



Instruction booklet - i4Q dictionary

WP7 – Communication,
Dissemination and
Standardization



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ABBREVIATIONS/ACRONYMS

DSS	Decision Support System
UI	User Interface
ALBP	Assembly Line Balancing Problem
API	Application Program Interface
BCMP	Balancing with Choice of Machine Problem
BESP	Balancing with Equipment Selection Problem
BLOB	Binary Large Object
BMTMP	Balancing with special machine design: Moving Table Machine Problem
BRTMP	Balancing with special machine design: Rotary Table Machine Problem
CI	Continuous Integration
CNC	Central Network Controller
CNC	Computer Numerical Control
CRMS	Celular Reconfigurable Manufacturing Systems
CUC	Centralized User Configuration
DAS	Data Acquisition System
DFLP	Dynamic Facility layout problem
DNS	Domain Name System
DPPM	Defective Parts Per Million
DR	Data Repository
DT	Digital Twin
EEMD	Ensemble Empirical Mode Decomposition
FFT	Fast Fourier Transform
FMI	Functional Mock-up Interface
FMU	Functional Mock-up Unit
HA	High Availability
HA+Sec	High Availability with Transport Layer Security
HTTP	HyperText Transfer Protocol
i4Q	Industrial data services for Quality Control in Smart Manufacturing



i4QDR	Industrial data services for Quality Control in Smart Manufacturing – Data Repository
i4QDT	Industrial data services for Quality Control in Smart Manufacturing – Digital Twin
i4QLCP	Industrial data services for Quality Control in Smart Manufacturing – Manufacturing Line Data Certification Procedure
i4QPA	Industrial data services for Quality Control in Smart Manufacturing – Prescriptive Analysis Tool
ICS	Industrial Control System
IEEE	Institute of Electrical and Electronics Engineers
IoT	Internet of Things
IP	Internet Protocol
IRTS	Inbound Reconfigurable Transportation Systems
ISO	International Organization for Standardization
IT	Information Technologies
IWSN	Industrial Wireless Sensor Networks
KPI	Key Performance Indicators
LLDP	Link Layer Discovery Protocol
MAC	Media Access Control
MFLP	Multi-Facility Layout Problem
MQTT	Message Queue Telemetry Transport
NETCONF	Network Configuration Protocol
OPC-UA	Open Platform Communications United Architecture
OSI	Open System Interconnection
OT	Operational Technologies
PA	Prescriptive Analysis
PaaS	Platform as a Service
PCB	Printed Circuit Board
PLC	Programmable Logic Controller
QoS	Quality of Service
RMSE	Root-Mean-Square Error
RMS-MS	Reconfigurable Manufacturing Systems for Machine Selection



RMS-SP	Reconfigurable Manufacturing Systems for Scalability Planning
SDN	Software Defined Networking
SDN-WISE	SDN solution for Wireless Sensor Networks
SFLP	Static Facility Layout Problem
SPI	Serial Peripheral Interface
SS	Single Server
SS+Sec	Single Server with Transport Layer Security
SVM	Support Vector Machine
TLRP	Transfer Line Reconfiguration Problem
TLS	Transport Layer Security
TSCH	Time Slotted Channel Hopping
TSN	Time-Sensitive Networking
WSN	Wireless Sensor Networks
YANG	yet another next generation



Executive summary

I4Q will provide a complete solution to improve the quality of manufactured products aiming at ZERO-DEFECT manufacturing. I4Q aims to provide an IoT-based Reliable Industrial Data Services (RIDS), a complete suite consisting of 22 i4Q Solutions. To ensure a proper communication between the 22 i4Q solutions, the following i4Q dictionary was developed as part of the standardization task within the i4Q project. It explains the concepts of the different solutions. In addition, terms which are required to ensure a common understanding and sufficient application of each solution are defined. The publication of the dictionary as a tool for use and application of the i4Q solutions will ensure this also after the project lifetime, and therefore contributes to the dissemination of the project results.

These are the i4Q solutions:

- DGQ – Data Quality Guideline
- QE – QualiExplore for Data Quality Factor Knowledge
- BC - Blockchain Traceability of Data
- TN - Trusted Networks with Wireless & Wired Industrial Interfaces
- SG - Cybersecurity Guidelines
- SH - IIoT Security Handler
- DRG - Guidelines for building Data Repositories for Industry 4.0
- DR - Data Repository
- DIT - Data Integration and Transformation Services
- DA - Services for Data Analytics
- BDA - Big Data Analytics Suite
- AD - Analytics Dashboard
- AI - AI Models Distribution to the Edge
- EW - Edge Workloads Placement and Deployment
- IM - Infrastructure Monitoring
- DT - Digital Twin simulation services
- PQ - Data-driven Continuous Process Qualification
- QD - Rapid Quality Diagnosis
- PA - Prescriptive Analysis Tools
- LRG - Manufacturing Line Reconfiguration Guidelines
- LRT - Manufacturing Line Reconfiguration Toolkit
- LCP - Manufacturing Line Data Certification Procedure



1. Terms and definitions

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>
- DIN-TERMinologieportal: available at <https://www.din.de/de/service-fuer-anwender/din-term>

1.1 General

The following terms are listed under the section “general”, as they relate to either multiple solutions or the entire i4Q project. Multiple solutions are listed in brackets after the defined term.

1.1.1

algorithm

finite set of well-defined rules for the solution of a problem in a finite number of steps

[SOURCE: IEC 60050]

1.1.2

application programming interface

API

specification for software to use and interact with a system or platform

[SOURCE: DIN EN 62944:2018, 3.1.15]

1.1.3

authentication (i4QSG, i4QSH)

provision of assurance that a claimed characteristic of an identity is correct

[SOURCE: ISO/IEC 27000:2018, 3.5]

1.1.4

certificate (i4QSG, i4QSH)

electronic *document* (1.23.46) which uses a digital signature to bind a public key with an identity

[SOURCE: ISO 18541-1:2021, 3.8]

1.1.5

chatter

machining vibrations or chatter is the relative movement between the workpiece and the cutting tool



1.1.6

numeric control

NC

CNC

automatic control of a process by a device that makes use of numerical data

Note 1 to entry: In the CNC “computerized numerical control”, the numerical data can be changed with a computer

[SOURCE: ISO 19085-3:2021, 3.1]

1.1.7

conceptual architecture

the design, development, and operation of a framework based on abstracted ideas or concepts

1.1.8

continuous integration

CI

technique that continually merges artifacts, including source code updates from all developers on a team, into a shared mainline to build and test the developed system

[SOURCE: ISO/IEC/IEEE 32675:2022, 3.1.11]

1.1.9

data processing (i4QLCP, i4QDIT)

systematic *performance* (1.23.65) of operations upon *data* (1.23.27)

[SOURCE: ISO/IEC/IEEE 23751:2022, 3.8]

1.1.10

data type (i4QLCP, i4QDIT)

categorization of an abstract set of possible values, characteristics, and set of operations for an *attribute* (1.23.4)

[SOURCE: ISO 17573-3:2023, 3.5]

1.1.11

data value (i4QLCP, i4QDIT)

value of something that can be *measured* (1.23.59) or calculated

[SOURCE: DIN EN 16157-7:2019, 3.1]



1.1.12

data-driven model (i4QPA, i4QDT)

model developed through the use of *data* (1.23.27) derived from tests or from the output of investigated *process* (1.23.69)

[SOURCE: ISO 15746-1:2015, 2.4]

1.1.13

digital twin (i4QPA, i4QDT)

DT

digital replica of physical assets (physical twin), *processes* (1.23.69) and systems that can be used for various purposes or a fit-for-purpose digital representation of something outside its own context with data connections that enable convergence between the physical and virtual states at an appropriate rate of synchronization

Note 1 to entry: The definition is from the ISO TC184 Ad Hoc Group on the digital twin.

Note 2 to entry: The digital twin is used by the cyber supporting system for the machine tool (CSSM) as an interrogable cyber model of the machine tool for analysis and planning stages of the MAPE.

[SOURCE: ISO 23704-1:2022, 3.1.14]

1.1.14

docker

a set of *PaaS* (1.1.44) product that use *OS-level virtualization* (1.1.41) to deliver software in packages called containers

1.1.15

ethernet

communication system according to ISO/IEC/IEEE 8802-3 and IEEE 802.1D

[SOURCE: ISO/IEC/IEEE 8802-3:2021]

1.1.16

evaluation function

a function used to estimate the value or goodness of a position.

Note 1 to entry: The result is either a real number or a quantized integer

[SOURCE: [1]]

1.1.17 feature engineering (i4QIM, i4QDIT)

<machine learning > activity in which those *attributes* (1.23.4) in the raw data that best represent the underlying relationships that should appear in the model are identified for use in the training data

[SOURCE: ISO/IEC TR 29119-11:2020, 3.1.36]



1.1.18

functional mock-up unit (i4QDT, i4QPA)

FMU

component that implements the functional mock-up *interface* (1.1.24)

[SOURCE: ISO/TR 24463:2021, 3.1.4]

1.1.19

functional mock-up interface (i4QDT, i4QPA)

FMI

a standardized *interface* (1.1.24) used in computer simulations to develop complex cyber-physical systems

[SOURCE: ISO/TR 24463:2021, 3.1.3]

1.1.20

gitlab

it is an open-source code repository and collaborative software development platform

1.1.21

helm charts

a Helm Chart is a collection of files that describes a set of *Kubernetes* (1.1.31) resources

1.1.22

hypertext transfer protocol (i4QDT, i4QPA)

HTTP

client/server communication protocol used to transfer *information* (1.23.53) on the Web

[SOURCE: ISO/TR 14873:2013, 3.23]

1.1.23

institute of electrical and electronics engineers

IEEE

is a professional association for electronic engineering and electrical engineering (and associated disciplines) dedicated to promoting and disseminating scientific advances in the areas of electrical engineering, electronics, energy, computer science and related fields

1.1.24

interface

functional or physical unit as a defined interconnection between a device/system to another device/system or a person

EXAMPLE

This standard describes the following interfaces for BACS:

- a) communications interface (e.g. communication controller);
- b) data interface unit (DIU);



- c) human-system interface (HSI) and graphical user interface (GUI);
- d) physical I/O interface , e.g., interface module.

[SOURCE: ISO 16484-2:2004, 3.103]

1.1.25

information technologies

IT

development, maintenance, and use of technology to acquire, process, store and distribute digital *information* (1.23.53)

Note 1 to entry: This excludes the use of technology to acquire, *process* (1.23.69), store and distribute *information* (1.23.53) which is not digital, such as paper-based *information* (1.23.53). Examples which are excluded when not digitally captured are books, manuals, manuscripts, and whiteboards. For the purposes of this definition, 'digital' is equivalent to 'electronic'.

[SOURCE: ISO/IEC 19770-1:2017, 3.14]

1.1.26

international organization for standardization

ISO

international association that manages the process of setting global standards for communications and *information* (1.23.53) exchange

[SOURCE: DIN EN 4818:2012]

1.1.27

internet of things

IoT

network of physical objects (things) that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging *data* (1.23.27) with other devices and systems over the internet

[SOURCE: [2]]

1.1.28

internet protocol

IP

protocol for sending and receiving *information* (1.23.53) via the Internet

[SOURCE: ISO 16425:2013, 3.7]



1.1.29

internet protocol address

IP address

it is a numerical label that serves two main functions in computer networks that uses the IP (1.1.29) for communication: network *interface* (1.1.24) identification and location addressing

EXAMPLE 192.0.0.1.

[SOURCE: [3]]

1.1.30

key performance indicators

KPI

quantifiable *measure* (1.23.59) that an organization uses to gauge or compare *performance* (1.23.65) in terms of meeting its strategic and operational objectives

[SOURCE: ISO 22300:2021, 3.1.140]

1.1.31

kubernetes

an open-source container orchestration system for automating software deployment, scaling, and management

1.1.32

link layer discovery protocol

LLDP

a communication protocol used to discover neighbors at layer 2 of the *OSI model* (1.1.38)

1.1.33

manufacturing line

a set of sequential operations established in a factory where parts are processed and components are assembled to make a finished article or where materials are put through a refining *process* (1.23.69) to produce an end-product

1.1.34

media access control

MAC

the data link sublayer that is responsible for transferring *data* (1.23.27) to and from the Physical Layer

[SOURCE: ISO/IEC/IEEE 8802-3:2021, 1.4.321]



1.1.35

message queue telemetry transport

MQTT

standardized transport protocol with publish-subscribe paradigm

Note 1 to entry: In this document MQTT 3.1.1 applies to all definitions. See also <http://docs.oasis-open.org/mqtt/mqtt/v3.1.1/os/mqtt-v3.1.1-os.html>

[SOURCE: ISO 5231:2022, 3.17]

1.1.36

metric

Measures (1.23.59) of quantitative assessment commonly used for assessing, comparing, and tracking *performance* (1.23.65) or production (mean, mode or Root-Mean-Square Error (RMSE) for instance)

1.1.37

microservice

independently deployable artefact providing a service implementing a specific functional part of an application

[SOURCE : ISO/IEC TS 23167 :2020, 3.15]

1.1.38

open systems interconnection

OSI

industrial communication protocol based on server/client architecture

1.1.39

programmable logic controller

PLC

is an industrial computer that has been ruggedized and adapted for the control of manufacturing processes, such as assembly lines, machines, robotic devices, or any activity that requires high reliability, ease of programming, and process fault diagnosis

1.1.40

open platform communications united architecture

OPC-UA

industrial communication protocol based on server/client *architecture* (1.23.3)



1.1.41

operative-system-level virtualization

OS-level virtualization

is an OS paradigm in which the kernel allows the existence of multiple isolated user space instances

[SOURCE: [4]]

1.1.42

operational technologies

OT

devices, sensors, software and associated networking that monitor and control onboard systems

[SOURCE: ISO 24060:2021, 3.7]

1.1.43

physic-based model (i4QPA, i4QDT)

a model generated to represent the physical behaviour of a certain dynamic system or entity which can consist of one *FMU* (1.1.18) unit or the combination of several of them, and it allows the user to generate virtual data that simulates the real system

1.1.44

platform as a service

PaaS

is a cloud computing model where a third-party provider delivers hardware and software tools to users over the internet for application development, so that developers are freed from the complexity of building and maintaining the infrastructure typically associated with developing and launching the application

[SOURCE: [5]]

1.1.45

printed circuit board

PCB

1. configuration of connections between electronic components, typically using metallic paths etched on a non-conducting substrate (board)

[SOURCE: ISO/IEC/IEEE 24765:2017, 3.3014]

1.1.46

predictive model

a statistical model that predicts the outcomes of a target or dependent variable from independent factors

EXAMPLE Predict the status of a product under control (target variable) from the values of some test *measurements* (1.23.60) (independent variables).



1.1.47

quality of service

QoS

term used in different communication technologies to qualify the data flows and networks related to the final service

1.1.48

serial peripheral interface

SPI

1. synchronous (full duplex) serial communication interface used for two devices in embedded systems

[SOURCE: ISO/IEC/IEEE 24765:2017, 3.3704]

1.1.49

sonarQube

an open-source platform for continuous inspection of code quality to perform automatic reviews with static analysis of code to detect bugs and code smells

1.1.50

support vector machine

SVM

machine learning *algorithm* (1.1.1) that finds decision boundaries with maximal margins

Note 1 to entry: Support vectors are sets of data points that define the positioning of the decision boundaries (hyper-planes).

[SOURCE: ISO/IEC 22989:2022, 3.3.13]

1.1.51

toolkit (i4QLRG, i4QLRT, i4QDR)

a set of specific technologies or tools that make up a solution to a problem and that can be deployed together in a given *scenario* (1.9.6)

1.1.52

transport layer security

TLS

protocol for secure communication over the internet

[SOURCE: ISO 5231:2022, 3.21]



1.1.53

wireless sensor networks

WSN

refer to networks of spatially dispersed and dedicated sensors that monitor and record the physical conditions of the environment and forward the collected *data* (1.23.27) to a central location

[SOURCE: [6]]

1.1.55

zero defect manufacturing

holistic approach for ensuring both *process* (1.23.69) and product quality by reducing defects

[SOURCE: CWA 17918:2022, 3.1]

1.2 DQG - Data Quality Guidelines

document that contains guidelines around data quality management in production

1.3 QE - QualiExplore for Data Quality Factor Knowledge

software tool to organize and visualize factors that influence *data quality* (1.23.36)

1.4 BC - Blockchain Traceability of Data

provide blockchain capabilities over a standard key-value DB

1.5 TN - Trusted Networks with Wireless & Wired Industrial Interfaces

Set of reliable and secure communication technologies to digitalize and interconnect different subsystems and data sources for different use cases, over wired and wireless interfaces, with certain guarantees of quality of service such as time restrictive data exchange or resilience

1.5.1

central network controller

CNC

in *TSN* (1.5.9) infrastructures, it is a functional *element* (1.23.51) which provides the configuration to TSN-enabled devices in response to data flow request received from the *CUC* (1.5.2)

1.5.2

centralized user configuration

CUC

in *TSN* (1.5.9) infrastructures, it is an *element* (1.23.51) which receives flow request from TSN-enabled endpoints and pass the configuration data to the *CNC* (1.5.1)



1.5.3

domain name system

DNS

IP (1.1.29) to identify computers by *domain* (1.23.48) names instead of *IP address* (1.1.29)

1.5.4

industrial wireless sensor network

IWSN

type of wireless network characterised by low power consumption, low data rates, resilience and high reliability

1.5.5

network configuration protocol

NETCONF

network management protocol used to install, configure and remove the network configuration of connected devices

1.5.6

software defined networking

SDN

technology to dynamic network management to improve network *performance* (1.23.65), monitoring the network quality and deterministic data flows allocation

1.5.7

software defined networking solution for wireless sensor networks

SDN-WISE

SDN (1.5.6) implementation focused on WSN (1.1.53)

1.5.8

time slotted channel hopping

TSCH

a *MAC* (1.1.34) method for *WSN* (1.1.53) suitable for industrial *scenarios* (1.9.6)

1.5.9

time-sensitive networking

TSN

set of IEEE 802 *Ethernet* (1.1.15) sub-standards that enable deterministic real-time communication over *Ethernet* (1.1.15)

1.5.10

yet another next generation

YANG

data modelling language for network management protocols



1.6 SG - Cybersecurity Guidelines

provides some recommendations to securize the *manufacturing line* (1.1.33)

1.7 SH - IIoT Security Handler

provide trustability to the Industrial Control System (ICS)

1.7.1

attack surface

set of attack points that an attacker can use in order to enter or capture data in an information system

[SOURCE: ISO/TS 12812-2:2017, 3.4]

1.7.2

attack vector

path or means by which an attacker can gain access to a computer or network server in order to deliver a malicious outcome

EXAMPLE 1 IoT (1.1.27) devices.

EXAMPLE 2 Smart phones.

[SOURCE: ISO/IEC 27032:2023, 3.1]

1.7.3

defence-in-depth

hierarchical deployment of different levels of diverse equipment and procedures (known as barriers) to prevent the escalation of faults to a hazardous condition

[SOURCE: ISO 1709:2018, 3.12]

1.8 DRG - Guidelines for building Data Repositories for Industry 4.0

It is an i4Q solution presented in the form of a guide describing the main challenges and requirements arising when developing data repositories in the context of Industry 4.0, and some recommendations to address them, using the i4QDR as an illustrative example.

1.9 DR - Data Repository

solution consisting of a set of tools and utilities to store and manage the data produced and used by other i4Q solutions and components



1.9.1

binary large object

BLOB

large block of binary data, typically an image or video file, that may have to be handled in a special way

[SOURCE: ISO/IEC 19794-6:2005, 4.1]

1.9.2

high availability scenario

HA scenario

it is an *i4QDR* (1.9) *scenario* (1.9.6) in which several instances of a tool that works in a cooperative mode in deployed

EXAMPLE A cluster of replicas of a database server.

Note 1 to entry: These instances do not offer any security mechanism beyond those that are offered by default and are, thus, only recommended for development purposes.

[SOURCE: [7]]

1.9.3

high availability with transport layer security

HA+Sec

it is a *HA* (1.9.2) with a security configuration based on the use of *TLS* (1.1.52) with x509 certificates that offers a secure, fault-tolerant and highly available service

[SOURCE: [7]]

1.9.4

relational database

database in which the data are organized according to a *relational model* (1.9.5)

[SOURCE: ISO/IEC 20944-1:2013, 3.14.4.5]

1.9.5

relational model

data model (1.23.35) whose structure is based on a set of relations

EXAMPLE SQL represents such a model

[SOURCE: ISO/IEC 20944-1:2013, 3.14.4.4]



1.9.6

scenario

specific configuration to deploy a given data storage technology in the *i4QDR* (1.9)

Note 1 to entry: Currently, four scenarios are considered within *i4Q*: single server (*SS*), single server with *TLS* (1.1.52) (*SS+Sec* (1.9.8)), high availability (*HA* (1.9.2)), and high availability with *TLS* (1.1.52) (*HA+Sec* (1.9.3)).

[SOURCE: [7]]

1.9.7

single server scenario

SS scenario

it is an *i4QDR* (1.9) *scenario* (1.9.6) in which one instance of the tool is deployed with a basic configuration

Note 1 to entry: This scenario is only recommended for development environments.

[SOURCE: [7]]

1.9.8

single server with transport layer security

SS+Sec

it is a *SS* (1.9.7) with a security configuration based on the use of *TLS* (1.1.52) with x509 certificates

Note 1 to entry: This scenario is suitable for production settings in which a single instance of the tool suffices to provide a secure and stable service.

[SOURCE: [7]]

1.10 DIT - Data Integration and Transformation Services

distributed server-based platform with analytic and decision-making services, able to prepare manufacturing data for being efficiently processed by microservice applications including all the elements required for manufacturing data stream management: reading, cleaning, storing, indexing, enriching, searching & retrieving, maintaining, and correspondence of open *APIs* (1.1.2).

1.10.1

data harmonization

technical *process* (1.23.69) of bringing together different data types to make them processable in the same computational framework

[SOURCE: ISO/TS 9491-1:2023, 3.7)



1.10.2

data transformation

it is the *process* (1.23.69) of converting, cleansing, and structuring data into a usable format that can be analyzed to support decision making processes

[SOURCE: [8]]

1.10.3

digital signal transformation

it refers to the transformations that can be applied to the original signals to convert them into other signals

1.10.4

fast fourier transform

FFT

it is a complex vector containing *information* (1.23.53) about the frequency content of the signal, in which the magnitude tells you the strength of the frequency components relative to other components, and the phase, how all the frequency components align in time

1.10.5

feature extraction

it refers to the *process* (1.23.69) of transforming raw data into numerical features that can be processed while preserving the *information* (1.23.53) in the original *data set* (1.23.40)

1.10.6

outlier

an observed value which appears to be inconsistent with the remainder of the set of data

[SOURCE: ISO 4259-1:2017, 3.15]

1.10.7

resampling

in statistics, it is the creation of new samples based on one observed sample

1.10.8

signal filtering

it is an *element* (1.23.51) which attenuates a signal the more it passes a pass band/frequency

1.11 DA - Services for Data Analytics

Software that provides Data Analytics services supported by the integration of several state-of-the-art tools, methods, and libraries, ranging from Big Data Processing and Analytics to Machine Learning, Data Mining and Deep Learning



1.12 BDA - Big Data Analytics Suite

Software that delivers on-demand deployment bundles that are easily configurable, deployable, and executed

1.13 AD - Analytics Dashboard

Software that provides visual analytics tools and methods to the i4Q project

1.14 AI - AI Models Distribution to the Edge

connecting point between data scientist in the cloud and AI deployment at the edge

1.15 EW - Edge Workloads Placement and Deployment

deploy AI workloads to the edge where they can collaborate with the deployed models

1.16 IM - Infrastructure Monitoring

act of gathering and evaluating data from IT infrastructure, systems, and *processes* (1.23.69) in order to enhance business results and deliver value throughout the organization

1.17 DT - Digital Twin simulation services

solution that allows the user to carry out simulations of both physics-based and *data-driven models* (1.1.12), giving a complete set of customisation tools comprised in a user-friendly *interface* (1.1.24)

1.17.1

co-simulation

two or more simulation functions interacting to simulate different aspects of a digitally integrated product

[SOURCE: ISO/TR 24463:2021, 3.1.5]

1.18 PQ - Data-driven Continuous Process Qualification

Software that provides a tool for achieving and ensuring process stability and product quality

1.18.1

defective parts per million

DPPM

number of defective products per million

1.18.2

process capability

characterization of the ability of a *process* (1.23.69) to meet current or projected business goals

[SOURCE: ISO/IEC 33020:2019, 3.4]



1.18.3

process distribution

probability distribution characterizing reasonable belief in values of a characteristic resulting from a manufacturing process

[SOURCE: ISO/TR 14253-6:2012, 3.10]

1.18.4

map of scenarios

a list of *model scenarios* (1.20.1)

1.18.5

process qualification

a *process* (1.23.69) is qualified if it maintains the manufactured products' quality within 6 standard deviations over time

1.19 QD - Rapid Quality Diagnosis

It is a microservice aiming to provide an efficient rapid diagnosis on possible causes of failures, on manufactured products quality, and on manufacturing process conditions.

1.19.1

data acquisition system

DAS

measuring system, which converts physical quantities to digital format

Note 1 to entry: The system typically includes sensors, signal conditioning, an analogue-to-digital converter and recording unit.

[SOURCE: ISO 22476-9:2020, 3.1.4]

1.19.2

decision support system

DSS

an information system that aids in commercial or organizational decision-making, benefiting an organization's management, operations, and planning levels by assisting individuals in making choices regarding situations that may be fast changing and difficult to specify in advance

[SOURCE: [9]]

1.20 PA - Prescriptive Analysis Tools

simulation, optimization and *prescription* (1.20.2) tool that uses both physics-based and data-driven approaches through a user-friendly *interface* (1.1.24)



1.20.1

model scenario

a specified set of parameter values and input signals of a model

1.20.2

prescription

action that finds the best mode, route or manner to operate a system based on given data and models

[SOURCE: [10]]

1.21 LRG - Manufacturing Line Reconfiguration Guidelines

Guideline from i4Q Manufacturing Line Reconfiguration Toolkit (*LRT* (1.22))

1.21.1

assembly line balancing problem

ALBP

it deals with the distribution of the total workload for manufacturing any unit of the product to be assembled among the workstations along the line

EXAMPLE The ALBP assigns each task to a station such that the precedence constraints and further restrictions are fulfilled. Which is to say, the ALBP looks for feasible line balances.

Note 1 to entry: It can be among data regarding one entity and/or across similar data for comparable entities.

1.21.2

balancing with choice of machine problem

BCMP

an optimization problem consisting of determining the division of operations into workstations and the type and number of parallel machines installed at each station, as well as the positioning of the workpiece at each station while respecting the given constraints and reducing the total cost of the line

Note 1 to entry: This problem has been formulated for parallel machining lines.

1.21.3

balancing with equipment selection problem

BESP

an optimization problem consisting of determining the number of stations and selecting a subset of devices from a given set to assign them to the stations with the aim of optimizing the production line by minimizing the manufacturing costs through the equipment optimal selection

Note 1 to entry: Each device is defined by the set of operations it can perform and their cost. In the general case, several devices can perform the same operation, but only one will be selected at the configuration.



1.21.4

balancing with special machine design: moving table machine problem

BMTMP

a sliding table machine optimization problem in which the objective is to reduce machine cost or cycle time

Note 1 to the entry: The configuration with a single active workstation makes machining the part slower

1.21.5

balancing with special machine design: rotary table machine problem

BRTMP

a rotary table machine configuration problem in which the objective is to reduce the total cost of the machine by determining the number of workstations and multi-spindles to be installed at each workstation to perform all machining operations respecting the given technological requirements and technical constraints

1.21.6

cellular reconfigurable manufacturing systems for machine selection

CRMS-MS

a problem which involves the design and loading of cellular reconfigurable manufacturing systems in the presence of alternative routing and multiple time periods

Note 1 to entry: These systems consist of multiple reconfigurable machining cells, each of which has reconfigurable machine tools and CNC machines.

1.21.7

dynamic facility layout problem

DFLP

a problem which consists of determining a layout for each period in the planning horizon, minimizing the sum of material handling costs, for all periods, and the sum of reorganization costs between time periods

1.21.8

inbound reconfigurable transportation systems

IRTS

a system that focuses on inbound transport systems, as one of the main areas of application of reconfigurability concepts, where multiple independent modules have to be designed for the implementation of alternative configurations of inbound logistics systems

1.21.9

multi-facility layout problem

MFLP

a problem which consists of determining the location of departments within a group of facilities, and the location of departments inside each facility itself



1.21.10

reconfigurable manufacturing systems for machine selection

RMS-MS

a problem which consists of determining the set of machines from an available machine's list to be implemented in the production process and then, defining the layout of the selected machines

1.21.11

reconfigurable manufacturing systems for scalability planning

RMS-SP

a problem which consists of minimizing the number of machines needed to meet a new market demand

1.21.12

sphinx

a *documentation* (1.23.47) generator written and used by the Python community

1.21.13

static facility layout problem

SFLP

a problem consisting of minimizing the quantity/cost of the material flow from the delivery point of the facility to the collection point of the facility by determining the placement of the facilities in the plant area

1.21.14

transfer line reconfiguration problem

TLRP

an optimization problem consisting of adapting the configuration of the *manufacturing line* (1.1.33) to meet production demands, with the aim of minimizing the investment cost required to upgrade an existing transfer line

Note 1 to entry: Such decisions must be made considering technological and compatibility constraints between operations and equipment.

1.22 LRT - Manufacturing Line Reconfiguration Toolkit

Collection of optimisation *microservices* (1.1.37) that use simulation to evaluate different possible *scenarios* (1.9.6) and propose changes in the configuration parameters of the *manufacturing line* (1.1.33) to achieve improved quality targets

1.23 LCP - Manufacturing Line Data Certification Procedure

audit (1.23.5) guideline to evaluate *data quality* (1.23.36) in manufacturing processes



1.23.1

accessibility

extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use

Note 1 to entry: Context of use includes direct use or use supported by assistive technologies.

Note 2 to entry: Adapted from ISO /TR 22411:2008, definition 3.6.

[SOURCE: ISO 26800:2011, 2.1]

1.23.2

accuracy

the definition can be found in ISO/IEC 25012:2008, 5.3.1.1

1.23.3

architecture

fundamental concepts or *properties* (1.23.71) of an entity in its environment and governing principles for the realization and evolution of this entity and its related life cycle processes

[SOURCE: ISO/IEC/IEEE 42010:2022, 3.2]

1.23.4

attribute

inherent property or characteristic of a *target entity* (1.23.75) that can be distinguished quantitatively or qualitatively by human or automated means

[SOURCE: ISO/IEC 25024:2015, 4.2]

1.23.5

audit

systematic, independent, and *documented* (1.23.46) *process* (1.23.69) for obtaining *objective evidence* (1.23.63) and evaluating it objectively to determine the extent to which the *audit criteria* (1.23.8) are fulfilled

Note 1 to entry: Internal audits, sometimes called first party audits, are conducted by, or on behalf of, the organization itself.

Note 2 to entry: External audits include those generally called second and third party audits. Second party audits are conducted by parties having an interest in the organization, such as customers, or by other individuals on their behalf. Third party audits are conducted by independent auditing organizations, such as those providing *certification* (1.23.18)/registration of *conformity* (1.23.23) or governmental agencies.

[SOURCE: ISO 19011:2018, 3.1]



1.23.6

audit client

organization or person requesting an *audit* (1.23.5)

Note 1 to entry: In the case of internal *audit* (1.23.5), the audit client can also be the *auditee* (1.23.15) or the individual(s) managing the *audit programme* (1.23.12). Requests for external *audit* (1.23.5) can come from sources such as regulators, contracting parties or potential or existing clients.

[SOURCE: ISO 19011:2018, 3.12]

1.23.7

audit conclusion

outcome of an *audit* (1.23.5), after consideration of the audit objectives and all *audit findings* (1.23.10)

[SOURCE: ISO 19011:2018, 3.11]

1.23.8

audit criteria

set of requirements used as a reference against which *objective evidence* (1.23.9) is compared

Note 1 to entry: If the audit criteria are legal (including statutory or regulatory) requirements, the words “*compliance*” (1.23.21) or “*non-compliance*” are often used in an *audit finding* (1.23.10).

Note 2 to entry: Requirements may include policies, procedures, work instructions, legal requirements, contractual obligations, etc.

[SOURCE: ISO 19011:2018, 3.7]

1.23.9

audit evidence

records, statements of fact or other *information* (1.23.53), which are relevant to the *audit criteria* (1.23.8) and verifiable

[SOURCE: ISO 9000:2015, 3.13.8]

1.23.10

audit findings

results of the evaluation of the collected *audit evidence* (1.23.9) against *audit criteria* (1.23.8)

Note 1 to entry: Audit findings indicate *conformity* (1.23.23) or *nonconformity* (1.23.62).

Note 2 to entry: Audit findings can lead to the identification of *risks* (1.23.74), opportunities for improvement or recording good practices.

Note 3 to entry: In English if the *audit criteria* (1.23.8) are selected from statutory requirements or regulatory requirements, the audit finding is termed *compliance* (1.23.21) or non-compliance.

[SOURCE: ISO 19011:2018, 3.10]



1.23.11

audit plan

description (1.23.45) of the activities and arrangements for an *audit* (1.23.5)

[SOURCE: ISO 19011:2018, 3.6]

1.23.12

audit programme

arrangements for a set of one or more *audits* (1.23.5) planned for a specific time frame and directed towards a specific purpose

[SOURCE: ISO 19011:2018, 3.4]

1.23.13

audit scope

extent and boundaries of an *audit* (1.23.5)

Note 1 to entry: The audit scope generally includes a *description* (1.23.45) of the physical locations, organizational units, activities and *processes* (1.23.69)

[SOURCE: ISO 9000:2015, 3.13.5]

1.23.14

audit team

one or more persons conducting an *audit* (1.23.5), supported if needed by *technical experts* (1.23.76)

Note 1 to entry: One *auditor* (1.23.16) of the audit team is appointed as the audit team leader.

Note 2 to entry: The audit team can include auditors-in-training.

[SOURCE: ISO 9000:2015, 3.13.14]

1.23.15

auditee

organization as a whole or parts thereof being *audited* (1.23.5)

[SOURCE: ISO 19011:2018, 3.13]

1.23.16

auditor

person who conducts an *audit* (1.23.5)

[SOURCE: ISO 19011:2018, 3.15]



1.23.17

availability

the property of being accessible and useable upon demand by an authorized entity

[SOURCE: ISO 7498-2:1989, 3.3.11]

1.23.18

certification

third-party attestation related to an object of *conformity* (1.23.23) assessment, with the exception of accreditation

[SOURCE: ISO/IEC 17000:2020, 7.6]

1.23.19

competence

ability to apply knowledge and skills to achieve intended results

[SOURCE: ISO 19011:2018, 3.22]

1.23.20

completeness

the definition can be found in ISO/IEC 25012:2008, 5.3.1.2

1.23.21

compliance

conformance to rules, such as those defined by a law, a regulation, a standard, or a policy

[SOURCE: ISO/IEC 20924:2021, 3.1.10]

1.23.22

confidentiality

the property that *information* (1.23.53) is not made available or disclosed to unauthorized individuals, entities, or *processes* (1.23.69)

[SOURCE: ISO 7498-2:1989, 3.3.16]

1.23.23

conformity

fulfilment of a requirement

[SOURCE: ISO 19011:2018, 3.20]

1.23.24

consistency

the definition can be found in ISO/IEC 25012:2008, 5.3.1.3



1.23.25

contextual schema

formal *description* (1.23.45) of the boundary of the context of use where *data models* (1.23.35) are applied

Note 1 to entry: It is a high-level *description* (1.23.45) of the business' informational needs. It is more general than a conceptual model as it includes a holistic vision of a (system) context of the *architecture* (1.23.3)

[SOURCE: ISO/IEC 25024:2015, 4.4]

1.23.26

credibility

the definition can be found in ISO/IEC/IEEE 25012:2008, 5.3.1.4

1.23.27

data

reinterpretable representation of *information* (1.23.53) in a formalized manner suitable for communication, interpretation, or processing

[SOURCE: ISO 8000-2:2022, 3.2.2]

1.23.28

data accuracy

quality of *data* (1.23.27) in respect of the represented value agreeing with the corresponding *true value* (1.23.78) to a degree necessary for an intended purpose

EXAMPLE 1 When creating a data specification to address data accuracy considerations, an organization decides to include in the specification a requirement for a length value to have three decimal places.

EXAMPLE 2 An inherent characteristic of some *data* (1.23.27) is the use of three decimal places to represent a length value.

Note 1 to entry: For data accuracy, the relevant inherent characteristics of the *data* (1.23.27) are those that determine how to interpret the value.

Note 2 to entry: No universal specification for data accuracy exists. Data accuracy depends on the details of the data representation, the subject matter of the *data* (1.23.27) and the purpose to which the user intends to put the *data* (1.23.27).

Note 3 to entry: In practice, when assessing data accuracy, an organization can make use of an accepted reference value rather than the *true value* (1.23.78).

Note 4 to entry: Not all aspects of data accuracy can be verified by just assessing, as a closed system, the *consistency* (1.23.24) of the *data* (1.23.27) and the applicable data specification. If the *data* (1.23.27), for example, represents the length of a particular screw in a warehouse then the screw is in the real world, requiring an appropriate test to look beyond the content of the *data set* (1.23.40) and the data specification. Such testing is addressed by ISO 8000-8.



Note 5 to entry: ISO 8000-130 specifies the mechanisms by which an organization can state the accuracy of *data* (1.23.27) (including identification of the method that has assessed the *data* (1.23.27)) or assert the accuracy of *data* (1.23.27) (including identification of the remediation that the organization will perform if the *data* (1.23.27) in fact fails to meet the asserted level of accuracy).

[SOURCE: ISO 8000-2:2022, 3.8.10]

1.23.29

data attribute

smallest parcel of information, within an identified data group, carrying a meaning from the perspective of the software's Functional User Requirements

[SOURCE: ISO/IEC 19761:2011, 2.4]

1.23.30

data compliance

the definition can be found in ISO/IEC/IEEE 25012:2008, 5.3.2.2

1.23.31

data dictionary

collection of *information* (1.23.53) about *data* (1.23.27) such as name, *description* (1.23.45), creator, owner, provenance, translation in different languages, and usage

[SOURCE: ISO/IEC 25024:2015, 4.6]

1.23.32

data file

a set of related *data records* (1.23.38) treated as a unit

Note 1 to entry: In this International Standard, *data set* (1.23.40) is a synonym of data file.

[SOURCE: ISO/IEC 25024 :2015, 4.7]

1.23.33

data format

arrangement of *data* (1.23.27) for storage or display

Note 1 to entry: Format can be referred to data type and length of *data item* (1.23.34).

[SOURCE: ISO/IEC 25024:2015, 4.7]

1.23.34

data item

the definition can be found in ISO/IEC/IEEE 25021:2012, Annex A



1.23.35

data models

graphical and textual representation of analysis that identifies the *data* (1.23.27) needed by an organization to achieve its mission, functions, goals, objectives, and strategies and to manage and rate the organization

Note 1 to entry: It is usual to distinguish conceptual model (a model of the concepts relevant to some endeavor), logical, and physical when they represent *data* (1.23.27) at different level of abstraction from high to low.

Note 2 to entry: The formal *description* (1.23.45) of the boundary of the context of use where data models are applied is called *contextual schema* (1.23.25).

Note 3 to entry: A data model identifies the entities, domains (*attributes*) (1.23.4), and relationships (associations) with other data and provides the conceptual view of the *data* (1.23.27) and the relationships among *data* (1.23.27).

[SOURCE: ISO/IEC 25024:2015, 4.10]

1.23.36

data quality

degree to which the characteristics of *data* (1.23.27) satisfy stated and implied needs when used under specified conditions

[SOURCE: ISO/IEC 25000:2014, 4.5]

1.23.37

data quality characteristics

category of *data quality* (1.23.36) *attributes* (1.23.4) that bears on *data quality* (1.23.36)

[SOURCE: ISO/IEC 25012:2008, 4.4]

1.23.38

data record

one or more *data items* (1.23.34) treated as a unit within a *data set* (1.23.40)

[SOURCE: ISO 18739:2016, 3.1.13]

1.23.39

data recoverability

the definition can be found in ISO/IEC 25012:2008, 5.3.3.3



1.23.40

data set

logically meaningful grouping of *data* (1.23.27)

EXAMPLE 1 Computer-aided design (CAD) files.

EXAMPLE 2 Electronic data interchange (EDI) transactions.

[SOURCE: ISO 8000-2:2022, 3.2.4]

1.23.41

data store

organized and persistent collection of *data* (1.23.27) and *information* (1.23.53) that allows for its retrieval

[SOURCE: ISO/IEC/IEEE 15939:2017, 3.6]

1.23.42

data understandability

the definition can be found in ISO/IEC 25012:2008, 5.3.2.7

1.23.43

database management system

organized collection of structured *data* (1.23.27)

Note 1 to entry: In order to use database management systems (DBMS), it is necessary to represent *data* (1.23.27) and the relative operations on it in terms of a *data model* (1.23.35), a data definition and manipulation language.

[SOURCE: ISO/IEC 25024:2015, 4.18]

1.23.44

defined process

implemented *process* (1.23.69) that is managed and tailored from the organization's set of standard processes according to the organization's tailoring guidelines

Note 1 to entry: A defined process has a process *description* (1.23.45) that is documented and maintained and contributes work products, measures, and other process improvement *information* (1.23.53) to the organization's process assets. A project's defined process provides a basis for planning, performing, and improving the project's tasks and activities of the project.

[SOURCE: ISO/IEC 33001:2015, 3.1.2]

1.23.45

description

information item (1.23.54) that represents a planned or actual concept, function, design, or object

[SOURCE: ISO/IEC/IEEE 15289:2019, 3.1.9]



1.23.46

document

A structured amount of *information* (1.23.53) intended for human perception, that may be interchanged as a unit between users and/or systems

[SOURCE: ISO/IEC 8613-1:1994, 3.58]

1.23.47

documentation

collection of *documents* (1.23.46) describing operations, instructions, decisions, procedures and business rules related to a given function, *process* (1.23.69) or transaction

[SOURCE: ISO/TR 26122:2008, 3.1]

1.23.48

domain

distinct scope, within which common and variable characteristics are exhibited, common rules and binding mechanisms are observed, and over which a distribution transparency is preserved

[SOURCE: ISO/IEC 26560:2019]

1.23.49

effectiveness

extent to which planned activities are realized and planned results achieved

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

[SOURCE: ISO 22300:2021, 3.1.86]

1.23.50

efficiency

measure (1.23.59) of the utilization of resources to realize a given objective

Note 1 to entry: An activity is efficient if it minimizes the use of resources or produces better *performance* (1.23.65) with the same resources.

[SOURCE: ISO 11620:2023, 3.23]

1.23.51

element

smaller part of an *architecture* (1.23.3)

Note 1 to entry: In this International Standard, the term is used with reference to the *architecture* (1.23.3) of *data* (1.23.27) and to the computer program *domain* (1.23.48) such as *data model* (1.23.35) or *data dictionary* (1.23.31).

[SOURCE: ISO/IEC 25024:2015, 4.19]



1.23.52

form

module or formulary to collect *data* (1.23.27)

Note 1 to entry: It can be paper-based (paper form) or digital.

[SOURCE: ISO/IEC 25024:2015, 4.20]

1.23.53

information

in information processing, knowledge concerning objects, such as facts, events, things, *processes* (1.23.69), or ideas, including concepts, that within a certain context have a particular meaning

Note 1 to entry: Information will necessarily have a representation *form* (1.23.52) to make it communicable. It is the interpretation of this representation (the meaning) that is relevant in the first place.

[SOURCE: ISO/IEC 25024:2015, 4.21]

1.23.54

information item

information product

separately identifiable body of *information* (1.23.53) that is produced, stored, and delivered for human use

Note 1 to entry: A *document* (1.23.46) produced to meet *information* (1.23.53) requirements can be an information item, part of an information item, or a combination of several information items.

Note 2 to entry: An information item can be produced in several versions during a project or system life cycle.

[SOURCE: ISO/IEC/IEEE 15289:2019, 3.1.12]

1.23.55

information item content

information (1.23.53) included in an *information item* (1.23.54), associated with a system, product or service, to satisfy a requirement or need

[SOURCE: ISO/IEC/IEEE 15289:2015, 3.1.13]

1.23.56

management system

set of interrelated or interacting *elements* (1.23.51) of an organization to establish policies and objectives and *processes* (1.23.69) to achieve those objectives

Note 1 to entry: A management system can address a single discipline or several disciplines.

Note 2 to entry: The system elements include the organization's structure, roles and responsibilities, planning (3.1.180) and operation.



Note 3 to entry: The scope of a management system can include the whole of the organization, specific and identified functions of the organization, specific and identified sections of the organization, or one or more functions across a group of organizations.

Note 4 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

[SOURCE: ISO 22300:2021, 3.1.146]

1.23.57

master data

data (1.23.27) held by an organization to describe the entities that are both independent and fundamental for that organization, and referenced in order to perform its transactions

EXAMPLE A credit card transaction is related to two entities that are represented by master data. The first is the credit card account at the issuing bank and is identified by the credit card number, with the master data representing *information* (1.23.53) required by the issuing bank about that specific account. The second is the merchant account at the accepting bank and is identified by the merchant number, with the master data representing *information* (1.23.53) required by the accepting bank about that specific merchant.

Note 1 to entry: Types of master data include records that describe customers, products, employees, materials, suppliers, services, shareholders, facilities, equipment, and rules and regulations.

Note 2 to entry: The determination of what is considered master data depends on the viewpoint of the organization.

Note 3 to entry: The term “entity” is used in the general sense, not as used in data modelling.

[SOURCE: ISO 8000-2:2022, 3.11.1]

1.23.58

maturity model

set of structured levels that describe how well the behaviours, practices, and *processes* (1.23.69) of an organization can reliably and sustainably produce required outcomes

[SOURCE: ISO/TR 14639-2:2014, 2.5.3]

1.23.59

measure, verb

ascertain or determine the magnitude or quantity of something

[SOURCE: ISO 8000-2:2022, 3.4.1]

1.23.60

measurement

result of *measuring* (1.23.59) something

[SOURCE: ISO 8000-2:2022, 3.4.2]



1.23.61

metadata

data (1.23.27) that define and describe other *data* (1.23.27)

[SOURCE: ISO/IEC 11179-1:2023, 3.2.26]

1.23.62

nonconformity

non-fulfilment of a requirement

Note 1 to entry: This constitutes one of the common terms and core definitions for ISO management system standards given in Annex SL of the Consolidated ISO Supplement to the ISO/IEC Directives, Part 1.

[SOURCE: ISO 9000:2015, 3.6.9]

1.23.63

objective evidence

data (1.23.27) supporting the existence or verity of something

Note 1 of entry: Objective evidence can be obtained through observation, *measurement* (1.23.60), test or by other means.

Note 2 of entry: Objective evidence for the purpose of the *audit* (1.23.5) generally consists of records, statements of fact or other *information* (1.23.53) which are relevant to the *audit criteria* (1.23.8) and verifiable.

[SOURCE: ISO 9000:2015, 3.8.3]

1.23.64

observer

individual who accompanies the *audit team* (1.23.14) but does not act as an *auditor* (1.23.16)

[SOURCE: ISO 19011:2018, 3.17]

1.23.65

performance

measurable (1.23.59) result

Note 1 to entry: Performance can relate either to quantitative or qualitative findings.

Note 2 to entry: Performance can relate to managing activities, *processes* (1.23.69), products (including services), systems or organizations.

Note 3 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

[SOURCE: ISO 22300:2021, 3.1.177]



1.23.66

portability

the definition can be found in ISO/IEC 25012:2008, 5.3.3.2

1.23.67

precision

the definition can be found in ISO/IEC 25012:2008, 5.3.2.5

1.23.68

presentation device

device used to present *data* (1.23.27) to the intended user of a system

[SOURCE: ISO/IEC 25024:2015, 4.30]

1.23.69

process

set of interrelated or interacting activities that use inputs to deliver an intended result

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards. The original definition has been modified to prevent circularity between process and output.

[SOURCE: ISO 56000:2020, 3.1.5]

1.23.70

product data quality

PDQ

degree to which a set of inherent characteristics of product data fulfils requirements

EXAMPLE 1 These requirements include *consistency* (1.23.24), *completeness* (1.23.20) and suitability for purpose.

EXAMPLE 2 ISO/TS 8000-311 provides guidance on using ISO 10303-59 to represent and exchange *data* (1.23.27) about product data quality.

[SOURCE: ISO 8000-2:2022, 3.12.1]

1.23.71

properties

is defined under note 3 of 1.23.75



1.23.72

recoverability

degree to which, in the event of an interruption or a failure, a product or system can recover the *data* (1.23.27) directly affected and re-establish the desired state of the system

Note 1 to entry: Following a failure, a computer system will sometimes be down for a period of time, the length of which is determined by its recoverability.

[SOURCE: ISO/IEC 25010:2011, 4.2.5.4]

1.23.73

relational database management system

it is a *management system* (1.23.56) for *relational database* (1.9.4)

Note 1 to entry: In order to use relational data base management systems (RDBMS), it is necessary to represent *relational model* (1.9.5) of *data* (1.23.27) that organizes *data* (1.23.27) with specific characteristics (tables or relations, unique key, etc.) (see Table C.3.1).

[SOURCE: ISO/IEC 25024:2015, 4.34]

1.23.74

risk

effect of uncertainty

Note 1 to entry: An effect is a deviation from the expected – positive or negative.

Note 2 to entry: Risk is often characterized by reference to potential "events" (as defined in ISO Guide 73:2009, 3.5.1.3) and "consequences" (as defined in ISO Guide 73:2009, 3.6.1.3) or a combination of these.

Note 3 to entry: Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated "likelihood" (as defined in ISO Guide 73:2009, 3.6.1.1) of occurrence.

Note 4 to entry: This constitutes one of the common terms and core definitions of the high-level structure for ISO management system standards. The definition has been modified by substituting the original Note 2 to entry with a separate definition of uncertainty.

[SOURCE: ISO 56000:2020-02, 3.2.7]

1.23.75

target entity

fundamental thing of relevance to the user, about which *information* (1.23.53) is kept, and need to be *measured* (1.23.59)

Note 1 to entry: Possible synonyms of target entity are input to information product and work product.

Note 2 to entry: Examples of target entities are *architecture* (1.23.3), *contextual schema* (1.23.25), conceptual and logical and physical *data models* (1.23.35), *data dictionary* (1.23.31), *document* (1.23.46), *data file* (1.23.32), database management, *relational database management system* (1.23.73), *form* (1.23.52), and *presentation device* (1.23.68).



Note 3 to entry: Target entities are precisely defined by properties. Examples of properties are *attribute* (1.23.4), *element* (1.23.51), *information* (1.23.53), *metadata* (1.23.61), *vocabulary* (1.23.80), *data format* (1.23.33), *data item* (1.23.34), *data value* (1.1.11), *information item* (1.23.54), *information item content* (1.23.55), and *data record* (1.23.38).

[SOURCE: ISO/IEC 25024:2015, 4.36]

1.23.76

technical expert

<audit> person who provides specific knowledge or expertise to the *audit team* (1.23.14)

Note 1 to entry: Specific knowledge or expertise relates to the organization, the activity, *process* (1.23.69), product, service, discipline to be audited, language or culture.

Note 2 to entry: A technical expert to the *audit team* (1.23.14) does not act as an *auditor* (1.23.16).

[SOURCE: ISO 19011:2018, 3.16]

1.23.77

traceability

the definition can be found in ISO/IEC 25012:2008, 5.3.2.6

1.23.78

true value

value that characterizes a characteristic perfectly defined in the conditions that exist when the characteristic is considered

Note 1 to entry: The true value is a theoretical concept and, in general, cannot be known exactly.

[SOURCE: ISO 8000-2:2022, 3.8.9]

1.23.79

understandability

ease with which a system can be comprehended at both the system-organizational and detailed-statement levels

Note 1 to entry: Understandability has to do with the system's coherence at a more general level than readability does.

[SOURCE: ISO/IEC/IEEE 24765:2017, 3.4417]



1.23.80

vocabulary

collection of *information* (1.23.53 related to a specific subset of terms related to a specific *domain* (1.23.48)

Note 1 to entry: Vocabulary is generally used to keep *consistency* (1.23.24), to avoid duplication, and to support synonyms.

[SOURCE: ISO/IEC 25024:2015, 4.38]



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