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Technologies de l'information — Gestion d'application — Exigences pour la gestion d'application

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Contents

Page

Foreword ..... **v**

Introduction ..... **vi**

1 Scope **1**
1.1 General 1
1.2 Applicability 4
1.2.1 Audience 4
1.2.2 Field of application 5
1.3 Limitations 5

2 Conformance **6**
2.1 Intended usage 6
2.2 Full conformance 6
2.2.1 General 6
2.2.2 Full conformance to outcomes 6
2.2.3 Full conformance to tasks 6
2.3 Tailored conformance 6

3 Normative references **7**

4 Terms and definitions **7**

5 Application Management Processes **13**
5.1 Application Support Processes 13
5.1.1 Use Support 13
5.1.2 Configuration Management 15
5.1.3 Application Operation Management 18
5.1.4 Continuity Management 21
5.2 Application Maintenance and Renewal Processes 23
5.2.1 Impact Analysis 23
5.2.2 Software Design 26
5.2.3 Software Construction and Integration 29
5.2.4 Software Testing 33
5.2.5 Preparation of Transfer to Production 35
5.3 Connecting Processes 37
5.3.1 Application Change Management 38
5.3.2 Software Control and Distribution 40
5.4 Management Processes 42
5.4.1 Agreement Management 42
5.4.2 Planning and Control 45
5.4.3 Quality Management 49
5.4.4 Financial Management 52
5.4.5 Supplier Management 55
5.5 Application Strategy Processes 58
5.5.1 Analysis of Developments in IT 58
5.5.2 Customer Organizations Analysis 59
5.5.3 Customer Environment Analysis 60
5.5.4 Application Life Cycle Management 62
5.5.5 Application Portfolio Management 63
5.6 Application Management Organization Strategy Processes 65
5.6.1 Account and Market Definition 65
5.6.2 Capabilities Definition 66
5.6.3 Technology Definition 68
5.6.4 Sourcing Definition 69
5.6.5 Service Delivery Definition 71

Annex A (informative) **Explanatory statements** **75**

Annex B (normative) **Tailoring Process** **77**

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Annex C (informative) **Process Reference Model for assessment purposes** **79**
Annex D (informative) **Relationship to ISO/IEC 15504-8:2012** **81**
Annex E (informative) **References made to ISO/IEC 20000-1 and ISO/IEC 12207** **82**
Bibliography **85**

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Foreword

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

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7*, Software and systems engineering*.

Its contents are based on the Dutch national standard, NEN 3434, *Information technology — Application management — Requirements for application management*, which will be withdrawn after publication of this International Standard.

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Introduction

Applications can live for decades. Applications that were developed twenty or thirty years ago are still being used and most applications that have recently been developed will still be in use for the many years to come. During their life cycle, these applications and the related data structures will have to be monitored, enhanced, and sometimes renewed or renovated. This means that very often, in total, more money and work is needed for the stage of operation and use than for the initial development stage. But the emphasis very often lies at the initial development stage; there are various frameworks and (international) standards covering initial application development. For the stage of operation and use, there are little frameworks and standards. This International Standard has been developed to fill this gap.

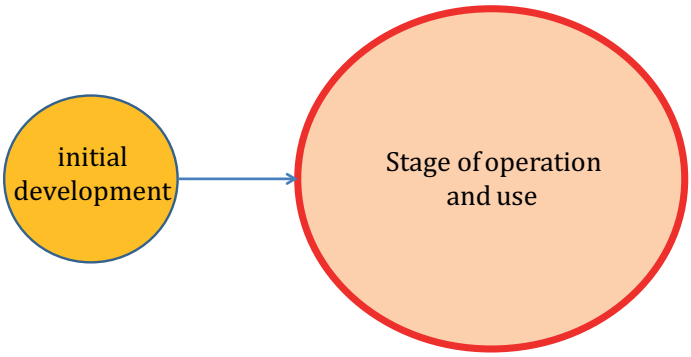


Figure 1 — Stage of the lifecycle in scope

The initial development of applications usually takes place in a rather protected project environment with a relatively small amount of operational interaction with the business processes, as they are not yet supported by the application under development. The project has its own pace and rules, its own governance, and a limited lifespan. In the final development stage, the application is transferred to operation then the rules change. The business processes of the user organizations become largely or fully dependent on the application. In that stage, the following two major types of actions will have to take place:

a) supporting use and operation of the application;

b) adapting the application based on changing demands or based on quality improvements (fixes, patches, and releases).

These actions and all the responsibilities, activities, and tasks around it, we call application management and the stage in which a version of an application actually is in use and in operation is the subject of this International Standard.

This International Standard aims to offer application management organizations a well-defined, directly applicable, and complete standard for their specific activities. Although this International Standard is partially overlapping with ISO/IEC 20000 and ISO/IEC 12207, this International Standard is a standard organized from the viewpoint of application management and contributes to the convenience of users who work in that area.

This International Standard provides a common framework for establishing the processes, tasks, and activities of service providers that enhance, maintain, and/or renew applications or application objects after the initial development (that is at the stage of exploitation and use) and that supports other service providers that run the application in production environments and user organizations that use the applications.

This International Standard also supports the definition, control, assessment, and improvement of such processes. These processes can be applied uniquely, in conjunction, sequentially, or in parallel.

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Information technology — Systems and software engineering — Application management

1 Scope

1.1 General

This International Standard establishes a common framework for application management processes with well-defined terminology that can be referenced by the software industry. It contains processes, activities, and tasks that apply during the stage of operation and use from the point of view of the supplier organization that enhances, maintains, and renews the application software and the software-related products such as data-structures, architecture, designs, and other documentation.

This International Standard applies to the supply, maintenance, and renewal of applications, whether performed internally or externally with respect to the organization that uses the applications.

Application management comprises all of the tasks, responsibilities, and activities with the aim that the support of business processes by applications continues to meet the requirements and needs of the organizations that use these applications throughout the entire life span of their business processes.

This International Standard therefore focuses on the following:

— day-to-day management of applications (the software) and the related data structures and support of costumer organizations, including handling calls such as incidents and service requests;

— maintenance and renewal of applications and data structures in accordance with changing requirements and needs;

— opportunities, threats, and changes in the business and/or technology that influence the future of the applications and, based on that, the strategy for maintaining and renewing the applications;

— organization and strategy of application management organizations.

Before retirement, the life cycle of an application consists of two important stages: the stage of initial development of the application and the stage of operation and use (when the software is in use, in operation, supported, modified, and renewed). This stage of operation and use is the subject of this International Standard. The initial development of an application is not within the scope of this International Standard, however the project that is responsible for the initial development has to take the requirements of the application management organization that will enhance and maintain the application into consideration. This means that the application management organization will ask the project to deliver initial requirements, architecture products, design, standards, and other documentation, in order to use these products during enhancement and maintenance.

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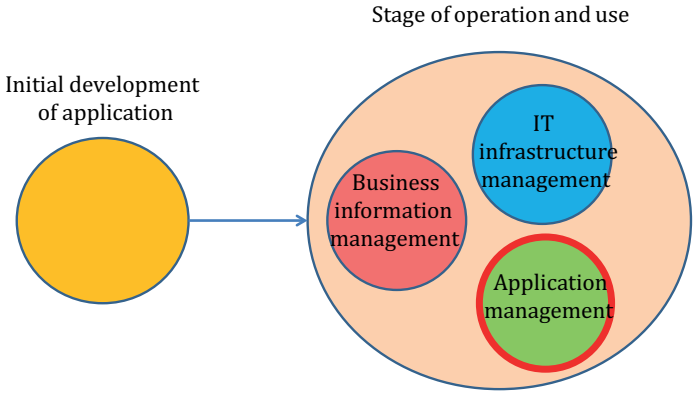


Figure 2 — Domains involved

In the stage of operation and use, the following three domains play a role:

a) business information management representing the business and end users of the application (use);

b) IT infrastructure management hosting the application (operation) and maintaining the technical infrastructure;

c) application management

   1) supporting the use and the operation;

   2) maintaining and renewing the application software and data structures.

Business information management constitutes the demand side of information technology (IT) and information provisioning. Business information management is responsible for supporting users in the use of the information provisioning and represents the business organization as the client of the IT-suppliers. Business information management acts as the customer of the IT organizations (application management plus IT infrastructure management).

Specific tasks of business information management include the following:

— support of end users in how the information provisioning are to be used;

— define how information and IT are to look like (the functionality, the appearance, etc);

— advise and support business management with the prioritization of requirements and management of their budgets for IT;

— assign work to IT providers and monitor their delivered services;

— define long term policy and plans regarding the information provisioning.

IT infrastructure management is responsible for managing the operation of the information system, including maintaining the infrastructure (e.g. network, hardware), running the software, and data processing. In brief, this is the organization that runs the information systems and aims to keep the infrastructure in good order.

The activities of business information management and IT infrastructure management are closely related to application management but not within the scope of this International Standard.

Application management is responsible for the management and maintenance of the application and definition of the data structures used in databases and data files. This form of management requires knowledge of software programming, information system development, design, day-to-day management of applications, and application maintenance. Core qualities of the application management personnel are in-depth knowledge of the customer or (at least) in-depth knowledge of the customer's business processes and in-depth knowledge of the existing applications (application objects), design, architecture, etc.

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This International Standard consists of the following three levels of processes:

— operational;

— managerial;

— strategic.

These process levels and the processes are interconnected with one another.

Figure 3 provides an overview of the processes within each of the process levels.

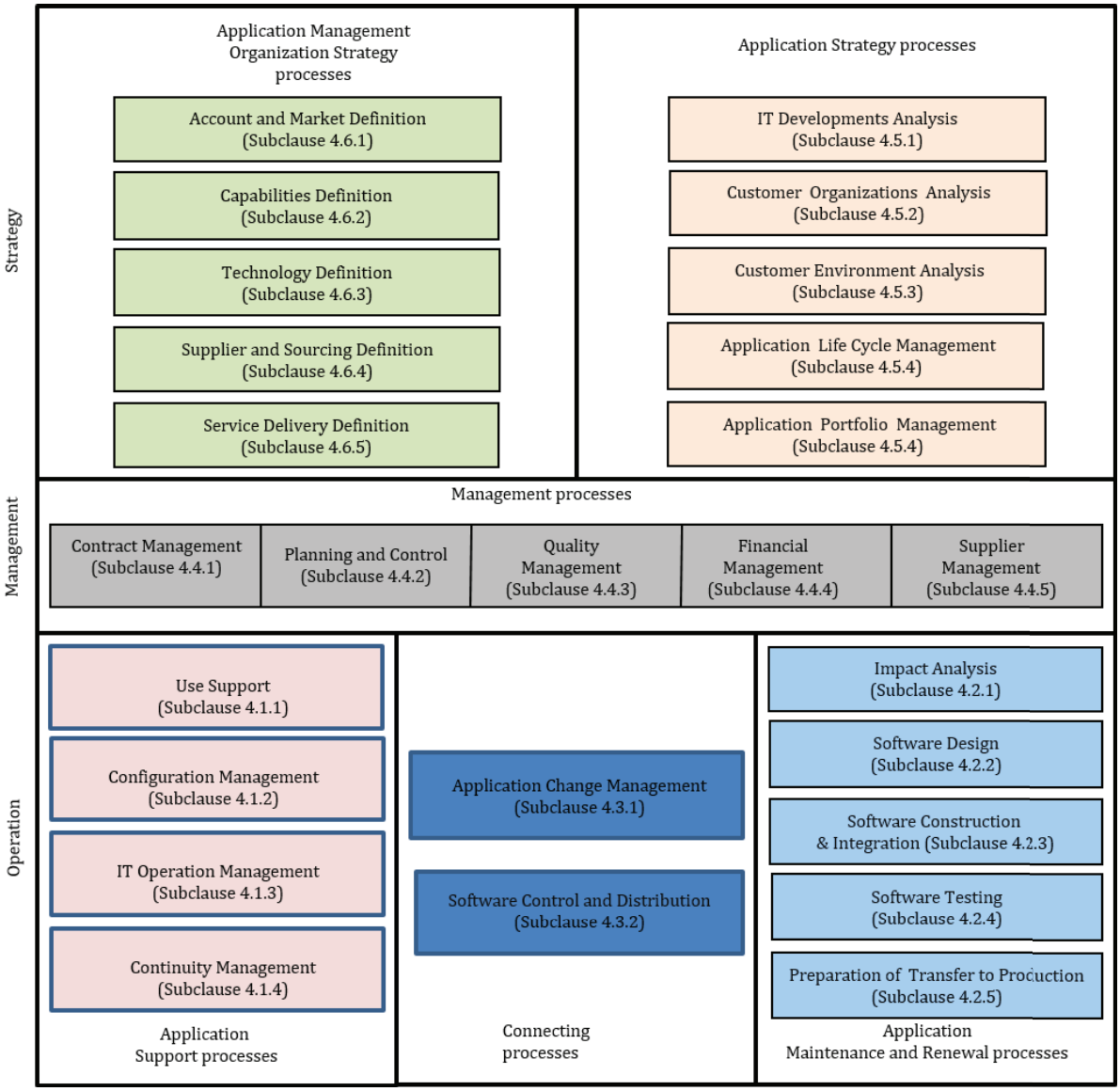


Figure 3 — Process overview

There are no separate processes defined for security, issues, risks, and/or vulnerability. These topics form an important part of the Continuity Management Process, but they are also part of other processes. Security, for instance, is an important part of the functionality of the application, so it is addressed in the Impact Analysis process and dealt with within the specifications of the application and defined in the Software Design Process and also within the service levels and, therefore, specified in the Agreement Management and Supplier Management Processes. Other processes which deal with these topics are the management processes planning and control, quality management and financial management, and, for instance, the strategic process technology definition, where risk and vulnerability are important features.

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1.2 Applicability

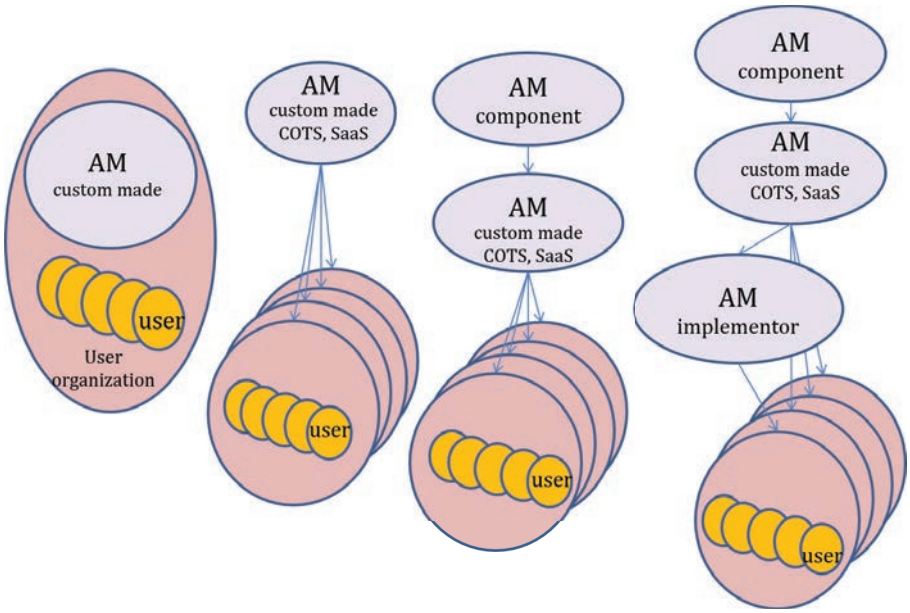
1.2.1 Audience

This International Standard is intended to be used by application management organizations. The application management service providers that enhance, maintain, and/or renew applications or application objects and that support infrastructure management organizations and user organization in the stage operation and use.

Other users of this International Standard can be application software developers, quality assurance managers (or consultants), and customers of application management organizations.

The purpose of this International Standard is to provide a defined set of processes to facilitate communication among all parties involved in application management.

Different parties can carry out different activities in the field of application management. For example, some parties are responsible for maintenance of the application after the development stage while others also support the user organization and the IT infrastructure management organization. Some parties just change the software items while others are responsible for the entire chain of impact analysis, design, build, test, and release of changes. These different parties can be all in one organization or in different internal and external organizations.



Key

AM application management
COTS commercial off-the-shelf
SaaS software as a service

Figure 4 — Examples of application management organizations

The following are examples of different types of application management organizations shown in Figure 4:

— organization that produces and maintains a specific component;

— organization that supplies and maintains standard products or standard components;

— organization that delivers custom services to an individual customer, either with or without integration with other systems or the infrastructure;

— organization that manages and maintains a custom application;

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— organization that implements software.

The following are other examples of application management organizations:

— integrator that merges or combines services;

— producer of configurable software platforms;

— organization that configures and maintains such platforms for customers.

These types of application management organizations have a strong impact on the way in which the processes are implemented and operated. The processes shown in Figure 3 therefore vary in importance and characteristics.

1.2.2 Field of application

This International Standard is applicable to all the following organizations using the processes that play a role in application management within the scope mentioned in 1.1:

— anyone performing application management activities;

— those responsible for establishing and continuously improving application management processes;

— those responsible for executing application management processes at a project level;

— customers and suppliers involved in subcontracting application management activities;

— those responsible for assessing application management processes.

Annex C provides information regarding the use of the application management processes as a process reference model. It defines the basic activities needed to perform tailoring of this International Standard. It has to be noted that tailoring might diminish the perceived value of a claim of conformance to this International Standard. An organization asserting a single-party claim of conformance to this International Standard might find it advantageous to claim full conformance to a smaller list of processes rather than tailored conformance to a larger list of processes.

1.3 Limitations

The initial development of an application is not within the scope of this International Standard.

The activities of business information management and IT infrastructure management are not within the scope of this International Standard.

This International Standard does not detail the application management processes in terms of methods or working procedures required to meet the requirements and outcomes of a process.

This International Standard does not detail documentation to be used or produced within the activities described in the processes in Clause 5 in terms of name, format, explicit content, and recording media. The International Standard might require development of documents of similar class or type. The International Standard, however, does not imply that such documents have to be developed or packaged separately or combined in some fashion. These decisions are left to the user of this International Standard.

This International Standard does not prescribe a specific application management methodology, design methodology, development methodology, test methodology, project management method, or other methods, models, or techniques. The users of this International Standard are responsible for selecting these methods and mapping the processes, activities, and tasks in this International Standard onto those methods. The users of this International Standard are also responsible for selecting and applying the methods and for performing the activities and tasks suitable for application management.

This International Standard is not intended to be in conflict with any organization's policies, procedures, and standards or with any national laws and regulations. Any such conflict has to be resolved before using this International Standard.

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2 Conformance

2.1 Intended usage

The requirements in this International Standard are contained in Clause 5 and Annex B. This International Standard provides requirements for a number of processes suitable for usage in the field of application management. It is recognized that particular projects or organizations might not need to use all of the processes provided by this International Standard. Therefore, implementation of this International Standard typically involves selecting and declaring a set of processes suitable to the organization or project.

There are two ways that an implementation can be claimed to conform to the provisions of this International Standard: full conformance and tailored conformance.

There are two criteria for claiming full conformance. Achieving either criterion suffices for conformance, although the chosen criterion (or criteria) is to be stated in the claim.

— Claiming "full conformance to tasks" asserts that all of the requirements of the activities and tasks of the declared set of processes are achieved.

— Alternatively, claiming "full conformance to outcomes" asserts that all of the required outcomes of the declared set of processes are achieved.

Full conformance to outcomes permits greater freedom in the implementation of conforming processes and can be useful for implementing processes to be used in the context of an innovative application management organization.

2.2 Full conformance

2.2.1 General

A claim of full conformance declares the set of processes for which conformance is claimed. Full conformance is achieved by demonstrating that all of the requirements of the declared set of processes have been satisfied using the outcomes as evidence.

2.2.2 Full conformance to outcomes

A claim of full conformance declares the set of processes for which conformance is claimed. Full conformance to outcomes is achieved by demonstrating that all of the outcomes of the declared set of processes have been achieved. In this situation, the provisions for activities and tasks of the declared set of processes are guidance rather than requirements, regardless of the verb form that is used in the provision.

2.2.3 Full conformance to tasks

A claim of full conformance declares the set of processes for which conformance is claimed. Full conformance to tasks is achieved by demonstrating that all of the requirements of the activities and tasks of the declared set of processes have been achieved. In this situation, the provisions for the outcomes of the declared set of processes are guidance rather than requirements, regardless of the verb form that is used in the provision.

2.3 Tailored conformance

When this International Standard is used as a basis for establishing a set of processes that do not qualify for full conformance, the clauses of this International Standard are selected or modified in accordance with the tailoring process prescribed in Annex B. The tailored text, for which tailored conformance is

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claimed, is declared. Tailored conformance is achieved by demonstrating that the outcomes, activities, and tasks, as tailored, have been achieved.

NOTE 1 When this International Standard is used to help develop an agreement between an acquirer and a supplier, clauses of this International Standard can be selected for incorporation in the agreement with or without modification. In this case, it is more appropriate for the acquirer and supplier to claim compliance with the agreement than conformance with this International Standard.

NOTE 2 Any organization (for example, national, industrial association, company) imposing this International Standard as a condition of trade has to specify and make public the minimum set of required processes, outcomes, activities, and tasks which constitute suppliers' compliance with the conditions of trade.

NOTE 3 Requirements of this International Standard are marked by the use of the verb "shall". Recommendations are marked by the use of the verb "should". Permissions are marked by the use of the verb "may". However, despite the verb that is used, some requirements do not apply depending on which criteria are to be applied in claiming conformance.

NOTE 4 A claim of full conformance to tasks can be appropriate in contractual situations where an acquirer or a regulator requires detailed understanding of the suppliers' processes.

3 Normative references

No normative reference cited in this document.

4 Terms and definitions

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

4.1
application
system for collecting, storing, processing, and presenting data by means of a computer

[SOURCE: ISO/IEC 24570:2005]

Note 1 to entry: The generic term system in context of this International Standard is used to mean a software system.

4.2
application management
domain responsible for all of the tasks and activities that are aimed at managing, supporting, maintaining, and renewing existing applications and related data structures

Note 1 to entry: Application management includes all of the tasks, responsibilities, and activities that serve to bring applications into a state where they meet the requirements and needs of their owners throughout the entire life cycle of the business processes that are supported by the applications.

4.3
application management organization
organizational unit that is responsible for application management for one or more applications

Note 1 to entry: An application management organization may be an internal or external unit in relation to the user organization.

4.4
application object
component that is directly related to or forms part of an application

EXAMPLE Programs, sources, databases, documentation, data structures, test files, and scripts.

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