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Software Engineering  
Secretariat: CANADA (SCC)

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## **PURPOSE**

The purpose of this document is for JTC1 SC7 to respond to JTC 1 N4174 and provide inputs to the JTC1 Ad Hoc Group on Re-engineering.

## **PROGRAMME OF WORK REVIEW**

The results of the programme of work review requested in JTC1 N4174 are in Annex A. Please note that this review incorporate the inputs of only 7 out of the 29 "P" members of JTC1 SC7.

JTC1/SC7 has initiated in the last 3 years a review of its program of work, and at its last two Plenaries projects that did not meet the criteria of the JTC1 directives were either suspended (with a review being planned at the next Plenary) or recommended to be canceled.

The following projects have been or are in the process of being canceled as a result of these reviews:

- 07.27.01 Overview of Life-Cycle Processes
- 07.19.01, Basic Symbols and Diagrams for Software Development Methods
- 07.19.02.03, Data Modeling Diagram
- 07.19.02.04, Data Flow Diagrams
- 07.19.02.05, Data Structure Diagrams
- 07.19.02.06, Representation of Object-Oriented Techniques
- 07.33 Conventions for Usage of Symbols/Menus in Software Systems (including Software Engineering Tools)
- 07.34 Management of Information Transfer between Life-Cycle Phases

The following projects will be reviewed at the next SC7 Plenary as a result of these reviews:

- 07.27.02 Software Project Management,
- 07.27.03 Software Quality Assurance
- 07.27.04 Verification and Validation
- 07.27.05 Formal Reviews and Audits
- 07.28.3.10 Software Engineering Data Definition and Interchange - Integrated Meta-model - Part 20: Physical Relational Data Base Subject Area.
- 07.28.3.11 Software Engineering Data Definition and Interchange - Integrated Meta-model - Part 30: Project Planning and Scheduling Subject Area.
- 07.28.3.1 Software Engineering Data Definition and Interchange - Presentation Meta-model- Part 1: Presentation Global Subject Area.

## **BUSINESS PLANNING**

Business Planning activities have been going on in SC7 for a number of years, with a steady increase for the last 3 years.

At its last plenary, SC7 adopted the following resolution:

- 468** JTC1/SC7 reconfirms the intent of Resolution 235 and reaffirms the continuation of the SC7 business planning group with a mandate to:
1. plan, support and organise Strategic Planning Workshop,
  2. proposed update to the SC7 business plans and procedures,
  3. propose updates to SC7 communications function,
  4. determine the feasibility of SC7 becoming a horizontal committee,
  5. prepare the SC7 Product Plan,
  6. support SC7 vocabulary control, and
  7. prepare procedures and organisation responsibilities to ensure an integrated strategy planning, business planning, and project oversight function for SC7.

The Business Planning Group will remain under the direction of the JTC1/SC7 Secretary and composed of:

Mr. F. Babey, France  
Ms. S. Lynn, Australia  
Mr. I. Korn, Denmark  
Mr. P. Rogoway, Israel  
Mr. M. Caracciolo, Italy  
Mr. A. Coster, UK  
Mr. L. Tripp, USA (co-convenor)  
Mr. P. Voldner, Canada (co-convenor)  
Mr. Y. Yamamoto, Japan  
Mr. A. Dorling, UK

and provide a plan of action to the SC7 Secretariat by October 1, 1996.

A document currently under development by the SC7 Business Planning group is the Product Plan, a draft of which is provided in Annex B.

Other previously published documents are:

N1186	1994-03-16	SC7 Strategy Task Force Report
N1279	1994-10-12	Position of JTC1/SC7 Regarding ISO 9000-3
N1331	1995-03-03	Report of JTC1/SC7 Ad Hoc Study Team on Software-System Relationship
N1346	1995-03-24	JTC1/SC7 Vision 2005-1: Software Engineering Directions
N1347	1995-03-24	JTC1/SC7 Vision 2005-2: Strategy policy Statement
N1348	1995-03-24	JTC1/SC7 Vision 2005-3: Product Plan
N1349	1995-03-24	JTC1/SC7 Vision 2005-4: Business Plan
N1351	1995-04-14	Ad Hoc Group Report - Quality Aspects of Software Systems
N1355	1995-04-14	SWEP-1: Software Engineering - Part1: Software Engineering Programme Management

As part of JTC1 SC7 Business Planning activities, the following SC7 Strategic Planning Workshop is being organized as described in Resolution 469:

**469** JTC1/SC7 instructs its Secretariat to take the steps necessary to organise and carry out an SC7 Strategic Planning Workshop with the participation of the members of the SC7 chairman's advisory group (two individuals from each member body will be invited), SC7 convenors, SC7 Business Planning Group and SC7 liaisons. The purpose of the workshop is to position SC7 to more effectively meet the needs of its customers by preparing a vision statement, mission statement, implementing strategies, product line definition and assignment of implementing strategies. The workshop is to be conducted on June 6-8, 1997 preceding the 1997 SC7 Plenary. The invitation to participate in workshop will be issued on 1 October 1996. The instructions to the workshop participant will be issued on 1 April 1997. The results of the workshop will be presented to the Plenary for initial approval to be followed by a general circulation to all SC7 member bodies for further review.



## ANNEX A: Member Bodies review of Program of Work (POW)

The following countries participated in this review:

**Canada, France, Italy, Japan, Norway, USA and UK**

Statement of current interest/Participation

Logo: **Y** - Participating  
**I** - Interest only, but not participating  
**N** - Limited/No Interest  
**C** - Project Completed or at Stage 5 - no activity

### WG 2 System Software Documentation

<b>C</b>	07.03.01	User Documentation and Cover Information for Consumer Software Packages [ISO 9127]
<b>Y-2, I-1, N-</b>	07.03.02	Guidelines for Software Documentation (Revision) [ISO 6592]
<b>Y-3, I-3, N-1</b>	07.18	Guidelines for the Management of Software Documentation [ISO 9294]
<b>Y-3, I-2, N-2</b>	07.39	Software Life Cycle Process - Guidelines for the Content of Software Life Cycle Process Products
<b>Y-2, I-3, N-2</b>	07.40	Software User Documentation Process

### WG4 Tools and Environment

<b>C</b>	07.25	Evaluation and Selection of CASE tools
<b>Y-4, I-1, N-1</b>	07.32	Adoption of CASE Tools
<b>Y-3, I-2, N-1</b>	07.XX	Reference Model for Software Engineering Environment

### WG 6 Evaluation and Metrics

<b>Y-6, I-1, N-</b>	07.13.01.01	9126-1, Software Quality Characteristics and Metrics - Part 1: Quality Characteristics and Subcharacteristics
<b>Y-6, I-1, N- External</b>	07.13.02.02	9126-2, Software Quality Characteristics and Metrics - Part 2: Metrics
<b>Y-6, I-1, N-</b>	07.13.03.03	9126-3 Software Quality Characteristics and Metrics - Part 3: Internal Metrics
<b>Y-4, I-2, N-</b>	07.13.02.01	14598-1 Software Product Evaluation Part 1: General Overview
<b>Y-4, I-2, N-</b>	07.13.02.02	14598-2 Software Product Evaluation Part 2: Planning &

## Management

<b>Y-5, I-1, N-</b>	07.13.02.03	14598-3 Software Product Evaluation Developer	Part 3: Process for Developer
<b>Y-5, I-1, N-</b>	07.13.02.04	14598-4 Software Product Evaluation Acquirers	Part 4: Process for Acquirers
<b>Y-5, I-1, N-</b>	07.13.02.05	14598-5 Software Product Evaluation Evaluators	Part 5: Process for Evaluators
<b>Y-4, I-2, N-</b>	07.13.02.06	14598-6 Software Product Evaluation Evaluation Modules	Part 6: Documentation of Evaluation Modules
<b>Y-4, I-2, N-</b>	07.13.03.07	Software Product Evaluation - Indicators and Metrics	
<b>C</b>	07.24	Software Quality Requirements and Testing [ISO 12229]	
<b>Y-3, I-2, N-2</b>	07.36	14756 Measurement and Rating of Performance of Computer-based Software Systems	

## WG7 Life Cycle Management

<b>C</b>	07.21	Life Cycle Process	
<b>Y-3, I-3, N-</b>	07.26	Guidebook for Life Cycle Process	
<b>Y-3, I-2, N-1</b>	07.35	Mock-up and Prototype	
<b>Y-3, I-3, N-</b>	07.37	Software Maintenance	
<b>Y-5, I-1, N-</b>	07.38	System Life Cycle Process	

## WG 8 Support of Life Cycle Processes

<b>Y-4, I-3, N-</b>	07.23	12220-2, Life-Cycle Process - Software Configuration Management	
<b>Y-5, I-2, N-</b>	07.27	Support of Life Cycle Processes	
<b>Y-4, I-2, N-1</b>	07.27.02	12220-3, Life Cycle Process - Project Management	
<b>Y-3, I-2, N-2</b>	07.27.03	12220-4, Life Cycle Process - Quality Assurance	
<b>Y-3, I-4, N-</b>	07.27.04	12220-5, Life Cycle Process - Verification & Validation	
<b>Y-3, I-3, N-1</b>	07.27.05	12220-6, Life Cycle Process - Formal Review and Audits	

## WG 9 Software Integrity

<b>C</b>	07.20.03.01	Mapping of Standards Pertinent to Software Engineering	
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<b>C</b>	07.22	Categorisation of Software
<b>Y-4, I-3, N-</b>	07.30	Systems and Software Integrity Levels
WG10 Process Assessment		
<b>Y-7, I-, N-</b>	07.29	Software Process Assessment
<b>Y-7, I-, N-</b>	07.29.01	Concepts and Introductory Guide
<b>Y-7, I-, N-</b>	07.29.02	A Model for Process Management
<b>Y-7, I-, N-</b>	07.29.03	Rating Processess
<b>Y-7, I-, N-</b>	07.29.04	Guide to Conducting Assessment
<b>Y-7, I-, N-</b>	07.29.05	Construction, Selection and Use of Assessment Instruments and Tools
<b>Y-6, I-, N-1</b>	07.29.06	Qualification and Training of Assessors
<b>Y-7, I-, N-</b>	07.29.07	Guide for Use in Process Improvement
<b>Y-6, I-, N-1</b>	07.29.08	Guide for Use in Determining Supplier Process Capability
<b>Y-7, I-, N-</b>	07.29.09	Vocabulary

WG11 Software Engineering Data Definition and Representation

<b>C</b>	07.01	Conventions for Incorporating Flowchart Symbols in Flowcharts [ISO 2636]
<b>C</b>	07.07	Single Hit Decision Logic Table [ISO5806]
<b>C</b>	07.06	Program Flow for Processing Sequential Files in Terms of Record Groups [ISO 6593]
<b>C</b>	07.08	Documentation Symbols and Conventions for Data Program and System Flowcharts, Program Network Charts and Resources Charts [ISO 5807]
<b>C</b> 8631]	07.11	Program Contracts and Convention for their representation [ISO
<b>C</b>	07.16	Computer System Configuration Diagram Symbols and Conventions [ISO 8790]
<b>Y-3, I-1, N-1</b>	07.19	Diagrams for Software Engineering
<b>Y-2, I-1, N-2</b>	07.19.02	Charting Techniques and Representations for Software Development and Maintenance
<b>C</b>	07.19.02.01	- Process Flow Diagrams

<b>C</b>	07.19.02.02		- State Transition Diagrams
<b>Y-3, I-1, N-3</b>	07.19.03	Petri-net	
<b>Y-5, I-1, N-1</b>	07.28	Software Engineering Data Description and Interchange (SEDDI)	
<b>Y-5, I-1, N-1</b>	07.28.01	Overview and Architecture	
<b>Y-5, I-1, N-1</b>	07.28.01.01	Overview	
<b>Y-5, I-1, N-1</b>	07.28.01.02	Framework	
<b>Y-5, I-1, N-1</b>	07.28.02	Intechange Formats	
<b>Y-5, I-1, N-1</b>	07.28.02.01	General Rules	
<b>Y-5, I-1, N-1</b>	07.28.02.02	Syntax	
<b>Y-5, I-1, N-1</b>	07.28.02.03	Encoding	
<b>Y-5, I-1, N-1</b>	07.28.03	Abstract Model	
<b>Y-4, I-2, N-1</b>	07.28.03.01	Presentation Location	
<b>Y-4, I-2, N-1</b>	07.28.03.02	Presentation Global	
<b>Y-4, I-2, N-1</b>	07.28.03.03	Presentation Shapes	
<b>Y-5, I-1, N-1</b>	07.28.03.04	Foundation Subject Area	
<b>Y-5, I-1, N-1</b>	07.28.03.05	Common Subject Area	
<b>Y-5, I-1, N-1</b>	07.28.03.06	Data Definition Subject Area	
<b>Y-4, I-3, N-2</b>	07.28.03.07	Data Flow Model Subject Area	
<b>Y-4, I-3, N-2</b>	07.28.03.08	Data Modeling Subject Area	
<b>Y-4, I-3, N-2</b>	07.28.03.09	State/Event Model Subject Area	
<b>Y-4, I-1, N-2</b>	07.28.03.10	Physical Relational Data Base Subject Area	
<b>Y-4, I-1, N-2</b>	07.28.03.11	Project Planning and Scheduling Subject Area	
<b>Y-4, I-2, N-1</b>	07.28.04	PCTE Schema Definiton Sets	
<b>Y-4, I-, N-2</b>	07.28.05	IRDS Contents Modules	
<b>CANCELLED</b>	07.33	14757, Conventions for Usage of Symbols/Menus in Software Systems (including Software Engineering Tools)	
<b>CANCELLED</b>	07.34	14758, Management of Information Transfer between Life-Cycle	

## Phases

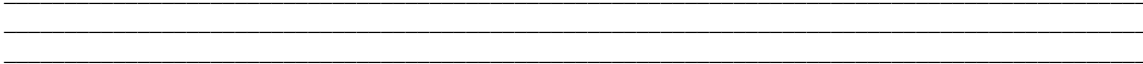
### WG12 Functional size Measurement

<b>Y-6, I-1, N-</b>	07.31	Function Point Analysis
<b>C</b>	07.31.01	Definition of Functional Size Measurement
<b>Y-6, I-1, N-</b>	07.31.02	Compliance Assessment of Software Sizing Methods
<b>Y-6, I-1, N-</b>	07.31.03	Verification of a Functional Size Measurement Method
<b>Y-6, I-1, N-</b>	07.31.04	Functional Size Measurement Reference Model
<b>Y-6, I-1, N-</b>	07.31.05	Determination of Functional Domains for use with Functional Size Measurement



ANNEX B

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# **Product plan for ISO/IEC software engineering standards**

[Approval draft]

**First edition 1996**

**International Electrotechnical Commission**

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First Edition

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# Product plan for ISO/IEC software engineering standards

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## Foreword

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Software has become the most effective technology for incorporating new features in a range of products, both in the mass consumer market and in specialty fields. Increasingly, software engineering practices are in demand in a number of new areas, replacing hardware oriented practices.

Software engineering will increasingly need to adopt life cycle costing techniques in order to justify the increased emphasis on improved, and at times more formalized, software engineering practices. A long product life cycle will demand high availability and a fundamental design that accommodates changing features over the life of a product.

To meet the needs of the software engineering field in the coming years, a combination of several factors will be required, including: better trained people, new and innovative technical solutions, improved processes, better tools, and a synergistic relationship of the above. Standards for processes, tools, and data play a role in meeting those needs. The focus of this plan is to baseline current and short term standards in the ISO/IEC domain to provide awareness and visibility of their existence. By baselining ISO/IEC software engineering standards a strategy for future development of standards to meet the needs of user organization is being derived.

ISO/IEC JTC1/SC7 is an international technical standards committee working on standards for software engineering, under the general control of ISO and IEC. The purpose of SC7 is to facilitate world trade and promote consumer confidence in the products, services and technologies of software engineering by providing international standards that reflect best practice, protect the public from adverse effects, and meet the needs of the worldwide community of software clients, practitioners, educators and suppliers.



# 1 Scope

## 1.1 Purpose

This document provides a description and relationships of the existing ISO/IEC software engineering standards and those to be completed within the next two years. The plan additionally forms a key planning document for the future standardisation as part of the business driven review processes within ISO/IEC JTC1/SC7.

## 1.2 Field of application

This document is applicable to all organizations providing products and/or services, either for profit or not-for-profit.

It is intended for information only. It is not intended for contractual purposes.

# 2 References

The following normative documents contain provisions which, through reference in this text constitute provisions of this plan. At the time of publication, the editions indicated where valid. All normative documents are subject to revision, and parties to agreements based on this plan are encouraged to investigate the possibility of applying the most recent editions of the normative documents listed below. Members of IEC and ISO maintain registers of currently valid international Standards.

ISO 8402: *Quality management and quality assurance; vocabulary.*

ISO 2382/1: *Data Processing - Vocabulary - Section 01: Fundamental Terms.*

ISO/IEC 2382-20: *Information Technology - Vocabulary; Part 20: System Development.*

# 3 Definitions

For the purposes of this plan, the terms and definitions of ISO 2382 (1, 20) and ISO 8402 apply, together with the following particular terms and definitions:

3.1 **acquirer:** an organization that acquires or procures a system, software product or software service from a supplier; and may be one of the following: buyer, customer, owner, user or purchaser.

3.2 **assessment:** An action of applying specific documented assessment criteria to a specific software module, package, or product for the purpose of determining acceptance or release of the software module, package or product.

3.3 **atomic subcharacteristic:** The highest level evaluation categories are called characteristics. Characteristics are usually subdivided into subcharacteristics. Many subcharacteristics may be further subdivided into lower level subcharacteristics. At the lowest level, when no further subdivision is appropriate, the subcharacteristics are referred to as atomic subcharacteristics.

3.4 **CASE tool:** A software product that can assist software engineers by providing automated support for software life cycle activities as defined in ISO/IEC 12207.

- 3.5 **characteristic:** An aspect of a product by which it can be described and evaluated. A characteristic may be refined into multiple levels of subcharacteristics that bear on its ability to satisfy state or implied needs.
- 3.6 **configuration diagram:** Graphical representation of the physical structure of computer systems such as the physical equipment and the connection cables.
- 3.7 **consumer:** The organization or person who buys the software package.
- 3.8 **consumer software package:** A software product designed and sold to carry out identified functions; the software and its associated documentation are packaged for sale as a unit.
- 3.9 **control field:** The field comprising one or more input variables whose change in value, or lack of change, between successive logical records affect the flow of control through the main procedure.
- 3.10 **control part:** Instructions which determine the manner in which the procedure parts are to be executed. It can consist of a directive and a set of conditions. The control part then activates or de-activates the procedure part(s) depending on the nature of the directive and the values of the conditions. If there is neither directive nor condition, control is called implicit.
- 3.11 **data processing system:** One or more computers, peripheral equipment, and software that perform data processing. (ISO 2382-1)
- 3.12 **decision table:** A table of all contingencies that are to be considered in the description of a problem together with the action to be taken. (ISO 2382-1)
- 3.13 **document:** A uniquely identified unit of information for human use, such as a report, specification, manual, or book.
- 3.14 **documentation:** A collection of one or more related documents.
- 3.15 **end user:** The person who uses the software package.
- 3.16 **environment:** The configuration(s) of hardware and software in which the software operates.
- 3.17 **evaluation:** A systematic determination of the extent to which an entity meets its specified criteria.
- 3.18 **features:** Identified properties of a software product which can be related to the quality characteristics.
- 3.19 **firmware:** The combination of a hardware device and computer instructions or computer data that reside as read-only software not the hardware device. The software cannot be readily modified under program control.
- 3.20 **flow of control:** A path the execution sequence may take through a program. An abstraction of all the control flows can be represented by a control flow diagram.
- 3.21 **flowchart:** Graphical representation of the definition, analysis, or method of solution of a problem in which symbols are used to represent operations, data, flow, equipment, etc.
- 3.22 **function:** The implementation of an algorithm in the program with which the user of the program can perform part or all of a work task.
- 3.23 **functional size measurement:** Measurement of the size of software by quantifying the functional user requirements manifested by the software.
- 3.24 **information processing system:** One or more data processing systems and devices, such as office and communication equipment that perform information processing. (ISO/IEC DIS 2382-1.2, 1992)

- 3.25 **input routine:** Those activities required to obtain the logical record, if any, to be processed next.
- 3.26 **level:** Where a logical record contains more than one control field element they are assumed to have a hierarchical relationship with one another, indicating a logical grouping. The position in the hierarchy is termed a level and is indicated by means of a level number.
- 3.27 **level of performance:** The degree to which the needs are satisfied, represented by a specific set of values for the quality characteristics.
- 3.28 **life cycle model:** A framework containing the processes, activities, and tasks involved in the development, operation, and maintenance of a software product, spanning the life of the system from the definition of its requirements to the termination of its use.
- 3.29 **logical record:** The set of data which is processed in a single iteration of the main procedure.
- 3.30 **maintenance:** That part of system maintenance which is concerned with modifying a software package.
- 3.31 **manufacturer:** The organization which develops the software package.
- 3.32 **measurement:** The action of applying a software quality metric to a specific software product.
- 3.33 **package documentation:** The product description and the user documentation.
- 3.34 **procedure:** Synonym for subroutine.
- 3.35 **procedure part:** One or more operations to be performed or may be null.
- 3.36 **process:** Set of interrelated resources and activities which transform inputs into outputs. (ISO 8402)
- 3.37 **process assessment:** An evaluation of an organization's software processes against a process model .
- 3.38 **product description:** A document stating properties of a software package, with the main purpose of helping potential buyers in the evaluation of the suitability for themselves of the product before purchasing it.
- 3.39 **program:** A syntactic unit that conforms to the rules of a particular programming language composed of declarations and statements or instructions needed to solve a certain, function, task, or problem. (ISO 2382-1)
- 3.40 **program construct:** A combination of set of one or more procedure parts and a control part which may be implicit.
- 3.41 **requirements document:** A document containing any combination of recommendations, requirements or regulations to be met by a software package.
- 3.42 **qualification requirement:** A set of criteria or conditions that have to be met in order to qualify a software product as complying with its specifications and being ready for use in its target environment.
- 3.43 **qualification testing:** Testing, conducted by the developer and witnessed by the acquirer (as appropriate), to demonstrate that a software product meets its specifications and is ready for use in its target environment.
- 3.44 **rating:** The action of a mapping the measured value to the appropriate rating level. Used to determine the rating level associated with the software for a specific quality characteristic.

- 3.45 **rating level:** A range of values on a scale to allow software to be classified (rated) in accordance with the state or implied needs. Appropriate rating levels may be associated with the different views of quality i.e., Users, Managers, or Developers. These levels are called rating levels.
- 3.46 **software:** Intellectual creation comprising the programs, rules, and associated data which when loaded into the program execution area of a computer, enables that computer to operate.
- 3.47 **software engineering:** The form of engineering that applies the principles of computer science, information technology, mathematics, and the application domain toward achieving cost-effective solutions to practical problems through software.
- 3.48 **software integrity:** ensuring the containment of risk or confining risk exposure in software.
- 3.49 **software package:** A complete and documented set of programs supplied to several users for a generic application or function. Some software packages are alterable for a specific application. (ISO 2382-15)
- 3.50 **software product:** The set of computer programs, procedures, and possibly associated documentation and data.
- 3.52 **software quality characteristic:** A set of attributes of a software product by which its quality is described and evaluated. A software quality characteristic may be refined into multiple levels of sub-characteristics.
- 3.53 **software quality metric:** A quantitative scale and method which can be used to determine the value a feature for a specific software product.
- 3.54 **software support:** The act of maintaining the software and its associated documentation in a functional state.
- 3.55 **statement of work:** A document used by the acquirer as the means to describe and specify the tasks to be performed under the contract.
- 3.56 **system:** An integrated composite that consists of one or more of the processes, hardware, software facilities, and people, that provides a capability to satisfy a stated need or objective.
- 3.57 **supplier:** An organization that enters into a contract with an acquirer for the supply of a system, software product, or software service under the terms of the contract. The term "supplier" is synonymous with contractor, producer, seller, or vendor.
- 3.58 **state:** A unique value that represents the stage of progress of software in execution. The value can be a name, a number or both. This value is also called a state identifier.
- 3.59 **subroutine:** A subprogram that does not return a value, except as part of the parameter mechanism.
- 3.60 **test case:** A documented instruction for the tester that specifies how a function or combination of functions shall or should be tested. A test case includes detailed information on the following issues: the test objective, the functions to be tested, the testing environment and other conditions (configuration details and preparatory work), the test data, the procedure, and the expect behaviour of the system.
- 3.61 **test coverage:** The extent to which an objective and feasible test can be designed to determine whether a requirement is met.
- 3.62 **transition:** An action that changes value of the state to another one or the same one according to a condition. The transition is triggered by events.

3.63 **user documentation:** The complete set of documents, available in printed or non-printed form, is provided for an application of the product and also is an integral part of the product.

## **4 Overview of SC7**

### **4.1 SC7 Mission**

To facilitate world trade and promote consumer confidence in the products, services and technologies of software engineering by providing international standards that reflect best practice, protect the public from adverse effects, and meet the needs of the worldwide community of software clients, practitioners, educators and suppliers.

### **4.2 SC7 Long-term goals**

To achieve the SC7 mission the goals are:

- SC7 will be **the** international committee for software engineering standards.
- The SC7 set of standards will be the standards of choice for the practicing software engineer.
- SC7 standards development cycle will be three years or less.

### **4.3 SC7 History**

This section provides the essential background information leading to the development of this Strategic Policy Statement.

A brief history is included to highlight the events of SC7 since its inception. The objective is to indicate the evolution of SC7 activities in view of changing users' needs and the increase emphasis on harmonization of standards.

Important SC7 dates/events (some examples)

1987 - Formation of the SC7

1990 - Business Plan published

1991 - Name changed to Software Engineering

1994 - The concept of product plan was proposed to SC7

1995 - Published ISO 12207 Software Life Cycle Process to provide guidance for Software Engineering program management

### **4.4 SC7 standards framework**

The purpose of the framework is to provide a scheme to organise and relate SC7 standards for planning, delivery, coordination and presentation purposes. The framework is organised around two concepts: programme approach and layering of standards.

The programme approach considers the SC7 standards as an organised collection. The collection is organised into four components or elements which are: (1) customer, (2) process, (3) product, and (4) technology. Each of the four elements will be instantiated into a project within a specific organisational situation. The element "customer" includes users, purchasers, and the general public. The element "process" is a set of interrelated activities, which transform inputs into outputs. The element "product" is a result of process. It may be any tangible artifact, e.g. deliverable, file, document, data item or information item. The element "technology" is an object, capability or resource that facilitates the execution of a process. Figure 1 portrays the elements and their relationships.

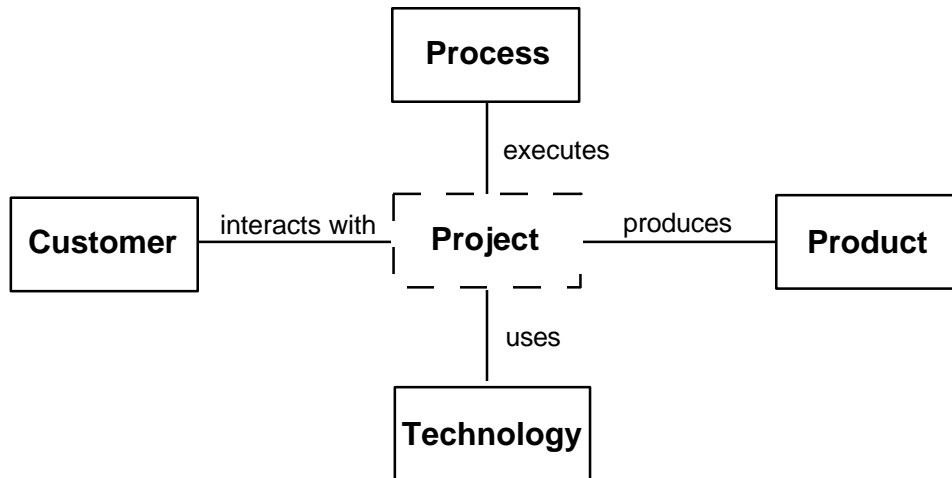


Figure 1 Software Programme Elements

The purpose of the layered approach is to relate a tiered manner the role of a standard or technical report. Three layers are identified: (1) policy level standard, (2) programme element standard, and (3) application guide. A policy level standard establishes the context of the software engineering programme. A programme element standard establishes a prescriptive basis for each programme element. An application guide provides insight and direction on how to implement a programme element standard. Figure 2 illustrates the layered approach.

	Level	Definition	Example
1	Policy-level standard	Defines generic principles which apply to all lower level standards	ISO 9000
2	Programme element standard	Defines requirements which apply to a programme element	ISO 9001 ISO 12207
3	Application guide	Provide guidance on how to implement programme element including how to apply related standards	IS 6592 IS 9126

Figure 2 Layered Approach to SC7 Standards

## 5 SC7 product offering for 1997

### 5.1 SC7 product listing - 1997

<u>Number</u>	<u>Title</u>
IS 5806	Information processing - Single hit decision logic table (1984), 14 p. Specifies the format of single-hit decision tables and relevant definitions, together with recommended conventions for preparation and use.
IS 5807	Information processing - Documentation symbols and conventions for data, program, and system flowcharts, program network charts and resource charts (1985) 25 p. Specifies symbols to be used in information processing documentation and gives guidance on the conventions for their use.
IS 6592	Information processing - Guidelines for the documentation of computer-based application systems (1985), 17 p. Establishes guidelines for the documentation of computer-based application systems. It also contains checklists with the aim of supporting effective activities throughout the system life cycle.
IS 6593	Information processing - Program flow for processing sequential files in terms of record groups (1985), 6 p. Describes two alternative procedures for any program which is required to process sequential fields which have been logically organized in terms of groups of records.
IS 8631	Information technology - Program constructs and conventions for their representation (1989) 7 p. Defines the nature of program constructs, describes how constructs can be combined, specifies a set of constructs, and allows for subsets of the defined constructs.
IS 8790	Information processing systems - Computer system configuration diagram symbols and conventions (1987), 14 p. Establishes graphical symbols and their conventions for use in configuration diagrams for computer systems, including automatic data processing systems.
IS 9126	Information technology - Product evaluation Software product quality characteristics (1991), 13 p. Defines six characteristics that describe, with minimal overlap, software quality. These characteristics provide a baseline for further refinement and description of software quality. Guidelines describe the use of quality characteristics for the evaluation of software quality.
TR 9127	Information processing systems - User documentation and cover information for consumer software packages (1988), 7 p. Describes for consumer software packages the information needed to install and run the software and the information on the external wrapping to allow prospective purchasers to decide on the applicability of the software for their requirements.
IS 9294	Information technology - Guidelines for the management of software documentation (1990), 7 p. Specifies guidelines on the management of software documentation to those managers responsible for the production of software or software-based products.
IS 11411	Information technology -- Representation for human communication of state transition software, 13 p. Defines the nature of state transition of software, defines the notation of state transition elements, and specifies a set of state transition elements.
IS 12207	Information technology - Software life cycle processes (1995), 55 p.



Establishes a common framework for software life cycle processes, with well-defined terminology, that can be referenced by industry. It contains processes, activities, and tasks that are to be applied during the acquisition of a system that contains software, a stand-alone software product, and software service and during the supply, development, operation, and maintenance of software products.

IS 12119 Information technology - Software packages - Quality requirements and testing (1994), 16 p.

Establishes requirements for software packages and provides instructions on how to test a software package against the requirements.

IS 14102 Information technology -- Evaluation and selection of CASE tools, (1995), 52 p.

Provides guidance on identifying organizational requirements for CASE tools, guidance on mapping those requirements to CASE tool characteristics, and process for selecting the most appropriate CASE tool from several tools, based on measurements of the defined characteristics.

## **5.2 SC7 Product Roadmap - 1997**

### **CASE Tools**

IS 14102 Information technology - Evaluation and selection of CASE tools

### **Documentation**

IS 6592 Information processing - Guidelines for the documentation of computer-based application systems

TR 9127 Information processing systems - User documentation and cover information for consumer software packages

IS 9294 Information technology - Guidelines for the management of software documentation

### **Life Cycle Processes**

IS 12207 Information technology - Software life cycle processes

### **Notation**

IS 5806 Information processing - Single hit decision logic tables

IS 5807 Information processing - Documentation symbols and conventions for data, program, and system flowcharts, program network charts and resource charts

IS 6593 Information processing - Program flow for processing sequential files in terms of record groups

IS 8631 Information technology - Program constructs and conventions for their representation

IS 8790 Information processing systems - Computer system configuration diagram symbols and conventions

IS 11411 Information technology - Representation for human communication of state transition software

### **Software Packages**

IS 12119 Information technology - Software packages - Quality requirements and testing

### **Software Product Evaluation**

IS 9126 Information technology - Software product evaluation - Quality characteristics and guidelines for their use

## 6 SC7 planned products for 1999

### 6.1 Additions to SC7 product listing - 1999

<u>Number</u>	<u>Title</u>
6592	Information technology - Guidelines for documentation of software systems
9126-1	Information technology - Software product evaluation - Part 1: Quality characteristics and subcharacteristics
9126-2	Information technology - Software product evaluation - Part 2: External metrics
12182	Information technology - Categorization of software
12220	Information technology - Software configuration management
14143	Information technology - Software measurement - definition of function size measurement
14399	Information technology - Standards Relevant to ISO/IEC JTC1/SC7 - Software Engineering
14568	Information technology - DXL: Diagram exchange language for tree-structured charts
14598-1	Information technology - Software product evaluation - Part 1: General guide
14598-2	Information technology - Software product evaluation - Part 2: Planning and management
14598-3	Information technology - Software product evaluation - Part 3: Process for developers
14598-4	Information technology - Software product evaluation - Part 4: Process for acquirers
14598-5	Information technology - Software product evaluation - Part 5: Process for evaluator
14598-6	Information technology - Software product evaluation - Part 6: Documentation for evaluation modules
14756	Information technology - Measurement and Rating of Performance of Computer-based software systems
15026	Information technology - Software integrity - System and software integrity levels
15474-1	Information technology - Software engineering data definition and interchange - Part 1: Overview
15474-2	Information technology - Software engineering data definition and interchange - Part 2: Framework for modeling and extensibility
15475-1	Information technology - Software engineering data definition and interchange - Part 1: Transfer format general rules for syntaxes and encodings
15475-2	Information technology - Software engineering data definition and interchange - Part 2: Transfer format syntax SYNTAX1
15475-3	Information technology - Software engineering data definition and interchange - Part 3: Transfer format encoding ENCODING1
15476-1	Information technology - Software engineering data definition and interchange - Part 1: Integrated metamodel - Foundation subject area
15476-2	Information technology - Software engineering data definition and interchange - Part 2: Integrated metamodel - Common subject area
15476-3	Information technology - Software engineering data definition and interchange - Part 3: Integrated metamodel - Data definition subject area
15476-4	Information technology - Software engineering data definition and interchange - Part 4: Integrated metamodel - Data modeling subject area
15476-5	Information technology - Software engineering data definition and interchange - Part 5: Integrated metamodel - Data flow model subject area
15504-1	Information technology - Software process assessment - Part 1: Concepts and introductory guide
15504-2	Information technology - Software process assessment - Part 2: A model for process management
15504-3	Information technology - Software process assessment - Part 3: Rating processes

- 15504-4 Information technology - Software process assessment - Part 4: Guide to conducting assessment
- 15504-5 Information technology - Software process assessment - Part 5: Construction, selection and use of assessment instruments and tools
- 15504-6 Information technology - Software process assessment - Part 6: Qualification and training of assessors
- 15504-7 Information technology - Software process assessment - Part 7: Guide for use in process improvement
- 15504-8 Information technology - Software process assessment - Part 8: Guide for use in determining supplier process capability
- 15504-9 Information technology - Software process assessment - Part 9: Vocabulary

## **6.2 SC7 product roadmap - 1999**

The numbers for new or revised standards are in bold font.

### **CASE Tools**

IS 14402 Information technology - Evaluation and selection of CASE tools

### **Documentation**

IS 6592 Information processing - Guidelines for the documentation of computer-based application systems

TR 9127 Information processing systems - User documentation and cover information for consumer software packages

IS 9294 Information technology - Guidelines for the management of software documentation

### **Life Cycle Processes**

IS 12207 Information technology - Software life cycle processes

### **Notation**

IS 5806 Information processing - Single hit decision logic tables

IS 5807 Information processing - Documentation symbols and conventions for data, program, and system flowcharts, program network charts and resource charts

IS 6593 Information processing - Program flow for processing sequential files in terms of record groups

IS 8631 Information technology - Program constructs and conventions for their representation

IS 8790 Information processing systems - Computer system configuration diagram symbols and conventions

IS 11411 Information technology - Representation for human communication of state transition software

**14568** Information technology - DXL: Diagram exchange language for tree-structured charts

### **Software Engineering Data Definition and Interchange**

**15474-1** Information technology - Software engineering data definition and interchange - Part 1: Overview

**15474-2** Information technology - Software engineering data definition and interchange - Part 2: Framework for modeling and extensibility

**15475-1** Information technology - Software engineering data definition and interchange - Part 1: Transfer format general rules for syntaxes and encodings

**15475-2** Information technology - Software engineering data definition and interchange - Part 2: Transfer format syntax SYNTAX1

**15475-3** Information technology - Software engineering data definition and interchange - Part 3: Transfer format encoding ENCODING1

- 15476-1 Information technology - Software engineering data definition and interchange - Part 1: Integrated metamodel - Foundation subject area
- 15476-2 Information technology - Software engineering data definition and interchange - Part 2: Integrated metamodel - Common subject area
- 15476-3 Information technology - Software engineering data definition and interchange - Part 3: Integrated metamodel - Data definition subject area
- 15476-4 Information technology - Software engineering data definition and interchange - Part 4: Integrated metamodel - Data modeling subject area
- 15476-5 Information technology - Software engineering data definition and interchange - Part 5: Integrated metamodel - Data flow model subject area

### **Software Integrity**

- 15026 Information technology - Software integrity - System and software integrity levels

### **Software Measurement**

- 14143 Information technology - Software measurement - Definition of function size measurement

### **Software Packages**

- IS 12119 Information technology - Software packages - Quality requirements and testing

### **Software Process Assessment**

- 15504-1 Information technology - Software process assessment - Part 1: Concepts and introductory guide
- 15504-2 Information technology - Software process assessment - Part 2: A model for process management
- 15504-3 Information technology - Software process assessment - Part 3: Rating processes
- 15504-4 Information technology - Software process assessment - Part 4: Guide to conducting assessment
- 15504-5 Information technology - Software process assessment - Part 5: Construction, selection and use of assessment instruments and tools
- 15504-6 Information technology - Software process assessment - Part 6: Qualification and training of assessors
- 15504-7 Information technology - Software process assessment - Part 7: Guide for use in process improvement
- 15504-8 Information technology - Software process assessment - Part 8: Guide for use in determining supplier process capability
- 15504-9 Information technology - Software process assessment - Part 9: Vocabulary

### **Software Product Evaluation**

- 9126-1 Information technology - Software product evaluation - Part 1: Quality characteristics and subcharacteristics
- 9126-2 Information technology - Software product evaluation - Part 2: External metrics
- 14598-5 Information technology - Software product evaluation - Part 5: Process for evaluator
- 14598-1 Information technology - Software product evaluation - Part 1: General guide
- 14598-2 Information technology - Software product evaluation - Part 2: Planning and management
- 14598-3 Information technology - Software product evaluation - Part 3: Process for developers
- 14598-4 Information technology - Software product evaluation - Part 4: Process for acquirers
- 14598-5 Information technology - Software product evaluation - Part 5: Process for evaluator

**14598-6** Information technology - Software product evaluation - Part 6: Documentation for evaluation modules

**Software System Performance**

**14756** Information technology - Measurement and rating of performance of computer-based software systems

**Miscellaneous**

12182 Information technology - Categorization of software

14399 Information technology - Standards Relevant to ISO/IEC JTC1/SC7 - Software Engineering

## **Annex A - Descriptions of existing SC7 standards and technical reports**

### **IS 5806 Information processing - Single hit decision logic table (1984)**

Scope. Format of single-hit decision tables and the relevant definitions, together with recommended conventions for preparation and use.

Field of Application. Documentation of computer-based information systems.

Key terms. decision table, information system.

#### Table of Contents

- 1 Scope and field of application
- 2 References
- 3 Definitions
- 4 Format
  - 4.1 Decision tables
  - 4.2 Condition entries
  - 4.3 Action entries
- 5 Relationships between table elements
  - 5.1 Conditions
  - 5.2 Actions
  - 5.3 Rules
- 6 Relationships between decision tables
  - 6.1 Sequence relationship
  - 6.2 Selection relationship
  - 6.3 Repetition relationship
  - 6.4 Nesting relationship
  - 6.5 Combination of relationships
- 7 Interpretation of decision tables
  - 7.1 Columnar method
  - 7.2 Linear method
  - 7.3 Completeness

#### Annex A - Recommendations for preparation

- A.1 Condition entry construction
- A.2 Splitting up tables
- A.3 Table simplification
- A.4 Rule count checking

#### Annex B - Examples of types of decision tables

**IS 5807 Information processing - Documentation symbols and conventions for data, program, and system flowcharts, program network charts and resource charts**

Scope. Documentation symbols and conventions.

Field of Application. Documentation of information processing.

Key terms. flowchart, information system.

Table of Contents

- 1 Scope and field of application
- 2 References
- 3 Definitions
4. Data flowchart
5. Program flowchart
6. System flowchart
7. Program network chart
8. System resources chart
9. Symbols
10. Conventions
- 11 Consolidated table of symbols

Annexes

- A. Example of data flowchart
- B. Example of program flowchart
- C. Example of system flowchart
- D. Example of program network chart
- E. Example of system resources chart

**IS 6592 Information processing - Guidelines for the documentation of computer-based application systems**

Scope. Guidelines for the preparation of documentation throughout the system life cycle.

Field of Application. Preparation of documentation for computer-based application systems

Key terms. documentation, computer-based application systems.

Table of Contents

- 1 Scope and field of application
- 2 Principles of documentation
- 3 Feasibility study
- 4 System design study
- 5 System design and development
- 6 System support
- 7 System implementation
- 8 Post implementation reviews
- 9 Management of documents

Annexes

- A Program documentation guidelines
- B Data documentation guidelines

C Human procedure of documentation guidelines



### **IS 6593 Information processing - Program flow for processing sequential files in terms of record groups**

Scope. Procedure for processing in a computer program sequential files which have been logically organized in terms of groups of records.

Field of Application. Computer programs.

Key terms. control field, logical record, input routine, level, procedure.

#### Table of Contents

- 1 Scope and field of application
- 2 Definitions
- 3 Description of method A
- 4 Description of method B

#### Annexes

- A Implementation recommendations
- B Example of application : Budget analysis

### **IS 8631 Information technology - Program constructs and conventions for their representation**

Scope. Defines the nature of program constructs, indicates the manner in which constructs can be combined, provides specifications for a set of constructs, and permits the definition of a variety of subsets of the defined constructs.

Field of Application. Flow of control within procedure oriented algorithms.

Key terms. algorithm, flow of control, program construct.

#### Table of Contents

- 1 Scope
- 2 Definition of program construct
- 3 How constructs may be combined
- 4 Specification of constructs
  - 4.1 Imperative construct
  - 4.2 Serial construct
  - 4.3 Parallel construct
  - 4.4 Iterative construct
  - 4.5 Selective choice construct
- 5 Termination
- 6 Definition of subsets

#### Annex

- A Charting notations for program constructs

## **IS 8790 Information processing systems - Computer system configuration diagram symbols and conventions**

Scope. Establishes graphical symbols and their conventions for use in configuration diagrams for computer systems, including automatic data processing systems.

Field of Application. Major hardware units of a computer system configuration.

Key terms. configuration diagram.

### Table of Contents

1	Scope
2	Field of application
3	Configuration diagram symbols
3.1	Physical unit or its enclosure
3.2	Connection line
4	Conventions
4.1	Symbol shape
4.2	Connection lines
4.3	Identification of symbols
4.4	Representation of multiple units in a single enclosure
4.5	Proper use of symbols
4.6	Representation of a selection unit
4.7	Representation of future installations
4.8	Repetitive representation of the same units
4.9	Overlaid representation of different units
4.10	Representation of omission
5	Consolidated table of symbols

## **IS 9126 Information technology - Software product evaluation - Quality characteristics and guidelines for their use**

Scope. Software characteristics and associated quality evaluation process model.

Field of Application. Acquisition, development, use, support, maintenance, or audit of software.

Key terms. assessment, features, firmware, level of performance, rating, rating level, software quality characteristics, software quality metric.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Software quality characteristics
4.1	Functionality
4.2	Reliability
4.3	Usability
4.4	Efficiency
4.5	Maintainability
4.6	Portability
5	Guidelines for use of quality characteristics
5.1	Usage
5.2	Views of software quality
5.3	Evaluation process model
Annexes	
A	Quality subcharacteristics
B	History of the work

## **TR 9127 Information processing systems - User documentation and cover information for consumer software packages**

Scope. Describes user documentation and cover information supplied with consumer software packages: user documentation and cover information.

Field of Application. Software packages sold off-the-shelf to consumers for business, scientific, education and home use.

Key terms. consumer software package, consumer, end user, environment. manufacturer, software support, supplier.

### Table of Contents

1	Scope and field of application
2	References
3	Definitions
4	Categories of information
Section one: User documentation	
5	Purpose
6	Reference documentation
6.1	Identification of the package
6.2	Components of the package
6.3	Functional description of the software
6.4	Installing the software
6.5	Using the software
6.6	Software technical information
6.7	Testing
6.8	Contractual information
6.9	Glossary
6.10	Index
6.11	End users' comments
7	Training documents
8	Quick reference documentation
Section two: Cover information	
9	Purpose
10.	Content
10.1	Package identification
10.2	Purpose and field of application
10.3	Environment
10.4	Input
10.5	Output
10.6	Restrictions on data or files
10.7	Instructions for use
10.8	Supplementary information
10.9	Contractual information
10.10	Customer service address
10.11	Items supplied
10.12	Standards and laws
10.13	Independent certification
10.14	Product code
10.15	Price

## **IS 9294 Information technology - Guidelines for the management of software documentation**

Scope. Guidance on the policies, standards, procedures, resources and plans which managers must concern themselves with in order to manage software documentation effectively.

Field of Application. Software development, operation and maintenance.

Key terms. document, documentation, software product.

### Table of Contents

1	Scope
2	References
3	Definitions
4	Role of managers
5	The functions of software documentation
5.1	Communication to management
5.2	Task-to-task communication
5.3	Quality assurance
5.4	Instruction and reference
5.5	Software support
5.6	Historical reference
6	Establishing documentation policy
7	Establishing documentation standards and guidelines
7.1	Selecting a software lifecycle model
7.2	Defining document types and content
7.3	Defining document quality
7.4	Defining document formats
7.5	Defining a document identification system
8	Establishing documentation procedure
9	Allocating resources to documentation
9.1	People
9.2	Facilities
9.3	Funding
10	Documentation planning
Annex A	Checklists for software documentation management
A.1	Policy checklist
A.2	Standards checklist
A.3	Procedures checklist
A.4	Project planning checklist

## **IS 11411 Information technology - Representation for human communication of state transition of software**

Scope. Notations and conventions for definition of state transitions for interactive software, communication software or language/commands

Field of Application. Development, communication or review of software.

Key terms. state, transition.

### Table of Contents

1	Introduction
2	Scope
3	Definitions
4	Specification
4.1	Specification of state
4.2	Specification of transition
4.3	Conformity
5	State diagram
5.1	Concept
5.2	Conventions
5.3	Usage and restrictions
6	State table
6.1	Concept
6.2	Conventions
6.3	Usage and restrictions
Annex	
1	Example of state diagram
2	Example of state table
3	References

## **IS 12119 Information technology - Software packages - Quality requirements and testing**

Scope. Establishes requirements for software packages (quality requirements) and instructions on how to test a software package against these requirements (instructions for testing, in particular for third party testing.).

Field of Application. Software packages.

Key terms. function, maintenance, package documentation, product description, test case, user documentation

### Table of Contents

1	Scope
2	Definitions
3	Quality requirements
3.1	Product description
3.2	User documentation
3.3	Programs and data
4	Instructions for testing
4.1	Test pre-requisites
4.2	Testing activities
4.3	Test records
4.4	Test report
4.5	Follow up test

### Annex

A	(Informative) Definitions from other standards
B	(Informative) Example of a product description
C.	(Informative) Bibliography

## **IS 12207 Information technology - Software life cycle processes**

Scope. Processes, activities, and tasks that are to be applied during acquisition, development, operation, or maintenance software products.

Field of Application. Organizations involved in the two party agreements; an organization needing a process checklist.

Key terms. life cycle model, qualification requirement, qualification testing, software product, statement of work, system, test coverage.

### Table of Contents

1	Scope and field of application
2	Normative references
3	Definitions
4	Application of this International Standard
5	Primary life cycle processes
5.1	Acquisition process
5.2	Supply process
5.3	Development process
5.4	Operation process
5.5	Maintenance process
6	Supporting life cycle processes
6.1	Documentation process
6.2	Configuration management process
6.3	Quality assurance process
6.4	Verification process
6.5	Validation process
6.6	Joint review process
6.7	Audit process
6.8	Problem resolution process
7	Organization life cycle processes
7.1	Management process
7.2	Infrastructure process
7.3	Improvement process
7.4	Training process
Annexes	
A	Tailoring process
B	Guidance on tailoring
C	Guidance on processes and organizations
D	Information references



## **IS 14102 Information technology - Guideline for evaluation and selection of CASE tools**

Scope. Establishes processes and activities to applied during the evaluation of CASE tools and selecting the most appropriate from several candidates.

Field of Application. Organizations involved in the choosing CASE tools to support their software life cycle processes.

Key terms. atomic subcharacteristic, CASE tool, characteristic, rating, rating level.

### Table of Contents

1	Scope
2	Normative references
3	Definitions and acronyms
4	Overview of evaluation and selection of CASE tools
5	Initiation Process
5.1	Goal setting
5.2	Establishing selection criteria
5.3	Project planning and control
6	Structuring process
6.1	Requirements definition
6.2	CASE tool information gathering
6.3	Identifying final candidate CASE tools
7	Evaluation process
7.1	Preparing for evaluation
7.2	Evaluating CASE tools
7.3	Evaluation reporting
8	Selection process
8.1	Preparing for selection
8.2	Applying the selection algorithm
8.3	Recommending a selection decision
8.4	Validating the selection decision
9	CASE tool characteristics
9.1	Functionality - characteristics related to life-cycle processes
9.2	Functionality - characteristics related to CASE tool usage
9.3	General quality characteristics
9.4	General characteristics not related to quality

### Annexes

A	Considerations on the use of this International Standard
B	Examples of selection algorithm

## **Annex B - Descriptions of proposed SC7 standards and technical reports**

### **6592 Information technology - Guidelines for the documentation of software systems**

Scope: Provides guidelines for the documentation of information systems

Field of Application: To be used by two parties on agreeing on the content of an information system during its life cycle with focus on the software aspects.

Key terms: document, information item.

#### Table of Contents

1	Scope
2	Field of application
3	References
4	Definitions
5	Use of this standard
5.1	Purpose of documentation
5.2	Principles of documentation
5.3	Application of this International Standard to a software system
5.4	Constraints
5.5	Customization
6	Documentation method
6.1	Overview of the description of information items
6.2	Documentation profile
6.3	Description of information items
6.4	Detailed description of information items
Annex	Example of a documentation profile

## **9126-1 Information technology - Software product evaluation - Part 1: Quality characteristics and subcharacteristics**

Scope: Defines a quality model which categories software quality into six characteristics, which are further sub-divided into sub-characteristics.

Field of Application: Acquisition, development, use, support, maintenance, or audit of software.

Key terms: assessment, features, firmware, level of performance, rating, rating level, software quality characteristic, software quality metric.

### Table of Contents

1	Scope and field of application
2	Normative references
3	Definitions
4	Quality model
4.1	Item to be evaluated
4.2	Choice of metrics
4.3	Measuring quality in use
5	Software quality characteristics
5.1	Functionality
5.2	Reliability
5.3	Usability
5.4	Efficiency
5.5	Maintainability
5.6	Portability

### Annex

- A
- B
- C

## **9126-2 Information technology - Software product evaluation - Part 2: External metrics**

Scope: Defines external metrics for measuring attributes of six quality characteristics defined in ISO/IEC 9126-1.

Field of Application: Acquisition, development, use, support, maintenance, or audit of software.

Key terms: quality model, external measure, indicator.

### Table of Contents

- 1 Scope
- 2 Normative references
- 3 Definitions
- 4 General requirements and recommendations
- 5 Basic use of metrics for quality characteristics

### Annex

- A Specifying quality requirements
- B Detecting quality problem
- C Evaluating quality characteristics
- D Quality in use metrics

## 12182 Information technology - Categorization of software

Scope. Categories of software (including relevant development products and data) that are produced by software engineering processes.

Field of Application. Software engineering and its associated standards, software, data, and methodologies.

Key terms. categorization scheme, view, category.

### Table of Contents

1	Scope and field of application
2	Normative References
3	Definitions
4	Notations
5	Concept of categorization of software
5.1	Structure of views
5.2	Selection of views and categories
6	Scheme of categorization
6.1	Software function
6.2	Operation mode
6.3	Application area of information system
6.4	Scale of software
6.5	Data representation
6.6	Software criticality
6.7	User class
6.8	Required performance
6.9	Software stability
6.10	Security requirement
6.11	Reliability requirement
6.12	Computer system and environment
6.13	Computer resource requirement
6.14	Software product availability
6.15	Usage of software data
6.16	Primary language
7	Application of the scheme
7.1	Application to scope of standards
7.2	Application to standard
7.3	Application to software packages

## **12220 Information technology - Software configuration management**

Scope. Establishes requirements for the performance of the configuration management of computer software.

Field of Application. development and maintenance of computer software.

Key terms. configuration identification, configuration control, configuration evaluation.

### Table of Contents

1	Scope and field of application
2	Normative references
3	Definitions and abbreviations
4	Application of standard
5	Management of SCM process
6	Software configuration identification
7	Software configuration control
8	Software configuration status accounting
9	Software configuration evaluation
10	Interface control
11	Acquired or subcontracted SCI
12	Release management and delivery

### Annexes

A	Referenced standards (Informative)
B	Mapping ISO/IEC 12220 to ISO/IEC 12207 and to ISO 10007

## **14143 Information Technology - Software measurement - Definition of functional size measurement**

Scope. Principles and concepts for functional size measurement of software.

Field of Application. Acquisition, development, use, support, and maintenance and audit of software.

Key terms. categorization scheme, view, category.

### Table of Contents

1	Scope and field of application
2	Normative references
3	Definitions
4	Symbols and abbreviations
5.	Characteristics and requirements
5.1	Characteristics
5.1.1	FSM method characteristics
5.1.2	Base functional component characteristics
5.1.3	Functional size characteristics
5.2	Requirements
5.2.1	FSM method requirements
5.2.2	Base functional component assessment requirements
5.2.3	Classification and designation requirements
6	Process for applying FSM method
7	Labelling Conventions
Annex A	Use of FSM

**14399 Information technology - Mapping of relevant software engineering standards - Standards relevant to ISO/IEC JTC1/SC7 - Software engineering**

Scope. Standards relevant to ISO/IEC JTC1/SC7 - Software engineering.

Field of Application. Software engineering and its associated standards.

Key terms. standard, de jure standard, software engineering.

Table of Contents

- 1 Purpose and scope
- 2 Source of information
- 3 Abbreviations
- 4 Software engineering standards
  - 4.1 Structure of standards lists
  - 4.2 Standards grouped by organization
  - 4.3 Standards grouped by subject
- 5 Organization names and addresses

**14568 Information technology - Software engineering data definition - Diagram exchange language for tree-structured charts**

Scope. Specifies the syntax and semantics of DXL, a language for exchanging tree-structured charts among CASE tools.

Field of Application. Development and maintenance and audit of software.

Key terms. tree-structured charts

Table of Contents

- 1 Scope and field of application
- 2 Normative references
- 3 Definition and acronym
- 4 Notation of DXL syntax
- 5 Requirements
  - 5.1 Lexical elements
  - 5.2 Module packet
  - 5.3 Profile paragraph
  - 5.4 Module identification paragraph
  - 5.5 Module algorithm paragraph

Annex

- A Example of DXL description
- B Correspondence between DXL syntax and program constructs of ISO/IEC 8631
- C Position of DXL



## **14598-1 Information technology - Software product evaluation - Part 1: General overview**

Scope: Provides overview to the 14598 series of standards, provides general requirements for the specification and evaluation of software quality, and defines the technical terms used in the other parts.

Field of Application: Acquisition, development, use, selection, support, maintenance, or audit of software.

Key terms: software product evaluation, evaluation method, measure.

### Table of Contents

1	Scope
2	Normative references
3	Conformance
4	Definitions
5	Overview of software product evaluation standards
6	Evaluation process
7	Establish evaluation requirements
8	Specification of evaluation
9	Design of the evaluation
10	Execution of the evaluation
11	Supporting processes
Annex	
A	Informative references and bibliography

## **14598-2 Information technology - Software product evaluation - Part 2: Planning and management**

Scope: Provides guidance for developing a plan for managing software product evaluation. It provides a description and the content of a measurement plan for software product evaluation.

Field of Application: Acquisition, development, use, selection, support, maintenance, or audit of software.

Key terms: software product evaluation, evaluation method, measure.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Managing product evaluation
4.1	Organizational needs
4.2	Project management needs
4.3	Planning needs - measurement plan
5	Guide for developing and using the measurement plan
5.1	General considerations
5.2	Measurement planning process
5.3	Detailed considerations

### Annex

A	Measurement plan content (Normative)
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### **14598-3 Information technology - Software product evaluation - Part 3: Process for developers**

Scope: Provides requirements and recommendations for the practical implementation of software product evaluation when the evaluation is conducted in parallel with the development and carried out by the developer.

Field of Application: Development, use, support, or maintenance of software.

Key terms: software product evaluation, evaluation method, measure.

#### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Evaluation concepts
4.1	General aspects
4.2	Software product measures
4.3	Software quality indicators
4.4	Properties of indicators
4.5	Evaluation process
4.6	Relations between evaluation and life-cycle
5	Conformance
6	Evaluation process requirements
6.1	General requirements
6.2	Analysis of evaluation requirements
6.3	Specification of evaluation
6.4	Design of the evaluation
6.5	Execution of the evaluation
6.6	Conclusion of the evaluation

## **14598-4 Information technology - Software product evaluation - Part 4: Process for acquirer**

Scope: Provides requirements, recommendations and guidelines for the measurement, assessment and evaluation of software product quality.

Field of Application: Acquisition or modification of software.

Key terms: software product evaluation, evaluation method, measure.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Software product evaluation - General considerations
4.1	General software evaluation process
4.2	Correlation between evaluation and acquisition processes
4.3	Inputs to evaluation
4.4	Tailoring
5	Conformance
6	Evaluation during acquisition of off-the-shelf software products
6.1	Step 1 - Establish evaluation requirements
6.2	Step 2 - Specification of the evaluation
6.3	Step 3 - Design of the evaluation
6.4	Step 4 - Execution of the evaluation
7	Evaluation during acquisition of custom software and modification to existing software

### Annexes

A	Bibliography
B	Evaluation methods
C	Example of staged evaluation process

## **14598-5 Information technology - Software product evaluation - Part 5: Process for evaluator**

Scope: Provides requirements and recommendations for the practical implementation of software product evaluation when several parties need to understand, accept and trust evaluation results.

Field of Application: Acquisition, development, use, selection, support, maintenance, or audit of software.

Key terms: software product evaluation, evaluation method, measure.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Evaluation concepts
4.1	General aspects
4.2	Evaluation starting point
4.3	Characteristics of the evaluation process
4.4	Evaluation process
4.5	Relationships between evaluation and life-cycle
5	Conformance
6	Evaluation process requirements
6.1	General requirements
6.2	Analysis of evaluation requirements
6.3	Specifying of the evaluation
6.4	Design of the evaluation
6.5	Execution of the evaluation
6.6	Conclusion of the evaluation

### Annex

A	Template evaluation report
B	Levels of evaluation
C	Software product components
D	Interaction between requester and evaluator
E	Evaluation contract
F	Bibliography

## **14598-6 Information technology - Software product evaluation - Part 6: Documentation of evaluation modules**

Scope: Provides defines the structure and content of the documentation to be used to describe and evaluation module. It explains how to develop evaluation modules and how to validate them.

Field of Application: Acquisition, development, use, selection, support, maintenance, or audit of software.

Key terms: software product evaluation, evaluation module.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	The evaluation module concept
5	Format for evaluation modules
6	Development of evaluation modules
6.1	Identify the evaluation module requirements
6.2	Specify the evaluation module
6.3	Develop the evaluation module
6.4	Describe the evaluation module
6.5	Verify and validate the evaluation module
7	Evaluation module library
Annex	
A	Example of an evaluation module (informative)

**14756 Information technology - Measurement and rating of performance of computer-based software systems**

Scope: Defines how user oriented performance of computer-based software systems may be measured and rated.

Field of Application: Development, evaluation, procurement and system integration.

Key terms: execution time, throughput.

Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Abbreviations and symbols
5	Conformance
6	The measurement
7	Basic data for rating
8	Calculation of the performance of the SUT
9	Rating the performance values
10	Input requirements
11	The measurement
12	Output from the measurement procedure
13	Validation of measurements
14	Calculation of the performance values of the SUT
15	Rating the measured performance values of the SUT

Annex

A	Specification of the RTE's basic functions
B	Additional calculation formulas
C	Format of the workload description
D	Format of the logfile
E.	Utility programs
F	Examples of workloads

## **15026 Information technology - Software integrity - System and software integrity levels**

Scope: Establishes requirements for the determination of system and software integrity levels for software products and systems that use software.

Field of Application: Development, operation, procurement, and qualification of software products or systems containing software.

Key terms: integrity level, risk dimension, threat, risk, integrity assurance authority, design authority.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Symbols and abbreviations
5	Software integrity level framework
5.1	How to use this standard
5.2	Overview
5.3	Life cycle context
6	System integrity level determination
6.1	Risk analysis
6.2	Risk evaluation
6.3	System integrity level determination
7	Software integrity level
7.1	Assumptions in software integrity level determination
7.2	Determination of software integrity level
7.3	Reducing the software integrity level of software whose failure can result in a threat
7.4	Reducing the software integrity level of software whose failure may result in lack of provisions of mitigating functions
8	Degree of confidence
Annex	
A	Example of software integrity level (informative)



## **15474-1 Information technology - Software engineering data definition and interchange - Part 1: Overview and framework: Overview**

Scope: Describes the architecture of the Software Engineering Data Definition and Interchange family of standards and provides an overview of the family of standards.

Field of Application: Description of a mechanism for transferring information among CASE tools.

Key terms: CASE tool, transfer format.

### Table of Contents

1	Scope
2	Introduction
3	SEDDI overview and architecture
3.1	Introduction
3.2	Fundamental goals
3.3	Architecture of SEDDI
3.4	SEDDI family of standards
4	SEDDI family of standards overview
4.1	Introduction
4.2	Current standards documents
4.3	Framework for modeling and extensibility
4.4	Integrated meta-model standards
4.5	Transfer format standards

Glossary

Index

## **15474-2 Information technology - Software engineering data definition and interchange - Part 2: Overview and Framework: Framework for modeling and extensibility**

Scope: Defines the SEDDI Meta-meta-model and the modeling concepts used throughout the SEDDI and the extensibility mechanism.

Field of Application: Description of a mechanism for transferring information among CASE tools.

Key terms: CASE tool, transfer format.

### Table of Contents

1	Scope
2	Introduction
3	Meta-meta-model concepts
3.1	Introduction
3.2	Modeling approach
3.3	SEDDI graphical notation
3.4	Subject areas
3.5	Data types
4	Meta-model extensibility
5	Exporter responsibilities
5.1	Introduction
5.2	Extensibility
5.3	Maximum output
5.4	Meta-attributes
6	Importer responsibilities
6.1	Introduction
6.2	Information retention
6.3	Working meta-model
6.4	Meta-attributes
7	Meta-meta-model overview
7.1	Introduction
7.2	Meta-meta-model overview format
7.3	Attributable meta object hierarchy
7.4	Meta-meta-model descriptions
7.5	Meta-meta-model diagram
7.6	Meta-meta-object summary format
7.7	Meta-meta-entity summary
7.8	Meta-meta-relationship summary
8	Meta-meta-model definitions
8.1	Introduction
8.1	Meta-meta-object definition format
8.2	Meta-meta-entity and meta-meta-attribute definitions
8.3	Meta-meta-relationships definitions

Glossary

References

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**15475-1 Information technology - Software engineering data definition and interchange -  
1: Transfer format: General rules for syntaxes and encoding**

Scope: Defines how SEDDI supports multiple exchange Syntaxes and Encodings, and describes how SEDDI meta-models are concretely represented during a transfer.

Field of Application: Description of a mechanism for transferring information among CASE tools.

Key terms: CASE tool, transfer format, syntax, encoding.

Table of Contents

1	Scope
2	Introduction
3	Concepts and definitions
3.1	Separation of syntax and encoding
3.2	Independence of architecture
3.3	Data types
3.4	Character sets
4	General structure of the SEDDI transfer
4.1	Introduction
4.2	The transfer envelope
4.3	The transfer contents
5	Transfer envelope formal grammar

Glossary

References

Index

**15475-2 Information technology - Software engineering data definition and interchange - Part 2: Transfer format: Syntax SYNTAX1**

Scope: Defines the SEDDI transfer format syntax, SYNTAX1.

Field of Application: Description of a mechanism for transferring information among CASE tools.

Key terms: CASE tool, transfer format, syntax.

Table of Contents

1	Scope
2	Introduction
3	Concepts and definitions
3.1	Syntax identifier
3.2	Token separation rules
4	Syntax sections and structures in the SEDDI transfer
4.1	Introduction
4.2	SEDDI transfer components
4.3	Header section
4.4	Meta-model section
4.5	Model section
4.6	Comments
4.7	Syntax terminal symbols
5	Syntax formal grammar

Glossary

Index

**15475-3 Information technology - Software engineering data definition and interchange - Part 3: Transfer format: Encoding ENCODING1**

Scope: Describes the SEDDI transfer format encoding, ENCODING1

Field of Application: Description of a mechanism for transferring information among CASE tools.

Key terms: CASE tool, transfer format, syntax, encoding.

Table of Contents

1	Scope
2	Introduction
3	Concepts and definitions
3.1	Encoding identifier
3.2	Clear text
3.3	Character sets
4	Encoding structures and keywords in the SEDDI transfer
4.1	Introduction
4.2	Encoding structures
5	Encoding formal grammar

Glossary

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## **15476-1 Information technology - Software engineering data definition and interchange - Part 1: Integrated meta-model: Foundation subject area**

Scope. Defines the foundation subject area of the integrated meta-model. This subject area contains meta-objects that are used as the basis of the other subject area standards, and also meta-relationships and meta-attributes that are applicable to all meta-objects.

Field of Application. Description of a mechanism for transferring information among CASE tools.

Key terms. CASE tool, transfer format, integrated meta-model

Table of Contents

- 1 Scope and field of application
- 2 References
- 3 Definitions
- 4 Notations and conventions
- 5 Structure of subject area definition
- 6 Subject area overview
- 7 Subject area detailed definitions
- 8 Notes and tables

Glossary

References

Index

## **15476-2 Information technology - Software engineering data definition and interchange - Part 2: Integrated meta-model: Common subject area**

Scope. Defines the common subject area of the integrated meta-model. This subject area contains meta-objects that are used as the basis of the other subject area standards, and also meta-relationships and meta-attributes that are applicable to all meta-objects.

Field of Application. Description of a mechanism for transferring information among CASE tools.

Key terms. CASE tool, transfer format, integrated meta-model

Table of Contents

- 1 Scope
- 2 Introduction
- 3 Structure of subject area definition
4. Subject area overview
5. Subject area detailed definitions
6. Referenced Meta object definitions

Glossary

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### **15476-3 Information technology - Software engineering data definition and interchange - Part 3: Integrated meta-model: Data definition subject area**

Scope. Defines the data definition subject area of the integrated meta-model. This subject area provides support for describing data objects and provides a data typing scheme. It allows for simple and complex structures, array and pointer qualification and domain specification.

Field of Application. Description of a mechanism for transferring information among CASE tools.

Key terms. CASE tool, transfer format, integrated meta-model, data definition

Table of Contents

- 1 Scope
- 2 Introduction
- 3 Structure of subject area definition
4. Subject area overview
5. Subject area detailed definitions
6. Referenced Meta object definitions

Glossary

References

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### **15476-4 Information technology - Software engineering data definition and interchange - Part 4: Integrated meta-model: Data modeling subject area**

Scope. Defines the data modeling subject area of the integrated meta-model. This subject area addresses the major forms of entity-relationship-attribute modeling and logical database design. The subject area technique is technique independent but offers broad coverage, striving for a superset of the concepts represented in the various techniques.

Field of Application. Description of a mechanism for transferring information among CASE tools.

Key terms. CASE tool, transfer format, integrated meta-model, data modeling

Table of Contents

- 1 Scope
- 2 Introduction
- 3 Structure of subject area definition
4. Subject area overview
5. Subject area detailed definitions
6. Referenced Meta object definitions

Glossary

References

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## **15476-5 Information technology - Software engineering data definition and interchange - Part 5: Integrated meta-model: Data flow subject area**

Scope. Defines the data flow subject area of the integrated meta-model. This subject area provides support for interchanging the semantic information found in existing data flow and some function modeling techniques. It covers the semantics associated with processes or functions, flows, stores, and external agents. This subject area does not cover the physical process modeling found in structured design techniques.

Field of Application. Description of a mechanism for transferring information among CASE tools.

Key terms. CASE tool, transfer format, integrated meta-model, data flow

### Table of Contents

- 1 Scope
- 2 Introduction
- 3 Structure of subject area definition
4. Subject area overview
5. Subject area detailed definitions
6. Referenced Meta object definitions

Glossary

References

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## **15504-1 Information technology - Software process assessment - Part 1: Concepts and introductory guide**

Scope: Provides overall information on the concepts of software process assessment and its use in process improvement and process capability determination.

Field of Application: Development, operation, maintenance, and procurement of software.

Key terms: process assessment, process capability determination, process capability, capability level, process improvement.

### Table of Contents

- 1 Scope
- 2 Normative references
- 3 Definitions
- 4 Overview
- 4.1 General
- 4.2 The assessment framework
- 4.3 Qualification of assessors
- 4.4 Process improvement context
- 4.5 Process capability determination context
- 5 Conformance
- 5.1 Performing software process assessments
- 5.2 Developing a compatible model

Annex References

## **15504-2 Information technology - Software process assessment - Part 2: A reference model for processes and process capability**

Scope: Defines , at a high level, the fundamental objectives that are essential to good software engineering.

Field of Application: Development, operation, maintenance, and procurement of software.

Key terms: process assessment, process capability determination, process capability, capability level, process improvement.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Structure of the reference model
5	The process dimension
5.1	Customer-Supplier process category
5.2	Engineering process category
5.3	Support process category
5.4	Management process category
5.5	Organisation process category
6	The capability dimension
6.1	Level 0: Incomplete process
6.2	Level 1: Performed process
6.3	Level 2: Managed process
6.4	Level 3: Established process
6.5	Level 4: Predictable process
6.6	Level 5: Optimizing process
6.7	Rating process attributes
6.8	Process capability level model
7	Compatibility with the reference model
Annex	
A	Style guide for defining processes
B	Summary list of processes and process attributes



### **15504-3 Information technology - Software process assessment - Part 3: Rating processes**

Scope: Defines the minimum set of requirements to ensure that the outputs of an assessment are objective, impartial, consistent, repeatable and representative of the processes assessed, and defines the circumstances under which assessment results are compatible.

Field of Application: Development, operation, maintenance, and procurement of software.

Key terms: process assessment, process capability determination, process capability, capability level, process improvement.

#### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Requirements
4.1	General
4.2	Defining the assessment input
4.3	Responsibilities
4.4	The assessment process
4.5	Recording the assessment output
4.6	Basis for comparison

## **15504-4 Information technology - Software process assessment - Part 4: Guide to performing assessment**

Scope: Provides guidance on meeting the requirements for performing an assessment in part 3.

Field of Application: Development, operation, maintenance, and procurement of software.

Key terms: process assessment, process capability determination, process capability, capability level, process improvement.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Overview of process assessment
4.1	Context of process assessment
4.2	Process rating scheme
4.3	Assessment approaches
4.4	The assessment process
4.5	Success factors for process assessment
5	Selection and use of a compatible model
5.1	Compatibility with the reference model
5.2	Criteria for selecting a model
5.3	Using a model in an assessment
6	Selection and use of a method
6.1	Compatibility with the requirements
6.2	Selecting methods
6.3	Using methods
6.4	Role of the qualified assessor
7	Selection and use of instruments and tools
7.1	The purpose of instruments and tools within an assessment
7.2	Implementation of indicators
7.3	Capturing and processing assessment data
7.4	Selecting instruments and tools
7.5	Using assessment instruments and tools
Annex	
A	Concepts
B	Selection and use of instruments and tools

## **15504-5 Information technology - Software process assessment - Part 5: An assessment model and indicator guidance**

Scope:

Field of Application: Development, operation, maintenance, and procurement of software.

Key terms: process assessment, process capability determination, process capability, capability level, process improvement.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	

## **15504-6 Information technology - Software process assessment - Part 6: Guide to qualification of assessors**

Scope: Defines the initial and ongoing qualification of assessors and provides guidance for the preparation and qualification of assessors to perform software process assessments.

Field of Application: Development, operation, maintenance, and procurement of software

Key terms: process assessment, process capability determination, process capability, capability level, process improvement.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	An overview of the assessor and qualification
4.1	The role of the assessor
4.2	Philosophy
4.3	The process of qualification and on-going qualification
5	Assessor competence
5.1	The software process
5.2	Assessment technology
5.3	Personal attributes
6	Validation of education, training and experience
6.1	Overview
6.2	Education
6.3	Training
6.4	Experience
6.5	Training in assessments using this technical Report
Annex	
A	Training record
B	Record of experience
C	Record of participation
D	Assessment log
E	Professional activities log
F	Mechanism for demonstrating competence
G	Mechanism for validating education, training and experience
H	Glossary
I	References

## **15504-7 Information technology - Software process assessment - Part 7: Guide for use in process improvement**

Scope: Provides guidance on using software process assessment as part of a framework and method for performing software process improvement in a continuous cycle.

Field of Application: Development, operation, maintenance, and procurement of software.

Key terms: process assessment, process capability determination, process capability, capability level, process improvement.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Overview of process improvement
4.1	Drivers
4.2	Process improvement basics
4.3	General principles
4.4	Process improvement context
5	Guidelines for process improvement
5.1	Examine the organization's needs and business goals
5.2	Initiate process improvement
5.3	Prepare for and conduct a process assessment
5.4	Analyze assessment output and derive action plan
5.5	Implement improvements
5.6	Confirm improvements
5.7	Sustain improvement gains
5.8	Monitor performance
6	Cultural issues
6.1	Management responsibility and leadership
6.2	Values, attitudes and behaviour
6.3	Process improvement goals and motivation
6.4	Communication and teamwork
6.5	Recognition
6.6	Education and training
7	Management
7.1	Organizing for process improvement
7.2	Planning for process improvement
7.3	Measuring process improvement
7.4	Reviewing process improvement activities
Annex	
A	The application of process measurement framework
B	The application of the improvement methodology
C	References
D	Mapping to ISO 9004-4

## **15504-8 Information technology - Software process assessment - Part 8: Guide for use in determining supplier process capability**

Scope: Describes how to utilize process assessment for the purpose of process capability determination.

Field of Application: Development, operation, maintenance, and procurement of software.

Key terms: process assessment, process capability determination, process capability, capability level, process improvement.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Introduction to process capability determination
4.1	Overview
4.2	Target capability
4.3	Process-oriented risk analysis
4.4	The process capability report
5	Conducting a process capability determination
5.1	Core process capability determination
5.2	Extended process capability determination

## **15504-9 Information technology - Software process assessment - Part 9: Vocabulary**

Scope: Defines the terms used throughout 15504.

Field of Application: Development, operation, maintenance, and procurement of software.

Key terms: process assessment, process capability determination, process capability, capability level, process improvement.

### Table of Contents

1	Scope
2	Normative references
3	Definitions
4	Classified definitions
4.1	General assessment concepts
4.2	Process architecture concepts
4.3	Process assessment terms
4.4	Process rating concepts
4.5	Assessors
4.6	Process improvement concepts
4.7	Process capability determination concepts