change towards a project, programme and portfolio orientated organisation.

To assist in improvement of project, programme and portfolio management within the organisation, benchmarking should be carried out to determine best practice and identify where the organisation is currently positioned versus the benchmarks. A suitable 'best practice' model (such as the IPMA PM Excellence Model) can then be adopted as the basis for change.

Implementing project, programme and portfolio management in an organisation involves defining the best possible processes, methods, techniques and tools, changing attitudes and applying organisational change in a continuous improvement exercise. In such a change, project, programme and portfolio management must be implemented in a way that is appropriate for the organisation. This means thorough planning and optimisation of the specific work tasks and ensuring they are relevant to the project's or programme's goals. The costs and time scheduling as well as the search for suitable project, programme and portfolio management personnel are also part of this process.

Standards and Regulations are a supporting working tool for handling frequently occurring or unique events in daily project, programme and portfolio work. Standardisation of terms leads to a common understanding and a common basis for contractual agreements in the field of project management. Quality assurance includes auditing compliance with the standards and regulations in force.

During the PPP programme life-cycle, the product being developed as well as the project management processes are checked, controlled and improved. The PPP programme manager applies the principles, processes and tools of project management, including quality management, to the work of the project team. The organisation modifies its operations to contribute to the success of the PPP programme implementation strategy. Implementation of project, programme and portfolio management can run in parallel, but usually at different speeds.

Possible process steps:

1. Decision made to adopt project, programme and portfolio management in the organisation as a continuous improvement/change management project.
2. Determine the state of project, programme and portfolio management in the organisation versus industry benchmarks (e.g. IPMA PM Excellence Model) and best practice.
3. Develop concept for project, programme and portfolio management in the organisation.
4. Demonstrate feasibility via a pilot PPP programme.
5. Evaluate results of pilot programme and if successful set up a full-scale PPP implementation programme.
6. Decide the speed of implementation and steps to take along the maturity path regarding competence development, organisational changes required and methods/techniques/tools to be adopted.
7. Implement steps, select and train personnel in project, programme and portfolio management.
8. Continuously improve by repeating process steps and implementing lessons learnt.

Topics addressed:

Benchmarking
Business processes
Change management
IPMA's PM Excellence Model
Maturity Models
Personnel development
Project office
Standards and regulations
Systems and technology

Key competence at level:

A Has successfully directed the implementation of significant improvements in project, programme and portfolio management in his area of responsibility.
B Has contributed to the development of an implementation plan and has been successful in the assessment of results and identification of improvements.
C Has actively participated in implementation of an improvement process.
D Has the required knowledge regarding project, programme and portfolio management.

Main relations to:

1.05 Quality, 1.07 Teamwork, 1.09 Project structures, 1.10 Scope & deliverables, 1.11 Time & project phases, 1.13 Cost & finance, 1.17 Information & documentation, 1.18 Communication, 1.19 Start-up, 1.20 Close-out, 2.01 Leadership, 2.04 Assertiveness, 2.06 Openness, 2.08 Results orientation, 2.11 Negotiation, 2.14 Values appreciation, 3.01 Project orientation, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.06 Business, 3.08 Personnel management

3.05 Permanent Organisation

This competence element covers the relationship between project and/or programme organisations, which are temporary, and the permanent entities of the line managed organisation contributing to or interfacing with the project work. Projects cannot be adequately carried out without the involvement of resources contributed by the permanent units of the organisation, whilst the product/output of the project will be used and maintained by the permanent organisation.

Permanent organisations have a long term purpose. Projects, programmes and portfolios are used to achieve and manage changes or to execute the core business in a project oriented organisation. Projects either are carried out within a permanent organisation or use the resources / facilities/products provided by the permanent organisation. The working procedures of the permanent organisation (work tasks, hierarchy, levels of authority, responsibility, organisational structure, procedures and decision making) exert an influence on project work and vice-versa, both during and after project execution.

It is critical to achieve buy-in to the project and overcome any resistance from within the permanent organisation. The outputs of the project (products, facilities, information systems, documentation) have an influence on the operations of the permanent organisation. For the project, it is important to know how the policies and the outputs of the operations of the permanent organisation are defined, how they are controlled and what the associated risks are. Therefore the planning and management principles of the operations of the permanent organisation and the project contribution to it must be understood to establish good preconditions for obtaining successful results.

If the project manager is experienced in the respective sector and industry, he will be in a better position to understand these factors.

A project management office is often part of a permanent organisation and provides continuity of project management information and methodologies for the benefit of the projects.

Management by projects is a concept for managing permanent organisations, especially in a project oriented organisation. It enhances organisational flexibility and dynamics, decentralises operational management responsibilities, improves organisational learning and facilitates organisational change. Other management concepts (e.g. management by objectives) can be integrated into, and operated within, such an organisation.

Possible process steps:

1. Understand the organisational structure, objectives and ways of working.
2. Consider interested parties structure, objectives and ways of working.
3. Identify and develop interfaces between the permanent and project based parts of the organisation.
4. Identify commonalities and differences.

5. Consider options and consequences of each.
6. Discuss, decide, communicate, implement.
7. Monitor progress, implement learning cycle.

Topics addressed:

Change management
Organisational decision making
Organisational strategy and structures
Project management office

Key competence at level:

A Has directed the establishment of working procedures between the permanent and project parts of organisations.
B Has managed the interfaces between permanent organisations and projects.
C Has experienced interfaces between permanent organisations and projects.
D Has the required knowledge regarding the interfaces between the permanent organisation and a project.

Main relations to:

1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.05 Quality, 1.06 Project organisation, 1.10 Scope & deliverables, 1.13 Cost & finance, 1.15 Changes, 1.17 Information & documentation, 1.18 Communication, 1.19 Start-up, 1.20 Close-out, 2.04 Assertiveness, 2.05 Relaxation, 2.08 Results orientation, 2.12 Conflict & crisis, 2.13 Reliability, 2.15 Ethics, 3.06 Business, 3.08 Personnel management

3.06 Business

A **business** is an industrial, commercial or professional operation involved in the provision of goods or services. It applies to for-profit as well as non-profit organisations. This competence element covers the impact of business issues on managing projects, programmes and portfolios and vice-versa. This includes the information needed on both sides to ensure that issues are properly addressed and that the results from projects, programmes and portfolios are aligned with business needs.

In order to be fully effective and efficient, project management needs to fit into the business environment. Project, programme and portfolio management are linked to the organisations strategy. They are meant to enable the execution of the organisation's strategy. Project, programme and portfolio management have to comply with corporate standards and guidelines. This involves aspects such as organisation, legal, finance and economics, human resources, sales and marketing and information and communication technology (ICT). At the same time the project and/or programme has/have to deliver to meet expectations, report to allow management control and communicate to keep the organisation aligned.

The start-up of a project or programme is said to account for approximately 30% of the project's success. The start-up is the moment to finalise the requirements and expectations the organisation has from the project, to determine the resources required and to set the demands for the involvement and the support the project requires from the organisation. The start-up is also the point to motivate and engage all interested parties and participants that have a role in the execution of the project or programme. Here openness is required to avoid hidden agendas and to get a clear insight into all individual or interested parties' needs and expectations.

In the start-up the business case is discussed and accepted by the participants, a first project plan is developed and the first risk analysis is performed, including the first measures to mitigate risk. Legal/regulatory aspects should be included on the start-up agenda as well, to investigate with the other participants which legal/regulatory aspects have an influence on the project and/or the proposed deliverables as well as for the goals set in a programme.

The demand for a project or programme to be carried out originates from the business. Therefore a large part of the management processes in the project have a strong relationship with the way the organisation operates.

The first part of this description shows how the permanent organisation influences projects and programmes, while the second part describes how the project management processes, reporting, communication and delivery interface with the permanent organisation's business.

On a **strategic** level the business and the legal context are responsible for creating a setting in which projects and programmes can be effective. This includes decisions on how the organisation is set up to work with projects and programmes, how cost and revenue accounting are defined, how project

resource allocation and development are organised and how a project, programme or portfolio has to report and communicate to senior management to ensure that it maintains control of the project, programme and portfolio and that they continue to be aligned with the business needs.

On a **tactical** level the business and the legal context is linked to a project or programme through the business case. The business case states what is expected from the programme or project in terms of costs, acceptable risks and revenues, the functionality required of the resulting output, the timescale and resources required. Here the linkage with other departments should be made clear in two ways: what does the project or programme need from these departments and what can they expect when the project or programme starts to deliver.

On an **operationa**l level the permanent organisation has to define the business requirements of the project's or programme's deliverables. It also has to ensure that it is ready to test the deliverables for acceptance by and transfer to the business and to exploit the deliverables to achieve the projected revenues.

The organisation of a project/programme/portfolio should reflect the relevant interested parties in its management as well as in its execution and control. In all cases there should be three different roles defined: the **owner/sponsor** who is responsible for the business case, the **supplier(s)** who has/have to take care of the resource requirements, including provision of necessary skills and the **user(s)** who has/have to work with the output and has/have to deliver the benefits. In several roles there can be more than one person representing different interested parties. The role of the owner/sponsor however, should be assigned to one person. Business case management provides information about the differences between actual and planned progress regarding all major production factors and expected versus actual results. This provides for:

- the business and legal management and the information needed to control the project or programme;
- the information needed by portfolio management to manage strategic alignment and to coordinate all projects and programmes;
- the information needed by other departments to plan their activities related to or depending on the project or programme.

Planning and reporting are a means by which everybody knows and understands exactly what the project or programme is going to deliver, what has to be done by whom and when and how the management processes are performed. For the project manager it is essential to know where and within what limits he is allowed to take decisions and to know when he has to escalate issues or report changes.

Risk management is meant to be an early warning system for the organisation to give it timely and accurate information to prepare management interventions when needed. Together with identifying the risk, the project management should always present options on how to react to the risk.

Project management should give an early warning to the senior business management when there is likely to be a divergence between actual delivery and plan that will exceed the agreed boundaries, should no action be taken. The project management has to provide this information at the earliest possible moment to give the senior management as much time as possible to seek extra information and to decide what to do. This applies especially to ongoing changes in the scope or the desired functionality that occur during the project. These are well known reasons for project failure.

Communication is needed to keep everybody aligned. An interested party who is not part of the project or programme organisation can only get information by communication. The project or programme management should take care that any communication is appropriate for the particular situation and the impact intended. Ongoing communication in the project should represent a good mixture of formal and informal, push and pull, regular and occasional. The project manager should maintain an overview on changes in the senior management and/or interested parties that may affect the project.

Project marketing across the business should establish the identity and importance of the projects, programmes and portfolios, to build team spirit and gain visibility at senior level.

In a project, decisions are made repeatedly, which have legal implications and/or which need to be taken within a legal framework. The project manager has to take care to operate within the law. The project manager should be able to recognise or to find out what activities have legal requirements and what principles from law apply to the actual case.

Possible process steps:

1. Set up the line organisation and the organisation for projects, programmes and/or portfolio(s).
2. Set strategic standards & guidelines (e.g. for legal, finance and economics, human resources, sales and marketing, ICT).
3. Initiate processes for setting up appropriate standards and guidelines in the organisation and evaluate projects and programmes against these standards and guidelines.
4. Implement business change strategy, management reporting and business case requirements.
5. Provide feed back on lessons learnt and apply in the permanent organisation and/or portfolio/programme/project organisation as appropriate.

Topics addressed:

Accounting
Change management
Communication
HR in temporary organisations
Project oriented organisations
Strategy through projects and programmes

Key competence at level:

A Has been a member of the committee supervising the development and implementation of business processes related to business requirements as they apply to his area of responsibility.
Has directed the development of project management processes related to business requirements.
Has managed business considerations in project prioritisation.
Has successfully kept senior management informed of business issues on a strategic level.

B Has been involved in the development and the evolution of project and business alignment processes as a key resource.
Has contributed to or has led the development of project management processes within the business.
Has successfully managed the impact of the business departments on the project.
Has successfully managed issues on a tactical level that arose from business requirements.

C Has been exposed to and has successfully applied most of the management processes in his work.
Has participated in the requirements analysis and management in projects.
Has been exposed to business issues on an operational level.

D Has the required knowledge regarding business requirements.

Main relations to:

1.01 Project management success, 1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.05 Quality, 1.06 Project organisation, 1.08 Problem resolution, 1.10 Scope & deliverables, 1.14 Procurement & contract, 1.15 Changes, 1.16 Control & reports, 2.01 Leadership, 2.02 Engagement & motivation, 2.04 Assertiveness, 2.06 Openness, 2.07 Creativity, 2.08 Results orientation, 2.09 Efficiency, 2.10 Consultation, 2.11 Negotiation, 3.03 Portfolio orientation, 3.04 PPP implementation, 3.05 Permanent organisation, 3.07 Systems, products & technology, 3.10 Finance

3.07 Systems, products & technology

This competence element covers the linkage between a project/programme and the organisation regarding systems, products and/or technology. This is split into applying, delivering and implementing systems, products and/or technology for, from or into the organisation.

Projects can be used for creating or changing products or service offerings or systems. The selection of and changes in technologies are normally a strategic issue managed through projects. The development of a new or changed system, product or technology from conception to production and distribution should be managed as a project. The project management team for this kind of project should understand the product development process as well as the role of the product manager.

Systems (such as ICT, infrastructure, industrial processes, marketing and distribution systems) consist of different technical, natural and/or socio-economic elements (products, services) and sub-systems.

The life-cycle of a product or service is managed by its product or service management. The life-cycle of a sub-system or a system is managed by its systems management or facilities management. Units of the permanent organisation are responsible for the management of the product, service, or facility and the maintenance of the state-of-the-art systems or sub-systems resulting from the project.

The technological context provides possibilities for creating proven and innovative solutions for new and changed products, services, sub-systems and systems.

Projects that specify systems, products and/or technology that are part of the corporate standard of an organisation are bound to comply with standards and guidelines that the organisation defined for proper use. Sometimes projects are used to try out new systems, products or technology. If it proves to be beneficial the organisation may decide to implement it. The initial project serves as a pilot.

Projects that deliver (releases of) systems, products or technology that are meant to be sold by the business are an important enabler for the business strategy. The expected revenues and market pull outweigh any considerations of budget constraint.

Projects that implement (releases of) systems, products and/or technology for the organisation's own use are mostly governed to deliver within budget and time because the organisation has to recover the costs through decreased expenditure involving increased productivity and/or, manpower reductions.

Project management should be aware of the sometimes conflicting requirements concerning system performance, deliverables, time, costs, revenues and risk. It should understand the use, economy, profitability, viability, compatibility, future change, extension, renovation and replacement aspects

of the project feasibility analysis. This is documented in and managed through the business case. Project management should also be aware that in applying, delivering or implementing systems, products and/or technology there are important interested parties in the permanent organisation that should be linked into the project. This involves those concerned with :

- systems, products, technology and facility management;
- sales and marketing if (releases of) the systems, products and/or technology are to be sold by the organisation;
- corporate quality standards, systems, products and technology architecture.

During the operation of the systems, after implementation, the benefits of the investment should be achieved and the systems should be inspected and maintained. The renovation, the redesign and the liquidation of the systems are projects of their own, if the activity is big and complex enough.

The approximate, desired and realistic durations of the life-cycles of the systems, the sub-systems and the components are defined by the users and the project team. The project management should know the requirements for system management and the concepts for its maintenance, renovation and replacement. These concepts should be within the scope of the project manager's remit and be used for optimising the project.

Possible process steps in system* application:

1. Analyse the structure, scope and context of the system.
2. Produce a feasibility analysis and business case.
3. Identify the customers for and functionality of the system.
4. Determine the objectives of the system, sub-systems and its components.
5. Design the production of the system and the supply chain for its distribution.
6. Allocate responsibilities and authorise the design and the production of sub-systems and components.
7. Optimise the overall system based on proposals regarding its use, maintenance and economic performance.
8. Test the system in a pilot application, identify any problems and eradicate them.
9. Validate the system against the requirements as set out in the business case.
10. Commission it and hand it over to the organisation/customer.
11. Manage product life-cycle.
12. Document lessons learnt and apply to future projects.

Possible process steps in system* development:

1. Define the development of the system as a new project.
2. Identify the customers and improved functionality required in the developed system.
3. Design the system to interface/be compatible with related products.
4. Design the production and distribution of the system.
5. Calculate the cost of the system.

*System(s) is (are) used here as an abbreviation for systems, products and technology

6. Optimise the system against the requirements.
7. Release the improved system to the organisation/position the improved system in the market and in the product life cycle.
8. Identify opportunities for further strategic improvement of the system.
9. Document lessons learnt and apply to future projects.

Topics addressed:

Client satisfaction
Facility management
Feasibility analysis
Operation & maintenance
Product design
Product life-cycle
Production design and management
Requirements, functions
Supply chain
Systems development
Systems theory
System life-cycle management
Value engineering

Key competence at level:

A Has successfully directed projects related to the application or development of systems, products and/or technology management.
Has successfully directed projects based on adequate prioritisation and constraints regarding system performance, deliverables, time, costs, revenues and risks and identified their influence on his project.
Has directed the establishment of links between projects under his responsibility and systems, products and technology management.

B Has successfully managed projects related to the application or development of systems, products and/or technology management.
Has defined adequate prioritisation processes and constraints regarding system performance, deliverables, time, costs, revenues and risks and has successfully managed their application in his project.

C Has been involved in managing projects related to the application or development of systems, products and/or technology management.
Has been involved in managing projects based on adequate prioritisation and constraints regarding system performance, deliverables, time, costs, revenues and risks and identified their influence on his project.

D Has the required knowledge regarding applying and developing systems, products and/or technology.



Main relations to:

1.03 Project requirements & objectives, 1.05 Quality, 1.07 Teamwork, 1.09 Project structures, 1.10 Scope & deliverables, 1.12 Resources, 1.17 Information & documentation, 2.07 Creativity, 2.09 Efficiency, 2.10 Consultation, 3.09 Health, security, safety & environment, 3.10 Finance, 3.11 Legal

3.08 Personnel management

This element covers all aspects of human resource (HR) management related to projects and/or programmes including planning, recruitment, selection, training, retention, performance assessment and motivation.

The **development of personnel** is a key concern in every organisation. From the organisation's and the individual's point of view, projects with their unique set of tasks provide individuals with the opportunity to gain new skills and experience. Therefore the appointment of people to projects is an important development opportunity for the organisation and the individual. On the other hand, from a project point of view, the right people need to be appointed to the project. It is important to determine the competences required for the project role, to recruit people best matching the required competences and to develop them further to fulfil the needs of the specific project. If the latter are not effective in their roles, the project manager would need to address the issue with the individual's line manager and either seek training and coaching support for the individual or replace him with a more experienced person.

Due to limitations in resources available and the division of responsibility between line and project organisations, the project manager often has to accept a compromise in the selection of people for the project.

Personnel development is a joint responsibility of the project manager, the organisation's HR-function as well the line manager of the organisational unit from where the project team member originates.

To assess the project/programme/portfolio manager's and project team member's competences and performance, feedback is sought from others to provide a comprehensive 360-degree review. The 360-degree review poses questions regarding the individual's project management competences and performance. The questions have to be answered by at least four different people: the individual, the individual's line manager, a project team member (usually the project manager) and a customer. The individual chooses these people himself.

Incentive schemes for project personnel linked to performance are usually managed in close cooperation with HR and the individual's line managers.

Possible process steps:

1. Identify the project resource requirements in terms of skills, knowledge, experience and behaviour as well as in terms of start date, period of time required and percentage of the individuals time needed.
2. Select the right people and/or work with individuals and teams that were pre-selected.
3. Explain to each project team member what is expected from him and assess the individual's personal circumstances, motivation, interests and goals.

4. Manage the planned and actual performance of each individual and the team. Any deviations from the plan should be checked, explained and corrective action taken. Personnel administration has to be kept complete and up-to-date.
5. Monitor changes in the personnel situation and the motivation of the team members.
6. Maintain regular contact with the responsible person within HR and the team member's line manager to discuss their performance, personal issues and development opportunities.
7. In closing down the project, discharge each team member and release them to their organisational units, with an appropriate acknowledgement of their contribution.
8. Document lessons learnt and apply to future projects.

Topics addressed:

Assessment techniques
Benefits for the project personnel
Career development
Project resource planning
Team role models
Training, coaching, learning on the job

Key competence at level:

A Has successfully directed personnel development for the project managers that report to him.
Has successfully directed project personnel development strategies in the organisation.
Has ensured that project managers have played their appropriate role in personnel management.
B Has successfully managed the personnel development activities within his projects.
Has participated in personnel development activities within the permanent organisation.
C Has participated in personnel development issues in project situations.
D Has the required knowledge regarding personnel management.

Main relations to:

1.06 Project organisation, 1.07 Teamwork, 1.11 Time & project phases, 1.12 Resources, 2.01 Leadership, 2.02 Engagement & motivation, 2.05 Relaxation, 2.10 Consultation, 2.14 Values appreciation, 3.04 PPP implementation, 3.05 Permanent organisation, 3.11 Legal

3.09 Health, security, safety & environment

This element covers all activities geared to ensuring that the organisation behaves appropriately in the context of **health, security, safety and the environment**, during the planning phase of the project, its execution, during the delivered product's lifecycle and its decommissioning and disposal. Growing corporate responsibility, awareness and the possibility of litigation have made it necessary to ensure that organisations have the appropriate level of knowledge and experience on these issues. In projects all major issues on health, security, safety, and the environment are covered by regulations, defined standards and operating procedures which minimise risk to a level considered acceptable by the organisation, the public, the legal system, operators and others. This minimises the likelihood of an accident occurring, in which people are injured, equipment damaged or the environment polluted. The project manager must ensure that these standards, which are often specific to the type of project, are adhered to in operation. The project manager must review them regularly to ensure continued compliance. The **health** considerations apply to the project team members, those who will use the product or those that could be affected by the product. The PM should be particularly concerned with issues such as stress and overtiredness among team members and ensure that they have a manageable workload, are not working long hours or being asked to travel too much. The product in use must not pose health risks to the user or those in its vicinity, whether it is a piece of machinery, an ICT system, a consumable or other item. In decommissioning and disposing of the item, the user needs guidelines to ensure that no health hazards are posed.

The project manager may also be required to be the highest level **security** agent for the project. In this case, he is responsible for anticipating and detecting any security risk to the project. Tools he can use include risk analysis, planning response measures and situation control with special regard to trespassing directives and developing preventive measures against any malicious activity (i.e. theft, misuse, sabotage). He may also wish to insure the project assets against loss, malicious activity or accidental occurrences. Depending on the structure of the organisation, he may be linked in to a security officer to whom he reports and asks for help if needed.

The **safety** considerations concern the protection of people from death or major injury in the various project phases, in the use of the product and in the on-going operations of the organisation. A formal hazard and operability ('hazop') study should be carried out to determine what the safety issues are and how they should be addressed.

For safety as well as for security it is helpful to distinguish between issues and risks that relate to the organisation, its infrastructure, information, intellectual property and products and those applicable to people.

Protection of the **environment** is increasingly important, with issues such as global warming, pollution, depletion of natural resources, energy efficiency and energy conservation in the headlines on a daily basis. These factors need to be taken into account in all the project phases, in the use of the product and in its decommissioning and disposal.

In designing the product and its manufacturing processes, the team needs to consider what materials will be used, how much energy is required to produce them, how much CO_2 or other greenhouse gases will be emitted, whether there are waste material disposal issues, whether materials can be recycled, are biodegradable, or will cause pollution at the end of the products life.

In using the product, its environmental impact should be minimised in terms of energy efficiency, emissions, and waste disposal.

Internal and independent external auditing processes should operate within the organisation covering all issues related to health, security, safety and the environment.

Possible process steps:

1. Identify applicable law and regulations.
2. Identify health, security, safety and environmental risks, requirements and existing responsibilities.
3. Evaluate the actual situation.
4. Develop plans and processes for health, security, safety and environmental protection.
5. Monitor and control the effectiveness of the plans.
6. Report issues and risks.
7. Document lessons learned and apply to future projects, phases of the project or elsewhere in the organisation.

Topics addressed:

Audits
Environmental Impact Plan
Health
Legislation and company policy
Safety and security plan
Safety and security reviews

Key competence at level:

A Has directed the development of an organisation's standards and approaches on health, security, safety, and environmental issues.
Has designed and successfully directed an appropriate management culture allowing health, security, safety and environmental issues to be handled properly.

B Has designed within the project the appropriate management culture allowing the health, security, safety and environmental issues to be handled properly.

C Has applied appropriately health, security, safety and environmental regulations and guidelines in projects.

Main relations to:

1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.05 Quality, 1.10 Scope & deliverables, 1.14 Procurement & contract, 2.03 Self-control, 2.15 Ethics, 3.07 Systems, products & technology, 3.11 Legal

3.10 Finance

This element covers the financial context within which the organisation operates.

Financial management is responsible for making the necessary funds available for the project in a responsible and timely way. The project manager must provide information to the financial management of the organisation about the financial requirements of the project and co-operate in accessing the funds, checking payments and controlling the use of such funds. In some projects, the project manager has to organise funds and investors and must understand and evaluate the benefits of obtaining project financing from within the country where the project is being carried out or from a source outside the country. In larger organisations, a treasury function would be involved in all aspects of financing such projects and would have experts to deal with issues such as international financing and hedging against currency fluctuations.

Each project will have its own particular methods of financing. Many large-scale infrastructure projects such as civil engineering and building projects, particularly in less developed countries, now operate on the basis of a Build, Own, Operate, Transfer (BOOT) or Build, Operate, Transfer (BOT) organisation.

A BOOT or BOT funding model involves a single organisation, or consortium, which is set up to run the project and its deliverables. It designs, builds, funds, owns and operates the deliverable(s) of the project for a pre-determined period of time and then transfers ownership to an agreed party.

Customers enter into a long term contract with the BOOT/BOT operator and are charged for the service provided. The service charge includes recovery of capital and operating costs and an agreed level of profit.

Many public projects (e.g. infrastructure projects, such as hospitals and schools) may be financed via Public and Private Partnerships (PPP), whereby the costs, risks and eventual benefits of the project are shared. PPP is a method of delivering public service and infrastructure projects by engagement between the public and private sectors. Such projects have an emphasis on both quality and value for money.

Accounting includes the cost planning and financial accounting for the operation of the organisation. Expenses and revenues as well as assets and liabilities are shown in order to provide a clear picture of the cash flow and solvency of the organisation (or relevant part of the organisation).

The project manager should understand how the organisations financial management system operates and be in a position to use their methods and interpret figures from the accounting system when analysing and checking the financial effects of different project alternatives, whether of parts of the project or of whole projects. This can be very helpful to the client.

Financial reporting from a project or a programme should always refer to the financial baseline presented in the business case. Management and control of the project budget and effective reporting back to the financial management of the organisation ensure that the project manager remains within the financial parameters for the project as set out in the business case.

Possible process steps:

1. Identify the financial environment for the project.
2. Apply organisational guidelines to define:
   - the business case,
   - financial administration and
   - financial reporting.
3. Perform financial reporting.
4. Schedule a financial audit if applicable.
5. Get financial clearance at the close-out of the project.
6. Apply lessons learnt to future projects

Topics addressed:

Budget planning and budget control
Business case management
Change management
Financial markets
Financing models
General accounting
Treasury

Key competence at level:

A Has directed the establishment of links between the project's context and the organisation's financial and legal environment.
B Has organised the links between the project and the organisation's financial and legal environment.
C Has been exposed to the organisation's finance and legal structures.
D Has the required knowledge concerning the organisation's finance and legal structures.

Main relations to:

1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.05 Quality, 1.11 Time & project phases, 1.13 Cost & finance, 1.16 Control & reports, 1.20 Close-out, 2.03 Self-control, 2.04 Assertiveness, 2.08 Results orientation, 2.11 Negotiation, 2.15 Ethics, 3.03 Portfolio orientation, 3.06 Business, 3.07 Systems, products & technology

3.11 Legal

This competence element describes the impact of the law and regulations on projects and programmes. From a contextual perspective, it is important to limit one's legal exposure (because there is a possible risk of someone taking legal action against you) and to have a reputation for conducting business within the law and in an ethical manner. Limiting legal exposure materially reduces the potential for lawsuits; being in the right can still cost a lot of money and lost time in defending yourself if someone sues you and you may not get back the money spent on lawyers even if you win the case.

The project, programme and portfolio management also focus on avoiding torts (tort law protects a person's interest in his personal security, tangible assets, financial resources, or reputation) and claims as a result of actions such as breach of contract.

In a project, decisions are repeatedly made which have legal implications and /or which need to be taken within a legal framework. The project manager has to take care to operate within the law and should be able to recognise or to find out what activities have legal requirements and what principles from law apply to the project. Knowledge and experience in contract law are essential for the management of some kinds of projects. International projects can be subject to the requirements of more then one legal system.

Legal advisors should be consulted for any important legal issues. The project, programme and portfolio manager has to recognise when such specialist advice is needed and provide the advisors with relevant information from the project. He also needs to define the procedures with the legal advisor, co-ordinate any requirements with the time schedule and understand the impact on deliverables, costs, risk and opportunities.

The Legal Policies of an organisation may dictate that "all project documentation has a legal review" or "all external contracts have a legal review prior to signing".

Relevant aspects to consider are therefore:

- Recognition of the aspects of law applicable to the particular project or programme you are engaged in, such as labour legislation, contract law, permissions and permits for facilities and products, licences, expropriation, product liability, patents, insurance, data confidentiality, penal legislation, health, safety, security and environmental legislation, regulatory requirements.
- Recognition of the fundamentals of law deriving from the project or programme itself, such as (sub)contract management, Human Resource regulations, regulations for financial accounting and for eligibility to sign contracts and/or financial commitments. All contractual regulations of the project (duties, rights and processes) have their basis in law. The requirements are contained in specific bodies and legal systems, such as criminal law, but particularly corporate and contract law, commercial law (UCC), employment laws, health and safety, data protection, building

regulations, intellectual property, copyright law, patents and royalties as well as laws relating to discrimination on the basis of gender, sexual orientation, disability, age, race or religion.

- Incorporating any legal issues applicable to the project or programme or a whole portfolio into relevant processes and documentation.

Possible process steps:

1. Set legal standards and guidelines appropriate to the organisation or portfolio.
2. Initiate processes for implementing appropriate standards and guidelines in the organisation or portfolio and evaluate projects and programmes against these standards and guidelines.
3. Investigate and describe for the organisation or portfolio the relevant legal aspects that could apply to a project or programme.
4. Manage the project's or programme's contracts, claims and changes appropriately.
5. Respond effectively to organised labour challenges.
6. Respond appropriately to claims of harassment, discrimination, safety issues or non-performance.
7. Document lessons learnt.
8. Provide feedback on lessons learnt and adjust standards and guidelines if needed.

Topics addressed:

Agreements
Applicable law
Arbitration
Contracts
Intellectual property
Liability
Licences
Standards and regulations

Key competence at level:

A Has been a member of the committee supervising the development and implementation of business processes related to legal requirements as they apply to his area of responsibility.
Has directed the development of project management processes related to legal requirements.
Has used legal considerations in project and programme prioritisation.
Has knowledge of legal aspects related to information systems.
Has successfully kept senior management informed of legal issues on a strategic level.

B Has been involved in the development and the evolution of project and business alignment with legal processes as a key resource.
Has contributed to or has led the development of project management processes regarding legal aspects.
Has successfully managed the impact of the legal departments or advisors on a complex project.
Has successfully managed issues on a tactical level that arose from legal requirements.

C Has been exposed to and has successfully applied management processes concerning legal aspects in projects with limited complexity.
Has been exposed to legal issues on an operational level.

D Has the required knowledge regarding legal requirements, issues and methods.

Main relations to:

1.04 Risk & opportunity, 1.14 Procurement & contract, 1.17 Information & documentation, 1.20 Close-out, 2.03 Self-control, 2.04 Assertiveness, 2.11 Negotiation, 2.12 Conflict & crisis, 2.15 Ethics, 3.06 Business, 3.07 Systems, products & technology, 3.08 Personnel management, 3.09 Health, security, safety & environment

Chapter 5
References

5.1 Fundamental international standards

The following standards are fundamental for the IPMA universal four level certification system:

- IPMA Competence Baseline, Version 3.0, 2006 (this volume)
- ISO/IEC standard 17024:2003, "General requirements for bodies operating certification of persons"
- ISO standard 9001:2000, "Quality management systems"
- Fundamental national standards

Each certification body applies the ICB Version 3.0, or a National Competence Baseline, based on the ICB Version 3.0. In addition, national project management standards can be adopted by the certification body.

5.2 National Competence Baselines status as at December 2004 with reported additions

The four NCB's that were the basis of the first ICB are presented first. Then the NCB's that were developed after the first ICB was issued are listed in alphabetical order of the countries and member associations.

United Kingdom

- Body of Knowledge, Association for Project Management (APM), 4th Edition (2000), U.K. First published in 1992.

Switzerland

- Beurteilungsstruktur, Verein zur Zertifizierung im Projektmanagement (VZPM), Zürich, Version 3.00, 31-07-2003. First published in 1996.
- Instrument d'appréciation, Verein zur Zertifizierung im Projektmanagement (VZPM), Zürich, Version 2.01, 06-05-2002, Edition May 2002.

France

- Référentiel de Compétences en Management de Projet, National Competence Baseline, AFITEP, version 5, février 2004, Paris. First published in 1996.

Germany

- PM-KANON, Bewertungsunterlagen zur Beurteilung der PM-Kompetenz, GPM / PM-ZERT, Germany, version 05-05-2002. First published in 1998.

Austria

- pm baseline, Wissenselemente zum Projekt und Programmmanagement sowie zum Management Projektorientierter Organisationen, pma, Version 2.3, January 2005, Vienna. First published in 1999.

Azerbaijan

- Project Management: National Competence Baseline / National Certification System / Basis of Professional Knowledge, Baku-2002 (in the Azeri language).
- Basis of Professional Knowledge by Project Management. / National Competence Baseline / Baku-2004 (in the Russian language).
- International Certification Body by Project Management / IPMA – B, C and D, Baku-2004 (in the Azeri language).

Brasil

- Referencial Brasileiro de Competencias em Gerenciamento de Projectos (RBC), 2004.

China

- Chinese-Project Management Body of Knowledge & Chinese-National Competence Baseline, C-PMBOK & C-NCB, first edition 2001.

Croatia

- National Competence Baseline, version 0, 2001.

Czech Republic

- Projektové rizeni, (standard CR dle IPMA), Project Management (Czech Republic Body of Knowledge), SD 02-01- 2000.

Denmark

- "Kompetencer I projektledelse" (Competencies in Project Management). First published June 2002.
- A new version in Danish and English was published in 2005.

Egypt

- Egyptian competence Baseline ECB, Version 2.0 MES PM CERT (MPC), Cairo, 02-02-2002 (English & Arabic).

Finland

- Projektin Johdon Pätevyys - originally published, version 1, in May 1997 (in Finnish and English).
- Projektin Johdon Pätevyys - National Competence Baseline Finland, Version 2, May 2004 (in Finnish and English).

Hungary
- IPMA szerinti vizsgakövetelmények és vizgarend, version 1.0, published in May 2002.

Iceland
- Hugtakalykill - National Competence Baseline, third edition, November 2004. First edition published in December 2001.

India
- National Competence Baseline, June 2005.

Ireland
- NCBI –National Competence Base Line for Ireland, Version 1.0, first published in 2001.

Italy
- Manuale delle Competenze di Project Management, edizione 3, Marzo 2004, Manuale per la Certificazione dei Project Manager Livelli A, B, C, D - edizione 6, Marzo 2004.

Latvia
- National Competence Baseline, Version 1, 2004.

Netherlands
- Nederlandse Competence Baseline, Version 2.0, 2005.

Poland
- Polskie Wytyczne Kompetencji IPMA Wersja 1.2.

Portugal
- Especificação de Competências para Gestores de Projecto, Version 3.0, APOGEP, Agosto de 2002.

Romania
- SR 13465: 2002, version 1, first published in 2002.

Russia
- Project Management: A Framework of Professional Knowledge, National Competence Baseline, Moscow: SOVNET, 2001.

Serbia-Montenegro
- National Competence Baseline in preparation.

Slovak Republic
- S P S - Súbor požadovaných schopností pre odborníkov na projektové riadenie, version 2, Trnava-Bratislava, 2002

Slovenia

- SZPM – Struktura znany projektnega managementa, first published in 1998.

South Africa

- Services SETA/PM Chamber is developing national qualification frameworks and standards.

Spain

- Bases para la competencia en dirección de Proyectos, version 2.0, OCDP, Zaragoza, 2002, first published October 2000.

Sweden

- Kompetens i Projektledning, Version 2.1, published November 2004

Ukraine

- Ukraine National Competence Baseline, UPMA, Version 2.0, Kiev, 2003, first published in 2000.

This list will be regularly updated on the IPMA website (www.ipma.ch).

Further standards and references for project management are:

- IPMA project management excellence model (for the IPMA Award).
- ISO 10006 Quality management - Guidelines for quality in project management.
- Guide to Project Management Body of Knowledge, PMI Project Management Institute, USA 2000.
- A Competence Standard, Level 4/5/6, AIPM Australian Institute for Project Management, 1996.
- The Competence standard P2M, Japan 2002.

Chapter 6

Comparison between IPMA Competence Baseline versions 2.0b and 3.0

In the IPMA Competence Baseline Version 2 the competences were presented in the shape of a sunflower. The sunflower motif was used to represent the separate competence elements of project management as represented by the individual petals. Discussions with the Member Associations on the classification and relative importance of the different competence elements did not reach a satisfactory conclusion. Therefore all the competence elements were displayed as individual petals, of equal status, but connected by the central circular area of the sunflower, which links the petals, and hence the competence elements, together. The stalk of the sunflower symbolises the way all of the competence elements are ultimately integrated, in the case of the sunflower to connect the flower to the rest of the plant, in the case of a project to produce a result. Important elements of the context in which the sunflower exists are the sun, the soil and water, which provide the resources for the seed to germinate and the plant to grow, flower and reproduce. Similarly, the competence elements relate to the project, which exists in its own context and requires resources to produce its deliverables.

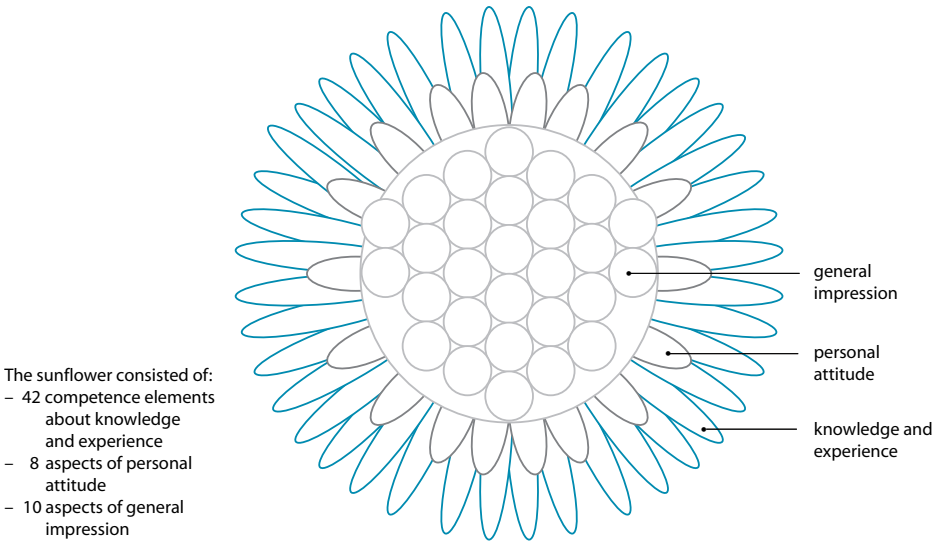


Fig. 6.1 *The ICB Version 2 Sunflower*

In the ICB Version 3 the sunflower motif has been replaced by the 'eye of competence'. The eye is more relevant than the sunflower to the human being, who is the most important factor in providing competence in project management. The eye represents the view that the project manager has of the project and its context. The project manager uses his eyes to gather information, applies his competence in project management to analyse the information, consider what options are open to him and then takes appropriate action. In the assessment process the assessor and candidate also have to look each other in the eye.

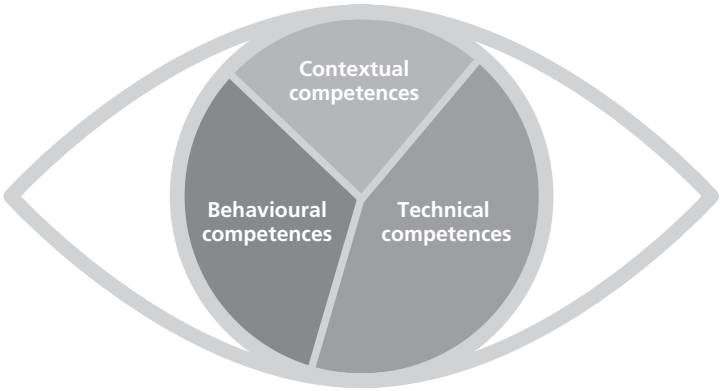


Fig. 6.2 *The ICB Version 3 Eye of Competence*

6.1 Cross reference between competence elements in Version 2.0b and elements in Version 3.0

There are general improvements for all elements in ICB Version 3. For every element in ICB Version 3 there are *Topics addressed* and *Possible process steps* that were not included in ICB Version 2. The list presented in this chapter shows where the competence elements of Version 2.0b (knowledge, personal attitude and general aspects) are incorporated into the ICB Version 3.

1. **Projects and Project Management:** is absorbed by 3.01 Project orientation.
2. **Project Management Implementation:** is absorbed by 3.04 Project, programme & portfolio implementation.
3. **Management by Projects:** is included in 3.05 Permanent organisation.
4. **System Approach and Integration:** System is expanded in element 3.07 Systems, products & technology. System is a topic in element 3.04 Project, programme & portfolio implementation. The concept of system approach is excluded in ICB Version 3. Integration has evolved into the element 1.01 Project management success in ICB Version 3.
5. **Project Context**: The interested party, part of this element in ICB Version 2 has evolved into a full element in ICB Version 3 (1.02 Interested parties). The project context is the subject of a full range in ICB Version 3, the Contextual competences. It is especially focused on in the competence elements 3.05 Permanent organisation, 3.06 Business and 3.09 Health, security, safety & environment.

6. **Project Phases and Life-Cycle**: is included in element 1.11 Time & project phases. No reference is made to project life-cycle nor to system life-cycle.
7. **Project Development and Appraisal:** is no longer an element, and has been absorbed by 1.03 Project requirements & objectives.
8. **Project Objectives and Strategies:** has evolved into 1.03 Project requirements & objectives. Strategies are included in several elements in ICB Version 3 (see the Index).
9. **Project Success and Failure Criteria:** is totally included in 1.01 Project management success.
10. **Project Start-Up:** is included in 1.19 Start-up, separated again from Close-out.
11. **Project Close-out:** is included in 1.20 Close-out, separated again from 1.19 Project Start-up.
12. **Project Structures:** is in 1.09 Project structures.
13. **Content, Scope:** is changed. It is included in 1.10 Scope & deliverables. There are no references to the change from an initial state to a final state, nor to the identification and choice of different solutions.
14. **Time Schedules:** has evolved into 1.11 Time & project phases.
15. **Resources:** has evolved into 1.12 Resources.
16. **Project Cost and Finance:** has evolved into 1.13 Cost & finance.
17. **Configurations and Changes:** Configuration is part of 1.10 Scope & deliverables. Changes has evolved into 1.15 Changes.
18. **Project Risks:** has evolved into 1.04 Risk & opportunity.
19. **Performance Measurement:** is included in 1.16 Control & reports.
20. **Project Controlling:** is included in 1.16 Control & reports.
21. **Information, Documentation, Reporting:** has been split into part of 1.16 Control & reports and 1.17 Information & documentation.
22. **Project Organisation:** has evolved into 1.06 Project organisation.
23. **Teamwork:** has evolved into 1.07 Teamwork.
24. **Leadership:** is included as 2.01 Leadership. The project manager's leadership in relation to interested parties has been stressed. The difference between leading and managing is included.
25. **Communication and the part of 32. Negotiations, meetings that deals with meetings:** are merged into 1.18 Communication.
26. **Conflicts and Crises:** has evolved into 2.12 Conflict & crisis. This element in ICB Version 3 is considerably expanded, including behavioural patterns.
27. **Procurement, Contracts**: has evolved into 1.14 Procurement & contract.
28. **Project Quality:** has evolved into 1.05 Quality.
29. **Informatics in Projects:** is no longer considered an element in itself. The use of informatics is a tool required to exercise many elements of competence.
30. **Standards and Regulations:** is included within 1.05 Quality.
31. **Problem Solving:** has evolved into 1.08 Problem resolution.
32. **Negotiations, Meetings:** The negotiations part has evolved into 2.11 Negotiation and the meeting part has been included in 1.18 Communication.
33. **Permanent Organisation:** has evolved into 3.05 Permanent organisation.
34. **Business Processes:** has evolved into 3.06 Business, stressing the competence to manage the relationships with the business processes of the organisations concerned.

35. **Personnel Development:** has considerably evolved into 3.08 Personnel management, stressing the project manager's role.
36. **Organisational Learning:** has not been maintained as a separate element in ICB Version 3. It is covered in 3.05 Permanent organisation.
37. **Management of Change:** has evolved into 1.15 Changes.
38. **Marketing, Product Management:** are now included in 3.06 Business and 3.07 Systems, products & technology.
39. **System Management:** is part of 3.07 Systems, products & technology.
40. **Safety, Health, Environment:** has evolved into 3.09 Health, security, safety & environment.
41. **Legal Aspects:** is now included in 3.11 Legal.
42. **Finance and Accounting:** is now part of 3.10 Finance.
43. **Ability to communicate**: has been dispersed into several elements in ICB Version 3 (e.g.: 2.04 Assertiveness; 2.13 Reliability; 2.14 Values appreciation).
44. **Initiative, engagement, enthusiasm, ability of motivation**: this element has been dispersed into other elements in ICB Version 3.
    Initiative is found in 2.02 Engagement & motivation and in 2.14 Values appreciation.
    Engagement is now in 2.02 Engagement & motivation.
    Enthusiasm is found in 2.02 Engagement & motivation and in 2.14 Values appreciation.
    Ability of motivation is included in ICB Version 3 in the following elements: 2.02 Engagement & motivation, 2.04 Assertiveness, 2.07 Creativity, 2.09 Efficiency, 2.14 Values appreciation.
45. **Ability of getting in contact, openness:** has evolved into 2.06 Openness.
46. **Sensibility, self-control, value appreciation**: has evolved into both 2.03 Self-control and 2.14 Values Appreciation.
47. **Conflict solving, argumentation culture, fairness**: is treated separately in 2.03 Self-control, 2.10 Consultation, 2.11 Negotiation, 2.12 Conflict & crisis.
48. **Ability of finding solutions, holistic thinking**: is now covered by 2.07 Creativity, 2.10 Consultation, 2.13 Reliability.
49. **Loyalty, solidarity, readiness for helping**: is included in 2.15 Ethics.
50. **Leadership abilities** together with **24. Leadership:** have been merged into 2.01 Leadership. The effective behavioural patterns are more comprehensively covered in ICB Version 3.
51. **Logic:** is included in 2.10 Consultation.
52. **Systematic and structured thinking:** is included in 2.10 Consultation.
53. **Absence of errors:** is included in 2.13 Reliability.
54. **Clearness:** is included in 1.18 Communication.
55. **Common sense:** is included in 1.07 Teamwork, 2.07 Creativity.
56. **Transparency:** is included in 2.06 Openness, 2.12 Conflict & crisis, 2.15 Ethics.
57. **Overview:** is included in 1.02 Interested parties and 3.06 Business.
58. **Balanced judgement:** is included in 2.12 Conflict & crisis.
59. **Horizon of experience:** is not explicitly mentioned in any element of ICB Version 3. It is, however, an implicit part of the experience criteria in all elements of ICB Version 3.
60. **Skilfulness:** is not explicitly mentioned in any element of ICB Version 3. This general aspect is well covered by ICB Version 3.

Appendices

The appendices provide additional information, as follows:

- An index of terms used in the competence descriptions linked to the competence elements where they appear (Appendix 1).
- An overview of the relationship between all combinations of the competence elements (Appendix 2).
- A self-assessment sheet, which the candidate can use to assess his own level of knowledge and experience on a 0 to 10 scale against each of the competence elements (Appendix 3).
- A taxonomy, which sets out the scores for knowledge and experience expected at the four IPMA Levels (A to D) for each competence element in the technical, behavioural and contextual ranges (Appendix Tables 4.1 to 4.3). Appendix Table 4.4 shows the average scores expected of a candidate at each of the IPMA Levels.

Appendix 1

Index of terms used in the competence elements descriptions

Project management	1.01 Project management success, 1.02 Interested parties, 1.09 Project structures, 1.12 Resources, 1.17 Information & documentation, 1.19 Start-up, 2.05 Relaxation, 2.06 Openness, 2.08 Results orientation, 2.09 Efficiency, 2.10 Consultation, 3.01 Project orientation, 3.02 Programme orientation, 3.03 Portfolio orientation, 3.04 Project, programme & portfolio implementation, 3.05 Permanent organisation, 3.07 Systems, products & technology
Project management assessment	1.01 Project management success
Project management audit	1.01 Project management success
Project management contract	1.01 Project management success
Project management excellence model	3.04 Project, programme & portfolio implementation
Project management guidelines	3.04 Project, programme & portfolio implementation
Project management maturity models	3.04 Project, programme & portfolio implementation
Project management organisational maturity	1.02 Interested parties
Project management performance	1.01 Project management success
Project management plan	1.01 Project management success, 1.09 Project structures
Project management practices	1.02 Interested parties, 3.04 Project, programme & portfolio implementation
Project management success	1.01 Project management success
Project management support office	3.01 Project orientation
Project management team	1.01 Project management success, 1.19 Start-up, 3.07 Systems, products & technology
Project mission	1.19 Start-up
Project objectives	1.01 Project management success, 1.03 Project requirements & objectives, 1.04 Risk & opportunity, 1.16 Control & reports, 1.19 Start-up, 1.20 Close-out, 2.02 Engagement & motivation, 2.08 Results orientation, 2.12 Conflict & crisis, 3.01 Project orientation
Project office	3.04 Project, programme & portfolio implementation
Project organisation	1.06 Project organisation, 1.09 Project structures, 1.20 Close-out, 2.10 Consultation
Project orientation	3.01 Project orientation, 3.04 Project, programme & portfolio implementation
Project oriented organisation	3.05 Permanent organisation
Project outcome	1.01 Project management success, 1.02 Interested parties
Project parameters	1.01 Project management success

Vision	1.03 Project requirements & objectives, 2.02 Engagement & motivation, 2.01 Leadership
Visionary thinking	2.13 Reliability
Wants	2.04 Assertiveness
Warranty	1.20 Close-out
Warranty period	1.20 Close-out
Weighting factor	3.03 Portfolio orientation
WBS (work breakdown structure)	1.09 Project structures
What-if analysis	1.16 Control & reports
Width and depth of structures	1.09 Project structures
Win-win situation	2.10 Consultation, 2.11 Negotiation
Work package	1.09 Project structures, 1.11 Time & project phases, 1.13 Cost & finance, 2.01 Leadership
Working procedures of the permanent organisation	3.05 Permanent organisation

Appendix 2

Main relations overview

The tables in appendix 2 provide an overview of the relationship between one competence element and the others.

In a practical project, programme or portfolio situation, several competence elements will be considered as a rule. The competence assessment takes these relations between the competence elements into account.

In the ICB, the main relationships are listed in each competence element description. A main relationship means that important information from one competence element is contributing considerably to performing another competence element.

The purpose of the main relations between the competence elements is to help the reader to apply the competence elements in practical situations. In such a situation, not just one competence element, but several are relevant for identifying the project management tasks, to undertake the required actions and to evaluate the results. It is up to the user to decide how many competence elements are relevant. The list contained in the competence element description is a general selection. It is relatively long and can be reduced according to the needs of the actual situation.

The relationships are multi-lateral and in principle, operated as communication channels open in both directions. However, a relationship can be important enough for it to be the main relationship for the receiver, but not important enough to be a main relationship for the provider, and vice-versa. In the tables, reciprocal relationships are marked with an X. Essential unilateral relations are marked with an x; the relation goes from the competence element of the row (noted in the first column) to the competence element noted in the column.

Appendix Table 2.1 Overview of main competence element relations
(technical - technical)

1 Technical competence	1.01 Project management success	1.02 Interested parties	1.03 Project requirements & objectives	1.04 Risk & opportunity	1.05 Quality	1.06 Project organisation	1.07 Teamwork	1.08 Problem resolution	1.09 Project structures	1.10 Scope & deliverables	1.11 Time & project phases	1.12 Resources	1.13 Cost & finance	1.14 Procurement & contract	1.15 Changes	1.16 Control & reports	1.17 Information & documentation	1.18 Communication	1.19 Start-up	1.20 Close-out
1 Technical competence																				
1.01 Project management success		X			X									x	x			X	x	x
1.02 Interested parties	X		X	X	x	x				x				x	x			X		
1.03 Project requirements & objectives	x	X		x	X										x	x				
1.04 Risk & opportunity	x	X			x										X	X				
1.05 Quality	X		X											X		X				
1.06 Project organisation							X		X			x		x						
1.07 Teamwork	x					X		x						x				x		
1.08 Problem resolution			x	x	x									x	x					
1.09 Project structures	x					X		x					x		x	x		x		
1.10 Scope & deliverables			x						x				X	x	X	x	x		x	x
1.11 Time & project phases			x	x						x		x	X			x				
1.12 Resources							x						x		x					
1.13 Cost & finance		x	x	x						X	X			x		x				
1.14 Procurement & contract			x	x	X											x			x	x
1.15 Changes				X						x	x		x	x		X				
1.16 Control & reports	x			X	X										X		X	X		
1.17 Information & documentation					x					x					x	X		x	x	x
1.18 Communication	X	X							x							X	x		x	x
1.19 Start-up			x			x	x			x	x							x		
1.20 Close-out			x			x				x										

Appendix Table 2.2 Overview of main competence element relations
(behavioural & contextual - technical)

1 Technical competence	1.01 Project management success	1.02 Interested parties	1.03 Project requirements & objectives	1.04 Risk & opportunity	1.05 Quality	1.06 Project organisation	1.07 Teamwork	1.08 Problem resolution	1.09 Project structures	1.10 Scope & deliverables	1.11 Time & project phases	1.12 Resources	1.13 Cost & finance	1.14 Procurement & contract	1.15 Changes	1.16 Control & reports	1.17 Information & documentation	1.18 Communication	1.19 Start-up	1.20 Close-out
2 Behavioural competence																				
2.01 Leadership		x		x					x							X				
2.02 Engagement & motivation			x			x				x	x		x					X	x	x
2.03 Self-control	x		x	X			x					x			x		x			
2.04 Assertiveness		x				x								x				x	x	
2.05 Relaxation	x					X	X				x									
2.06 Openness			x		x			x											x	
2.07 Creativity				x		x		x	x									X	x	
2.08 Results orientation	X	x	x		x					x				x	x	x				x
2.09 Efficiency						X		x	x						x	x		x		
2.10 Consultation						x		x			x		x		x		x			x
2.11 Negotiation				x	x							x		X						
2.12 Conflict & crisis		X		x			X	x					x							
2.13 Reliability		x			x					x				x		x	X			
2.14 Values appreciation		x	x		x		X					x			x	x				x
2.15 Ethics			X		x		X						x	x		x				
3 Contextual competence																				
3.01 Project orientation	x	x	x					x				x		x						
3.02 Programme orientation	x	X					X									x	x			
3.03 Portfolio orientation	x	X		x		x		x								x	x			
3.04 PPP implementation					x				X	x	x		x					x	X	X
3.05 Permanent organisation			X		x	X				x			x				x	x	x	x
3.06 Business	x		X					X		x					x	x				
3.07 Systems, products & technology			x		X		X			X		x					X			
3.08 Personnel management						x	X				x	X								
3.09 Health, security, safety & environment			x	X	x									x						
3.10 Finance			x	x									X			x				x
3.11 Legal				x																x

Appendix Table 2.3 Overview of main competence element relations
(technical - behavioural & contextual)

2 Behavioural competence	2.01 Leadership	2.02 Engagement & motivation	2.03 Self-control	2.04 Assertiveness	2.05 Relaxation	2.06 Openness	2.07 Creativity	2.08 Results orientation	2.09 Efficiency	2.10 Consultation	2.11 Negotiation	2.12 Conflict & crisis	2.13 Reliability	2.14 Values appreciation	2.15 Ethics	**3 Contextual competence**	3.01 Project orientation	3.02 Programme orientation	3.03 Portfolio orientation	3.04 PPP implementation	3.05 Permanent organisation	3.06 Business	3.07 Systems, products & technology	3.08 Personnel management	3.09 Health, security, safety & environment	3.10 Finance	3.11 Legal
1 Technical competence																											
1.01 Project management success	x			x		x		X												x							
1.02 Interested parties		X				x	x					X						X	X								
1.03 Project requirements & objectives				x										X				x	x		X	X					
1.04 Risk & opportunity			X																		x	x					
1.05 Quality										x												x	X		X	x	
1.06 Project organisation	x				X				X					x							X	x					
1.07 Teamwork	x	X													x					x				X			
1.08 Problem resolution					x			x						x								X					
1.09 Project structures			x										x							X			x				
1.10 Scope & deliverables									x	x													X		x		
1.11 Time & project phases			x						x								x									x	
1.12 Resources					x							x												X			
1.13 Cost & finance									x					x			x									X	
1.14 Procurement & contract											X											x					x
1.15 Changes							x				x										x						
1.16 Control & reports	X																			x							
1.17 Information & documentation													X		x					x			X				x
1.18 Communication		X				x											x	x	x								
1.19 Start-up							X													X							
1.20 Close-out																				X							

Appendix Table 2.4 Overview of main competence element relations
(behavioural & contextual - behavioural & contextual)

	2.01 Leadership	2.02 Engagement & motivation	2.03 Self-control	2.04 Assertiveness	2.05 Relaxation	2.06 Openness	2.07 Creativity	2.08 Results orientation	2.09 Efficiency	2.10 Consultation	2.11 Negotiation	2.12 Conflict & crisis	2.13 Reliability	2.14 Values appreciation	2.15 Ethics	**3 Contextual competence**	3.01 Project orientation	3.02 Programme orientation	3.03 Portfolio orientation	3.04 PPP implementation	3.05 Permanent organisation	3.06 Business	3.07 Systems, products & technology	3.08 Personnel management	3.09 Health, security, safety& environment	3.10 Finance	3.11 Legal
2 Behavioural competence																											
2.01 Leadership		X		x		x		X				X			x					x		x					
2.02 Engagement & motivation	X			X	x												x	x	x								
2.03 Self-control		x		x									x		x											x	x	x
2.04 Assertiveness		X						X							x					x	x	x					
2.05 Relaxation			x									x		x	x									x			
2.06 Openness					x		X												x	X							
2.07 Creativity					x	X											x						X				
2.08 Results orientation	X	x		X			x		X				x								x					x	
2.09 Efficiency			x		x			X		X												X					
2.10 Consultation							x	x	X					x				x	x								
2.11 Negotiation	x		x	x		x			x	x				x								x				x	
2.12 Conflict & crisis	X					x				x	x			x	x												X
2.13 Reliability		x		x											x						X						
2.14 Values appreciation		x		x		x							x		X			x	x					x			
2.15 Ethics		x												X												x	x
3 Contextual competence																											
3.01 Project orientation			x												x				X	X							
3.02 Programme orientation								x								x											
3.03 Portfolio orientation								x								X	x		X		x					x	
3.04 PPP implementation						X		x			x			x		X	x	X			x		x				
3.05 Permanent organisation					x							x	X		x							X		X			
3.06 Business		x				x	x	x	X	x											X					X	x
3.07 Systems, products & technology							X		x	x												x			x	x	x
3.08 Personnel management	x	x								x											X						x
3.09 Health, security, safety & environment															x												x
3.10 Finance				x																		X					
3.11 Legal				x							x	X															

Appendix 3

Self-assessment sheet

Appendix Table 3.1 Self-assessment sheet

	Knowledge											Experience										
	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
1 Technical competence																						
1.01 Project management success																						
1.02 Interested parties																						
1.03 Project requirements & objectives																						
1.04 Risk & opportunity																						
1.05 Quality																						
1.06 Project organisation																						
1.07 Teamwork																						
1.08 Problem resolution																						
1.09 Project structures																						
1.10 Scope & deliverables																						
1.11 Time & project phases																						
1.12 Resources																						
1.13 Cost & finance																						
1.14 Procurement & contract																						
1.15 Changes																						
1.16 Control & reports																						
1.17 Information & documentation																						
1.18 Communication																						
1.19 Start-up																						
1.20 Close-out																						
AVERAGE 1																						

Appendix Table 3.1 continued

	Knowledge											Experience										
	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
2 Behavioural competence																						
2.01 Leadership																						
2.02 Engagement & motivation																						
2.03 Self-control																						
2.04 Assertiveness																						
2.05 Relaxation																						
2.06 Openness																						
2.07 Creativity																						
2.08 Results orientation																						
2.09 Efficiency																						
2.10 Consultation																						
2.11 Negotiation																						
2.12 Conflict & crisis																						
2.13 Reliability																						
2.14 Values appreciation																						
2.15 Ethics																						
AVERAGE 2																						
3 Contextual competence																						
3.01 Project orientation																						
3.02 Programme orientation																						
3.03 Portfolio orientation																						
3.04 PPP implementation																						
3.05 Permanent organisation																						
3.06 Business																						
3.07 Systems, products & technology																						
3.08 Personnel management																						
3.09 Health, security, safety & environment																						
3.10 Finance																						
3.11 Legal																						
AVERAGE 3																						

Appendix 4

Taxonomy ICB Version 3

Appendix Table 4.1 Taxonomy range 1, Technical competences

1 Technicalcompetence	Knowledge											Experience									
	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
1.01 Project management success					D		C	B	A								C		B	A		
1.02 Interested parties					D	C		B	A								C		B	A		
1.03 Project requirements & objectives						D	C	B	A							C		B	A			
1.04 Risk & opportunity						D,C		A,B								C		B	A			
1.05 Quality						D,C		A,B								C		B	A			
1.06 Project organisation						D	C	B	A							C		B		A		
1.07 Teamwork						D	C,B	A									C	B,A				
1.08 Problem resolution							D,C	B	A								C	B	A			
1.09 Project structures						D,C	B	A								C		B	A			
1.10 Scope & deliverables						D	C	B	A							C	B		A			
1.11 Time & project phases						D	C	B	A								C	B	A			
1.12 Resources						D,C	B	A								C		B	A			
1.13 Cost & finance						D	C	B	A								C	B	A			
1.14 Procurement & contract					D	C		B	A							C	B	A				
1.15 Changes						D,C		B,A								C		B	A			
1.16 Control & reports						D	C	B	A							C		B		A		
1.17 Information & documentation					D	C	B	A								C		B	A			
1.18 Communication						D	C	B	A								C	B		A		
1.19 Start-up						D	C	B	A								C	B	A			
1.20 Close-out						D	C	B	A								C	B	A			

A,B,C,D represent the four IPMA certification levels.

Appendix Table 4.2 Taxonomy range 2, Behavioural competences

2 Behavioural competence	Knowledge											Experience									
	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
2.01 Leadership				D	C		B	A								C		B		A		
2.02 Engagement & motivation				D		C		B	A								C	B,A				
2.03 Self-control				D		C	B	A								C		B	A			
2.04 Assertiveness					D	C	B	A								C		B		A		
2.05 Relaxation				D	C		B	A								C		B	A			
2.06 Openness				D	C	B	A									C		B	A			
2.07 Creativity				D		C	B	A									C		B	A		
2.08 Results orientation					D	C		B	A							C			B	A		
2.09 Efficiency					D	C	B	A								C		B	A			
2.10 Consultation					D	C	B		A							C		B,A				
2.11 Negotiation						D,C	B	A								C			B,A			
2.12 Conflict & crisis					D	C	B	A									C		B	A		
2.13 Reliability				D		C		B, A										C	B	A		
2.14 Values appreciation				D	C	B	A									C			B,A			
2.15 Ethics					D	C	B	A								C		B	A			

Appendix Table 4.3 Taxonomy range 3, Contextual competences

3 Contextual competence	Knowledge											Experience									
	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
3.01 Project orientation					D	C		B	A								C		B	A		
3.02 Programme orientation			D	C		B		A							C	B			A			
3.03 Portfolio orientation			D		C		B		A						C		B			A		
3.04 Project, programme & portfolio implementation					D	C	B	A							C		B		A			
3.05 Permanent organisation					D	C	B	A							C	B		A				
3.06 Business				D		C		B	A							C		B	A			
3.07 Systems, products & technology				D	C	B		A							C	B		A				
3.08 Personnel management				D	C	B	A								C	B		A				
3.09 Health, safety, security & environment					D,C		B,A									C	B	A				
3.10 Finance				D	C	B	A								C		B	A				
3.11 Legal				D,C		B	A								C	B		A				

The values in appendix table 4.4 below (the same as Table 3.13 in the main text) represent the average scores expected of a candidate at each IPMA Level.

Appendix Table 4.4 Average scores expected of a candidate at each IPMA Level

Components of competence	**IPMA Level A** (0 to 10)	**IPMA Level B** (0 to 10)	**IPMA Level C** (0 to 10)	**IPMA Level D** (0 to 10)
Knowledge	7	6	5	4
Experience	7	6	4	(optional)

Index

To be done when the type setting proof is final