
**Information technology — Learning,
education and training — Quality
management, assurance and metrics —
Part 1:
General approach**

*Technologies de l'information — Apprentissage, éducation et
formation — Management, assurance et métrologie de la qualité —
Partie 1: Approche générale*



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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 19796-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 36, *Information technology for learning, education and training*.

ISO/IEC 19796 consists of the following parts, under the general title *Information technology — Learning, education and training — Quality management, assurance and metrics*:

— *Part 1: General approach*

Three further parts will be developed:

— *Part 2: Harmonized quality model*

— *Part 3: Reference methods and metrics (RMM)*

— *Part 4: Best practice and implementation guide*

Introduction

The Reference Framework for the Description of Quality Approaches (RFDQ) is a framework to describe, compare, and analyze quality management and quality assurance approaches. These approaches can be mapped to RFDQ. Therefore, the framework is not a quality management or quality assurance model – it is a framework for the description of quality approaches. It will serve to compare different existing standards and to harmonize these towards a common quality model. For a better understanding of the standard, several annexes show samples of the usage of the standard – the annexes are based on the French “Code of Practice” and German DIN PAS 1032-1. Additionally, an annex on Reference Quality Criteria (RQC) is included. These criteria shall serve as reference criteria for the analysis and evaluation of learning resources and scenarios. These criteria are also not a quality assessment approach itself, but a framework to compare different quality assurance and quality assessment approaches.

The following figure shows the levels of quality approaches and the relation of the RFDQ and RQC to existing approaches.

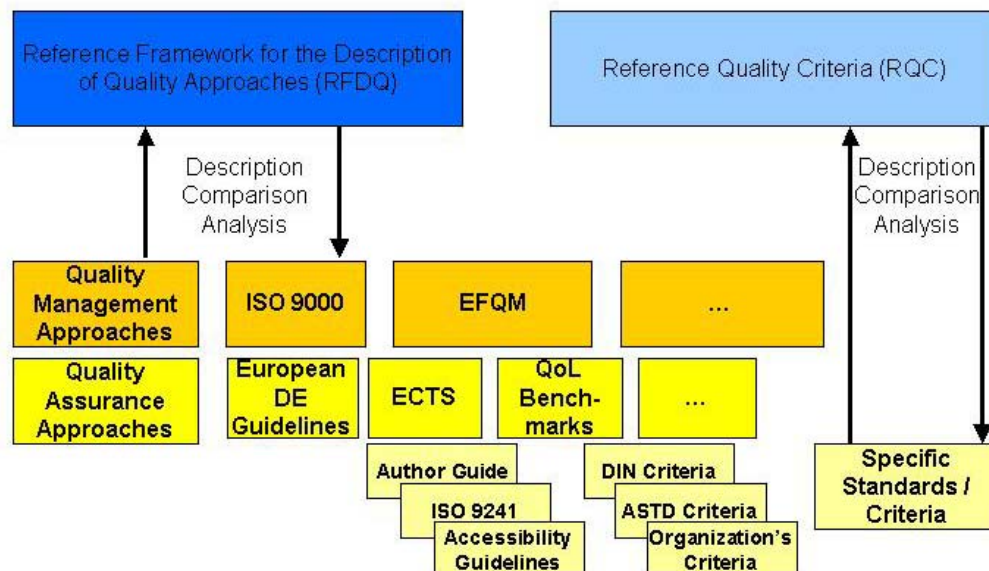


Figure 1: Levels of Quality Approaches

The following figure shows the role of the models within the standardization process.

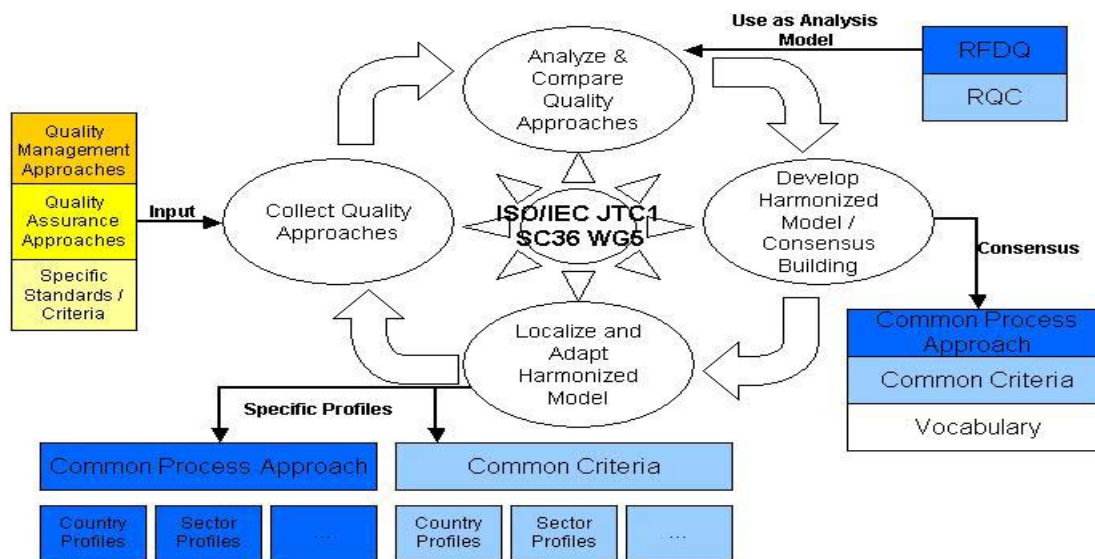


Figure 2: Standardization Process

Chapter 3 describes the process-oriented framework for the description of quality approaches (RFDQ).

Annex A (informative) describes the use of RFDQ and the use of classifications to extend the process model introducing sub-processes.

Annex B (informative) shows the full German process model (DIN PAS 1032-1) as an example how the basic model can be extended.

Annex C (informative) describes the use of the model describing the “French Code of Practice in e-Learning” (AFNOR Z 76-001) as a second sample of the use of the standard.

Annex D (informative) provides a reference list of quality criteria which can be included in RFDQ for assessment and evaluation.

Annex E (informative) describes how other quality approaches can be mapped to RFDQ. Specifically, the Chinese Model CELTSC is used as an example of the mapping procedure.

Annex F (informative) describes the use of the model for specific quality objectives such as metadata quality.

Annex G (informative) lists references to papers used for explanatory purposes.

Information technology — Learning, education and training — Quality management, assurance and metrics —

Part 1: General approach

1 Scope

This part of ISO/IEC 19796 provides a common framework to describe, specify, and understand critical properties, characteristics, and metrics of quality. The Reference Framework for the Description of Quality Approaches (RFDQ) is an elaborated and extensive process model. This standardization work harmonizes existing concepts, specifications, terms, and definitions for learning, education, and training.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

ASTD

American Society for Training and Development

2.2

CELTSC

Chinese E-Learning Technology Standardization Committee

2.3

CWA

CEN Workshop Agreement

2.4

customer

individual or organization, such as learner, learner's parents, education institutions and potential employer, who consumes the product (studying and training) directly or indirectly

2.5

data quality

set of features such as relevance, accuracy, timeliness, punctuality, accessibility, clarity, comparability, coherence, that concern the collection, analysis, persistence, dissemination, and usage of data

2.6

DIN e.V.

Deutsches Institut für Normung e.V.

2.7
ECTS
European Credit Transfer System

2.8
EFQM
European Foundation for Quality Management

2.9
interested party
person or group (such as employee, provider, partner, investor, owner, society) whose interest is affected by performance or achievements of e-learning

2.10
process
set of interrelated or interacting activities which transforms inputs into outputs

NOTE 1 Inputs to a process are generally outputs of other processes.

NOTE 2 Processes in an organization are generally planned and carried out under controlled conditions to add value.

NOTE 3 A process where the conformity of the resulting product cannot be readily or economically verified is frequently referred to as "special process". (ISO 9000:2000)

2.11
product
result of a process

NOTE 1 There are four generic product categories, as follows:

- services (e. g. transport);
- software (e. g. computer program, dictionary);
- hardware (e. g. engine mechanical part);
- processed materials (e. g. lubricant).

Many products comprise elements belonging to different generic product categories. When the product is then called service, software, hardware or processed material depends on the dominant element. [...]

NOTE 2 Service is the result of at least one activity necessarily performed at the interface between the supplier and customer and is generally intangible. Provision of a service can involve, for example, the following:

- an activity performed on a customer-supplied tangible product (e. g. automobile to be repaired);
- an activity performed on a customer-supplied intangible product (e. g. the income statement needed to prepare a tax return);
- the delivery of an intangible product (e. g. the delivery of information in the context of knowledge transmission);
- the creation of ambience for the customer (e. g. in hotels and restaurants).

Software consists of information and is generally intangible and can be in the form of approaches, transactions or procedures.

Hardware is generally tangible and its amount is a countable characteristic. Processed materials are generally tangible and their amount is a continuous characteristic. Hardware and processed materials often are referred to as goods.

NOTE 3 Quality assurance is mainly focused on intended products.

(ISO 9000:2000)

2.12

quality

ability of a set of inherent characteristics of a product, system or process to fulfil requirements of customers and other interested parties. (ISO 9000:2000)

2.13

quality assessment

totality of measures carried out consistently and systematically in order to insure that a product conforms with the requirements of a stated specification (EN 180000:1995)

2.14

quality assurance (QA)

part of quality management focused on providing confidence that quality requirements will be fulfilled (ISO 9000:2000)

2.15

quality control

part of quality management focused on fulfilling quality requirements (ISO 9000:2000)

2.16

quality improvement

part of quality management focused on increasing effectiveness and efficiency (ISO 9000:2000)

2.17

quality management (QM)

coordinated activities to direct and control an organization with regard to quality (ISO 9000:2000)

NOTE Direction and control with regard to quality generally includes establishment of the quality policy and quality objectives, quality planning, quality control, quality assurance and quality improvement.

(ISO 9000:2000)

2.18

quality objective

something sought, or aimed for, related to quality

NOTE Quality objectives should be based on the organization's quality policy. Quality objectives are specified at different levels in the organization.

(ISO 9000:2000)

2.19

QoL

Quality on the line

2.20

quality planning

part of quality management, focused on setting quality objectives and specifying necessary operational process and related resources to fulfil the quality objectives

NOTE Establishing quality plans may be part of quality planning.

(ISO 9000:2000)

2.21

quality policy

overall intentions and direction of an organization related to quality as formally expressed by top management

NOTE The quality policy should be consistent with the overall policy of the organization and should provide a framework for the setting of quality objectives.

(ISO 9000:2000)

2.22

RFDQ

Reference Framework for the Description of Quality Approaches

2.23

RQC

Reference Quality Criteria

2.24

SCORM

Sharable Content Object Reference Model

2.25

service

intangible product that is the result of at least one activity performed at the interface between the supplier and customer

EXAMPLE Knowledge is an intangible product to be delivered.

(ISO 9000:2000)

2.26

service quality (SQ)

overall collection of implicit and explicit characteristics that the service can satisfy the customer

2.27

Total Quality Management (TQM)

management approach of an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and to society

2.28

W3C

World Wide Web Consortium

3 Process model

In this section, the reference framework is described and elaborated by referring to its process model.

The process model is a framework for the description, comparison, and analysis of process-oriented quality approaches. The framework can be used as a meta-model for quality management and quality assurance approaches. This means that no assumptions and prescriptive requirements of the quality approaches are made.

The use of the framework can be described as followed:

Scenario 1: Description of a quality approach

- Select a quality management or quality assurance approach Q1.
- Identify the processes which are covered within Q1.
- Describe Q1 according to the framework using the description categories.

Scenario 2: Comparison of quality approaches

- Select quality management or quality assurance approaches [Q1..Qn].
- Identify the processes which are covered within [Q1..Qn].
- Describe [Q1..Qn] according to the framework using the description categories.
- Define a metric to compare [Q1..Qn].
- Perform analysis and comparison.

Scenario 3: Harmonization of quality approaches

- Use Scenario 2.
- Combine [Q1..Qn] towards a consensus model.

It is important to mention that the process scheme described in this working paper shall be used as a general, descriptive framework. In a second step, good practice approaches and profiles can be generated – these profiles could contain specific recommendations, guidelines, procedures, or criteria. Secondly, the process scheme can be extended and modified.

3.1 Descriptive model

The descriptive model shows the classification and documentation scheme for quality processes. It bases on the CEN/ISSS CWA 14644¹. Each process will be described by this scheme:

Attribute	Description	Example
ID	Unique Identifier	ID1234
Category	Main Process	Course Development
Process Name	Process name	Method selection
Description	Description of the process	Within this process the didactic concept and methods are evaluated and selected
Relations	Relation to other processes	Before the method selection a target group analysis must be performed; FA.6
Sub-processes / sub-aspects	Sub-processes / sub-aspects / tasks	Method identification, method alternatives, method prioritization
Objective	Objective of a Process	Adequate selection of one or more didactic concepts
Method	Methodology for this process Reference to guideline / documents	Method selection shall be based on the target group. Methods are selected based on the teachers' experience. See Method Guidelines Handbook
Result	Expected result of a process	Method specification Documents
Actors	Responsible / participating actors	Team Didactical Design
Metrics / Criteria	Evaluation and Metrics for this process	Criteria catalogue 3.2.2-3.2.6
Standards	Standards used	DIN EN ISO 9241, IEEE 1484.12.1:2003 Learning Object Metadata
Annotation / Example	Further Information, Examples of usage	

Table 1: Descriptive model for quality approaches

¹ CEN/ISSS CWA 14644 Quality Assurance and Guidelines. Brussels, 2003.

3.2 Reference Framework for Quality Descriptions (RFDQ): process model

In this section the process framework is described in the format explained in 3.1. The process model includes the relevant processes within the life-cycle of information and communication systems for learning, education, and training. The process model is divided in seven parts. Sub-processes are included referencing to a classification of processes – examples of the use of classifications are shown in Annexes B and C.

ID	Category	Sub-Processes
NA	Needs Analysis	Classification
FA	Framework Analysis	Classification
CD	Conception / Design	Classification
DP	Development / Production	Classification
IM	Implementation	Classification
LP	Learning Process	Classification
EO	Evaluation / Optimization	Classification

Table 2: RFDQ process model

In each part, the essential processes are described. For selected processes, examples how the reference model can be used are included; these examples are written in *italics*.

The use of the process model is shown using the classification of processes from DIN PAS 1032-1, listed fully in Annex B.

3.2.1 Process model description

In this section, the process model is described including examples for the use of each category of the description scheme.

3.2.1.1 Needs analysis

ID	Category	Process	Description	Relation
NA		Needs Analysis	Identification and description of requirements, demands, and constraints of an educational project	
Sub-processes / Sub-aspects	NA.1 Initiation			
	NA.2 Stakeholder identification			
	NA.3 Definition of objectives			
	NA.4 Demand analysis			
Objective	To describe the needs and demands leading to an educational project			
Method	Quality Function Deployment			
Result	Documentation of goals, objectives, needs, and requirements of an educational project			
Actors	Project manager; specialists, learners, sponsors			
Metrics / Criteria	Indicators			
Standards	ISO 9000:2000			
Annotation / Example				

3.2.1.2 Framework analysis

ID	Category	Process	Description	Relation
FA		Framework Analysis	Identification of the framework and the context of an educational process	NA, CD
Sub-processes / Sub-aspects		FA.1 Analysis of the external context	Identification of the framework and the context of an educational process	
		FA.2 Analysis of staff resources		
		FA.3 Analysis of target groups		
		FA.4 Analysis of the institutional and organizational context		
		FA.5 Time and budget planning		
		FA.6 Environment analysis		
Objective		To describe relevant factors for an educational project		
Method		Methods of empirical social research; methods in legal and economic research and analysis		
Result		Documentation and validation of relevant parameters		
Actors		Project manager; specialists		
Metrics / Criteria		Check for plausibility; consultation of additional experts		
Standards				
Annotation / Example				

3.2.1.3 Conception / Design

ID	Category	Process Name	Description	Relations
CD		Conception / Design	Conception and Design of an educational process	
Sub-processes / Sub-aspects		CD.1 Learning objectives		
		CD.2 Concept for contents		
		CD.3 Didactical concept / methods		
		CD.4 Roles and activities		
		CD.5 Organizational concept		
		CD.6 Technical concept		
		CD.7 Concept for media and interaction design		
		CD.8 Media concept		
		CD.9 Communication concept		
		CD.10 Concept for tests and evaluation		
		CD.11 Concept for maintenance		
Objective		To plan and design the concepts for an educational process		
Method		Use of Design Guidelines		
Result		To provide a conception and design for educational processes		
Actors		Consultant, Media Designers		
Metrics / Criteria				
Standards				
Annotation / Example				

3.2.1.4 Development / Production

ID	Category	Process	Description	Relation
DP		Development / Production	Realization of concepts	CD
Sub-processes / Sub-aspects		DP.1 Content realization		
		DP.2 Design realization		
		DP.3 Media realization		
		DP.4 Technical realization		
		DP.5 Maintenance		
Objective		To realize the conceptions		
Method		Implementation manual		
Result		Educational products and services		
Actor		IT-specialists, authors, developers		
Metrics / Criteria				
Standards				
Annotation / Example				

3.2.1.5 Implementation

ID	Category	Process	Description	Relation
IM		Implementation	Description of the implementation of technological components	
Sub-processes / Sub-aspects		IM.1 Testing of learning resources		
		IM.2 Adaptation of learning resources		
		IM.3 Activation of learning resources		
		IM.4 Organization of use		
		IM.5 Technical infrastructure		
Objective		To implement appropriate technological components being used in the educational process		
Method		Change / configuration / content management		
Result		Learning environment including all learning resources		
Actor		Project manager, IT-manager		
Metrics / Criteria		Testing beta versions and system		
Standards		Software validation, e. g. following IEEE; ISO 9000:2000		
Annotation / Example				

3.2.1.6 Learning process

ID	Category	Process	Description	Relation
LP		Learning Process	Realization and use of the learning process	
Sub-processes / Sub-aspects		LP.1 Administration		
		LP.2 Activities		
		LP.3 Review of competency levels		
Objective		To perform the learning process		
Method		According to the chosen didactical concepts and methods		
Result		Completed process of learning, education and training.		
Actor		Learners, trainers, tutors		
Metrics / Criteria		User performance, user satisfaction		
Standards				
Annotation / Example				

3.2.1.1.7 Evaluation / Optimization

ID	Category	Process	Description	Relation
EO		Evaluation / Optimization	Description of the evaluation methods, principles, and procedures	
Sub-processes / Sub-aspects		EO.1 Planning		
		EO.2 Realization		
		EO.3 Analysis		
		EO.4 Optimization / Improvement		
Objective		To describe the evaluation of the educational process		
Method		Evaluation methods (<i>Questionnaires, User tracking, user feedback report</i>)		
Result		To perform an evaluation of the educational process; to optimize and improve the educational process		
Actor		<i>Evaluators, learners, teachers</i>		
Metrics / Criteria				
Standards		ISO 9000:2000		
Annotation / Example				

4 Conformance

A quality description conforms to this standard if each process included in a RFDQ instance corresponds to the appropriate specification in this standard and includes all sub-processes. A conforming description may contain descriptions of processes not included in this standard. The description may contain additional data elements.

Annex A
(informative)

Explanation for the use of the model

In this section, the use of the model is clarified. Several sample questions are answered in order to provide a clearer understanding of the concept and its use.

Is RFDQ customer oriented / does it take individualization into account?

In general, RFDQ is a framework to describe and compare quality approaches. Therefore, it does not take any position of how “good” quality is achieved. However, it is designed that guidelines, procedures, requirements are included and clearly specified.

Example of quality guidelines and methods for content selection / design:

ID	Category	Process Name	Description	Relations		
CD.2	Conception / Design	Concept of the contents	Concept of learning and teaching contents	NA.4 Demand analysis FA.2 Qualifications		
Sub-processes / Sub-aspects		Content selection Content Design				
	Objective	1. Learner Demand: The goal is to provide content adapted to the needs and demand of the learner. 2. Adaptation: Each course shall provide different content presentation formats and entry points based on the user experience.				
Method		A prototype of the content shall be provided to a group of learners' representatives. In a consensus process, the contents shall be prioritized and agreed on.				
		For each course, classify groups of learners according to their learning type. Adapt presentation format and methods according to these learning types.				

Result	1. Documentation of planned and agreed contents 2. Periodically, evaluate learning performance of different learners (test groups).
Actors	Curriculum designer, didactic experts, institution accreditation authority, teacher, learners' representatives
Metrics / Criteria	The content are measured based on their relevance, importance, exemplarity, ...
Standards	Higher Education Standards
Annotation / Example	

Therefore, negotiations and adaptation should be included when using RFDQ.

How should specific requirements and needs be included.

Specific requirements should be included in the process. Specific issues can be added to the model in specific profiles of the model.

Example: Inclusion of French National Body’s document concerning negotiation about “Validation of Experiential Learning” [Blan2003]

ID	Category	Process	Description	Relation
FA.2	Framework Analysis	Analysis of staff resources	Description of actors, their qualifications and competencies	
Sub-processes / Sub-aspects	Roles / Functions			
	Competencies / formal qualifications of actors Availability of actors			
Objective	1. Description of the roles / functions, competencies / formal qualifications and availability of actors and users 2. Evaluate and certify actors' qualifications of prior experiential learning.			
Method	Analyze learner records and certificates. Analyze learners' qualifications through experimental learning: Presenting a portfolio, or explaining to a jury how professional			

	experience lead to acquire knowledge and skills required by the qualification
Result	- Description of roles / functions of staff - Description of competencies / formal qualifications / qualifications through experimental learning - Description of availability of staff
Actors	Project manager; experts (-> jury), learners
Metrics / Criteria	
Standards	Project management and documentation guidelines; standards for social research; Law : "Loi sur la Validation des Acquis de l'Expérience"
Annotation / Example	

Note: In order to include the processes of negotiations and individualization, a separate process has been included in the model.

The model can be adapted (e.g., including a more detailed process model) using classifications of sub-processes. An example for the use of sub-processes is given in Annexes B and D.

Annex B
(informative)

DIN process model (DIN PAS 1032-1)

In this section, we show a sample use of RFDQ. The German DIN process model (DIN PAS 1032-1) including sub-processes is described using RFDQ.

Needs Analysis (NA)

ID	Category	Process	Description	Relation
NA		Needs Analysis	Identification and description of requirements, demands, and constraints of an educational project	
Sub-processes / Sub-aspects		NA.1 Initiation		
		NA.2 Stakeholder Identification		
		NA.3 Definition of objectives		
		NA.4 Demand Analysis		
Objective		To describe the needs and demand leading to an educational project		
Method		Quality Function Deployment		
Result		Documentation of goals, objectives, needs, and requirements of an educational project		
Actors		Project manager; specialists, learners, sponsors		
Metrics / Criteria		Indicators		
Standards		ISO 9000:2000		
Annotation / Example				

ID	Category	Process	Description	Relation
NA.1	Needs Analysis	Initiation	Initiation of an educational project; description of necessity or demand for learning/education/training	FA.4
Sub-process(es) / Sub-aspects		• Identification of demands and requirements • Identification of necessities		
Objective		Description and indication of the processes goals and aims <i>Needs for teaching</i>		
Method		<i>Methods of marketing research and market analysis, trend analysis, need analysis, interviews, balanced scorecard, skill gap analysis; Assessments, work place analysis, Auditing</i>		
Result		Definition and documentation of the needs, necessities, and demands (for learning / education / training)		
Actors		<i>End user</i> <i>Education and training manager</i> <i>Experts in education and training</i>		
Metrics / Criteria		<i>Review of description validity</i>		
Standards		<i>ISO 900x:2000, ANSI/PMI 99-001-2000 5.1 Initiation</i>		
Annotation / Example				

ID	Category	Process	Description	Relation
NA.2	Needs Analysis	Stakeholder Identification	Identification, description and evaluation of the stakeholders groups	
Sub-processes / Sub-aspects		• Identification of actors • Identification of interested parties • Identification of users		
Objective		Description of all potential stakeholders. Influence and cooperation within the education and training processes. Importance for and on the development, acceptance and market capabilities of the finished products		
Method		<i>Literature analysis, Staff sheets, Curricula, Workshops</i> <i>Examination regulations, business-plans</i> <i>Interviews, Guidelines</i>		
Result		Description of all interested parties, their focused objectives, documentation of objectives.		
Actors		<i>Managers</i> <i>Initiator</i>		
Metrics / Criteria		<i>Measurements of acceptance, contracts and applications</i>		
Standards		<i>ANSI 10.1 und 10.2</i>		
Annotation / Example		Who are the respective actors and interested parties? (students, teachers, Trainer, Tutors, managers, enterprises, organizations, examination boards, regulative bodies in education,.. Universities, sponsors, cooperating institutions, clients, relevant social groups))..		

ID	Category	Process	Description	Relation
NA.3	Needs Analysis	Definition of Objectives	Description and evaluation of the objectives of relevant stakeholders	CD. x, IM.5, IM.6., LP.1., LP.2., LP.3, LP.4.
Sub-processes / Sub-aspects		• Strategic goals • Tactical goals • Operative goals		
Objective		Identification, description, and evaluation of goals of the stakeholders <i>Transition to a quality system in accordance with ISO 9000.</i>		
Method		<i>Questionnaire, Interview, Polls, Workshop.</i>		
Result		Documentation of goals and objectives <i>operational, consistent goal-systems for quality-measurements in accordance with DIN/ISO 9000</i>		
Actors		<i>project or consortia leadership, user, client</i>		
Metrics / Criteria		<i>Achievement of objectives</i>		
Standards		<i>ISO 9000:2000, ISO 14800</i>		
Annotation / Example				

ID	Category	Process	Description	Relation
NA.4	Needs Analysis	Demand Analysis	Specification, description, and evaluation of the demand for qualification	
Sub-processes / Sub-aspects		• Description of the qualification demand		
		• Justification of demand		
		• Kind of the qualification demand (formal, informal, prescriptive, taxonomy)		
Objective		Specification, description and validation of demand and objectives in an educational project and their operational description		
Method		<i>Document analysis, Interview, Workshop, systematic and methodical formulations</i>		
Result		Requirement specification for project		
Actors		<i>Project manager, user, supplier, sponsor</i>		
Metrics / Criteria		<i>Evaluation by experts, Certification through DIN/ISO 9000</i>		
Standards		<i>ISO 9000:2000, ANSI PMI 99-001-2000a</i>		
Annotation / Example				

Framework analysis

ID	Category	Process	Description	Relation
FA		Framework Analysis	Identification of the framework and the context of an educational process	NA, CD
Sub-processes / Sub-aspects		FA.1 Analysis of the external context	Identification of the framework and the context of an educational process	
		FA.2 Analysis of staff resources		
		FA.3 Analysis of target groups		
		FA.4 Analysis of the institutional and organizational context		
		FA.5 Time and budget planning		
		FA.6 Environment analysis		
Objective		To describe relevant factors for an educational project		
Method		Methods of empirical social research; methods in legal and economic research and analysis		
Result		Documentation and validation of relevant parameters		
Actors		Project manager; specialists		
Metrics / Criteria		Check for plausibility; consultation of additional experts;		
Standards				
Annotation / Example				

ID	Category	Process	Description	Relation
FA.1	Framework Analysis	Analysis of the external context	Identification, description and evaluation of the external context / framework of the educational process	
Sub-processes / Sub-aspects		• Legal context / conditions • Economic context / conditions • Educational context / conditions • Social context / conditions • Political context / conditions		
	Objective	Identification, description and validation of the external context / framework of the educational process		
	Method	<i>Methods of empirical social-/educational research; consultation of specialists; market analysis;</i>		
	Result	Identification and documentation of relevant aspects of the external context <i>Legal provisions concerning training intervals in security relevant areas</i> <i>Development of the e-learning market</i> <i>Structures and processes of the organization within which an educational process is located; organizational culture of learning;</i> <i>Structures and constraints due to established curricula etc.</i> Planning for updates of context analysis		
Actors		<i>Project manager; experts (e.g. market researchers, lawyers)</i>		
Metrics / Criteria		<i>Check on plausibility of results; additional expertise</i>		
Standards		<i>Project management and documentation guidelines; standards for social research;</i>		
Annotation / Example				

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ID	Category	Process	Description	Relation
FA.2	Framework Analysis	Analysis of staff resources	Identification and description of actors, their qualifications and competencies, and availability	
Sub-processes / Sub-aspects		• Roles / functions • Competencies / formal qualifications • Availability of actors		
Objective		Identification of the roles / functions, competencies / qualifications and availability of actors and users		
Method		<i>Methods of empirical social/educational research (e.g. document analysis); consultation of specialists; staff profile analysis</i>		
Result		- Description of roles / functions of staff - Description of competencies / formal qualifications of staff - Description of availability of staff		
Actors		<i>Project manager; Human Resource experts, learners</i>		
Metrics / Criteria		<i>Categories 2, 3, 4 of RQC</i>		
Standards		<i>Project management and documentation guidelines; standards for social research;</i>		
Annotation / Example				

ID	Category	Process	Description	Relations
FA.3	Framework Analysis	Analysis of target group	Identification and description of the target group	NA.X, CD.X, LP.X, EO.X
Sub-processes / Sub-aspects		• Socio-cultural and social factors • Individual attribute (age, gender, preferences, etc) • Motivation • Skills, qualification, competencies • Roles and functions		
	Objective	Definition of the target group and learner profiles		
	Method	Quantitative or qualitative methods of empirical research; Analysis of CVs, certificates, etc		
	Result	Documentation of target group and learner profiles		
	Actors	Project manager, Human Resource manager, learners, teachers		
Criteria / Metrics				
Standards		PAPI; LIP		
Annotation / Example				

ID	Category	Process	Description	Relation		
FA.4	Framework Analysis	Analysis of organizational and institutional context	Identification and description of the organizational and institutional context			
Sub-processes / Sub-aspects		• Business Model • Organizational structure • Internal context • Learning culture				
Objective		Description of the organizational and institutional context relevant for the educational process				
Method		Document analysis; interviews;				
Result		Documentation of the organizational and institutional context				
Actors		Project manager; educational staff				
Metrics / Criteria						
Standards						
Annotation / Example						

ID	Category	Process	Description	Relation
FA.5	Framework Analysis	Time and budget planning	Identification and description of financial, contractual, and temporal constraints	NA.4
Sub-processes / Sub-aspects		• Time • Budget / financial resources • Contractual constraints		
Objective		Description of temporal, budgetary, and contractual constraints		
Method		<i>Models for calculating costs; project planning methods;</i>		
Result		• Detailed financial plan • Detailed project schedule • Documentation of contractual requirements		
Actors		<i>Project sponsor; project manager, controller, finance officer</i>		
Metrics / Criteria		<i>Periodical checks and updates, Categories 3 and 4 of RQC</i>		
Standards		<i>Project management and documentation guidelines; principles of budgeting;</i>		
Annotation / Example		<i>First Prototype: 31.3.2003; Version 1.0 by 31.12.2003; Usage 2 times per quarter Design of the web site: 20000 Euro; Cost-Benefit-Analysis</i>		

ID	Category	Process	Description	Relation	
FA.6	Framework Analysis	Environment analysis	Identification and description of the environment of and physical resources for an educational process		
Sub-processes / Sub-aspects		• Buildings, rooms and furniture			
		• Technical environment (Hardware, Software, Network)			
Objective		Description of the environment relevant for educational purposes			
Method		Document analysis (room plans); inspection;			
Result		• Detailed description of physical resources (number and size of rooms)			
		• Detailed description of technical environment (number and specs of PCs; specs of LAN)			
Actors		Project manager; educational staff, facility manager			
Metrics / Criteria					
Standards		Product information; standards relating to products (e.g. LAN-components)			
Annotation / Example		Training room 10-20 Desktop PCs (Model XYZ), Learning spaces 2-6 people;			
		Network Ethernet 100MBit.; Netmeeting 100 Licenses; PC Model XYZ: Pentium IV, Hard disk 8BG, CD-ROM; WLAN-; internal Web-Cam			
		Training budget: 1000 Euro p.a. per employee			

Conception / Design

ID	Category	Process Name	Description	Relations
CD		Conception / Design	Design and Conception of an educational process	
Sub-processes / Sub-aspects		CD.1 Learning objectives		
		CD.2 Concept for contents		
		CD.3 Didactical concept / methods		
		CD.4 Roles and activities		
		CD.5 Organizational concept		
		CD.6 Technical concept		
		CD.7 Concept for media- and interaction design		
		CD.8 Media concept		
		CD.9 Communication concept		
		CD.10 Concept for tests and evaluation		
		CD.11 Concept for maintenance		
Objective		To plan and design the concepts for an educational process		
Method		Use of Design Guidelines		
Result		To provide a conception and design for educational processes		
Actors		Consultant, Media Designers		
Metrics / Criteria				
Standards				
Annotation / Example				

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ID	Category	Process Name	Description	Relations
CD.1	Conception / Design	Learning objectives	Definition and commitment of learning objectives	NA.1, NA.2, FA.x, LP.x
Sub-processes / Sub-aspects		- Objectives - Competency model		
Objective	Description of learning objectives in relation to target groups resp. sub groups embedded in a model of competencies			
Method	Use of the context analysis; discussion and formalization of competency model and objectives			
Result	Documentation and validation of learning objectives and competency model			
Actors	Curricula designer, subject experts, teacher			
Metrics / Criteria	Analysis of experiences, comparison with needs in real practice			
Standards	Reference taxonomies, ontologies			
Annotation / Example				

ID	Category	Process Name	Description	Relations
CD.2	Conception / Design	Concept for contents	Concept of learning and teaching contents	NA.3, NA.4, FA3-FA.6, CD.1, CD.3, LP.x
Sub-processes / Sub-aspects		- Topics / subjects - Volume		
Objective		Representation of the learning and instructional contents		
Method		<i>Describing subjects using semantic networks</i>		
Result		Documentation of planned contents		
Actors		<i>Curricula designer, Subject experts, teacher</i>		
Metrics / Criteria		<i>Expert interviews, Categories 5-8 of RQC</i>		
Standards		<i>National Curriculum Standards</i>		
Annotation / Example				