



BSI Standards Publication

Facility Management

Part 8: Principles and processes

National foreword

This British Standard is the UK implementation of EN 15221-8:2025. It supersedes [BS EN 15221-3:2011](#), [BS EN 15221-4:2011](#), [BS EN 15221-5:2011](#) and [BS EN 15221-7:2012](#) which are withdrawn.

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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European foreword

This document (EN 15221-8:2025) has been prepared by Technical Committee CEN/TC 348 “Facility Management”, the secretariat of which is held by SN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2026, and conflicting national standards shall be withdrawn at the latest by May 2026.

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

This document supersedes EN 15221-3:2011 [2], EN 15221-4:2011 [3], EN 15221-5:2011 [4] and EN 15221-7:2012 [6].

EN 15221-8:2025 includes the following significant technical changes with respect to EN 15221-3:2011, EN 15221-4:2011, EN 15221-5:2011 and EN 15221-7:2012:

- New content on sustainability (see 5.3 and Annex H), competences (see Clause 6 and Annex F) and digitalisation and Building Information Modelling (BIM) (Clause 11) have been added.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

0.1 Facility Management (FM) standards

Facility Management (FM) ensures the functionality, comfort, safety, performance and efficiency of the built environment by integrating people, place, process, and technology. The European standards provide a coherent framework for defining, implementing, and improving FM practices across various organizational contexts, aligning with international best practices and evolving organizational or core business needs.

Developed by the European Committee for Standardization (CEN), the EN 15221 series aligns closely with the ISO 41000 series, ensuring consistency in terminology, processes, and methodologies. They are designed to support organizations in optimizing resource use, enhancing support service quality, and delivering value through effective FM. They reflect the collective expertise of professionals, industry stakeholders, and national standardization bodies, ensuring that it is both practical and adaptable to the dynamic nature of the FM sector.

The European standards on FM consist of two series:

- EN 15221
- EN ISO 41000

For an overview of published standards and ongoing work, see CEN Website: <https://www.cencenelec.eu/>

These series address a wide range of FM topics, including terminology, management system, service procurement, quality management, space planning and more.

Their purpose is to standardize practices and provide organizations with tools to align FM strategies with their broader business objectives. By offering a structured approach, the series serves as a foundation for organizations of all sizes to develop sustainable, resilient, and future-ready facilities that contribute to organizational success, and thus achieve greater performance, efficiency, sustainability, and stakeholder satisfaction.

0.2 FM standard on principles and processes

Every organization, be it private, commercial, public or non-profit, needs effective and efficient facilities and support services (facility services or other support services) to enable its business to function. Every organization is unique, and correspondingly, each implementation of FM is distinct. The responsibilities of the FM organization (function) within each organization are also uniquely defined.

The aim of this European FM document is to provide principles (in form of key messages, descriptions, graphics, examples, etc.) for FM organizations and to give guidance on the development and improvement of their FM processes to support and enable the delivery of the primary activities. It fosters organizational development, stimulates innovation, and encourages improvement, thereby laying a solid foundation for the continued professional development of FM. It shows the relevant processes on strategic, tactical and operational level to create the necessary outcomes (facility services) and to cope with permanent change.

This document is based on and replaces the European standards EN 15221-3:2011 [2], EN 15221-4:2011 [3], EN 15221-5:2011 [4] and EN 15221-7:2012 [6] (not EN 15221-6 about space measurement [5]) and is based on the EN ISO 41000 series of FM standards (see Clause 2 and Bibliography [8] to [14]). Table 1 gives an overview of the main corresponding processes in this document compared to the EN ISO 41000 series.

Table 1 — Overview of the main corresponding processes in this document compared to the EN ISO 41000 series

Standard	The main corresponding processes in this document (i.e. EN 15221-8)
EN ISO 41001, <i>Facility management — Management systems — Requirements with guidance for use (ISO 41001)</i>	All processes
prEN ISO 41002, <i>Facility management — Development of the facility management organization (under development)</i>	Sourcing process chain described in Annex K Strategic FM processes e.g. S1.1 Alignment and S3.2 Leading FM organization in 7.2
EN ISO 41011, <i>Facility management — Vocabulary (ISO 41011)</i>	General
EN ISO 41012, <i>Facility management — Guidance on strategic sourcing and the development of agreements (ISO 41012)</i>	Process chain described in Annex K
CEN ISO/TR 41013, <i>Facility management — Scope, key concepts and benefits (ISO/TR 41013)</i>	General
EN ISO 41014, <i>Facility management — Development of facility management strategy (ISO 41014)</i>	S4.1 Strategic planning and strategy development
EN ISO 41015, <i>Facility management — Influencing organizational behaviours for improved facility outcomes (ISO 41015)</i>	S1.2 Consulting of top management S2.2 Developing corporate FM standards
CEN ISO/TR 41016, <i>Facility management — Overview of available technologies (ISO/TR 41016)</i>	9500 Innovation
EN ISO 41017, <i>Facility management — Guidance on emergency preparedness and management of an epidemic (ISO 41017)</i>	2100 HSSE (Health, safety, security and environment) 9300 Risk
EN ISO 41018, <i>Facility management — Development of a facility management policy (ISO 41018)</i>	T4.1 Tactical planning, policy
CEN ISO/TR 41019, <i>Facility management's role in sustainability, resilience and adaptability (ISO/TR 41019)</i>	9100 Sustainability
ISO 41020, <i>Facility management — Measurement and management of performance (planned/under development)</i>	S4.3 Strategic controlling T2.3 Evaluation of performance O2.1 Organizing of measuring O2.3 Evaluation and documentation
CEN ISO/TR 41030, <i>Facility management — Existing performance management in facility management organizations — State of the industry (ISO/TR 41030)</i>	General

0.3 Use and benefit of this document

The FM-standards are for use by management, practitioners, and consultants and is applicable to:

- FM in public and private/commercial organizations;
- demand organization and service provider relationships;
- internal and external service providers of facility services;
- professionals in the full range of facility services or facility products;
- educational professionals involved in teaching, learning and research in FM;
- all types of facilities and working environments (e.g. industrial, commercial, administration, military, healthcare, housing).

EN ISO 41011 defines FM as an “organizational function which integrates people, place and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business”.

From a European perspective, this definition contains the following aspects:

- An ‘organizational function’ means, the FM organization has a responsibility within the organization to actively contribute to and be partly accountable for reaching its goals (e.g. productivity of the core business);
- The parts integration of ‘people, place and process’ and ‘improving the quality of life of people’ require that FM has a responsibility in the definition of the demand of the core business for space and other resources to optimize costs, efficiency, safety, quality, and functionality. The demand from the core business is constantly changing which is why FM is also a discipline of change management;
- The term ‘process’ points to a process-based understanding of FM which aims at creating results in line with the demands of the organization and with clear interfaces to the primary processes and controlled commissioning of external providers;
- The term ‘improving the quality of life of people’ consequently points to the fact that facilities and facility services are provided with a focus on people’s needs. Therefore, FM is a service-orientated function. It also points to the responsibility in the field of sustainability and the European commitment to combat climate change and to accelerate the sustainable transition in general.

Aimed for benefits or effects and outcome of a mature FM organization are:

- Effectively operating primary processes;
- Satisfied, motivated and creative employees and external users;
- Safe and functional working/built environment according to user’s needs;
- Improved quality of support functions;
- Optimized use of resources within budgetary restrictions;
- Well-utilized space and infrastructure;
- Sustainable and future-proof space and infrastructure;
- Compliance with laws and regulations.

The clauses of this document follow the process approach methodology known as “Plan-Do-Check-Act” (PDCA) used in all Management System Standards, including EN ISO 41001 [14].

Under this overarching structure, this document defines inter-related structures (see Figure O.1). It integrates the **organizational** background (Clause 4), the **demand** definition and the three-level model (Clause 5), the **roles** (Clause 6), the generic FM **processes** (Clause 7), the product or **facility services** map (output, Clause 8), the associated agreement defining **quality** (Clause 9), and the controlling/reporting/continuous improvement (**benchmarking**,) structures (Clause 10). These clauses are followed by a new Clause 11 about **digitalisation** (see Annex O).

This document provides additional guidance for the implementation of the EN ISO standards and how to organize FM in a European context.:

- It provides principles in the form of key messages, descriptions, and structures for the processes to be used in FM organizations;
- It specifies criteria to support organizational decisions and shows success critical elements of FM;
- It gives guidance to identify FM processes on strategic, tactical, and operational levels as well as operational facility services processes and shows outcomes of these processes;
- It offers elements for quality assurance in FM.

It also points to the responsibilities and accountabilities of FM as an organizational function that enables the primary processes. It helps to demonstrate the benefits of FM to the organization and create maximum value by enabling the organization to function in an optimal way.

1 Scope

This document:

- specifies principle criteria and processes for FM and provides methods which enable the implementation and use of these processes within any FM organization;
- specifies criteria to support organizational decisions;
- gives guidance for developing and improving the FM processes to support and enable the function of the primary activities.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 41011, *Facility management — Vocabulary (ISO 41011)*

3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms and definitions given in EN ISO 41011 and the following apply.

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/>

3.1 Terms and definitions

3.1.1

facility manager

individual responsible for the FM organization

Note 1 to entry: Depending e.g. on the size, type, complexity or culture of the organization, the role of the facility manager could be defined differently. It could be limited to strategic procurement (managing demands) and/or integration of facility services (managing provision) or could include responsibility for tactical and operational tasks.

3.2 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

AI	Artificial Intelligence
AIR/AIM	Asset Information Requirements/Model
BIM	Building Information Modelling
BIMC	BIM Implementation Maturity Checklist
BMS	Building Management System
CAFM	Computer Aided FM
CAPEX	Capital Expenditure

CEO	Chief Executive Officer
CDE	Common Data Environment
COO	Chief Operating Officer
CFMO	Chief FM Officer
CSO	Chief Services Officer
CSRD	Corporate Sustainability Reporting Directive
ERP	Enterprise Resource Planning
ESG	Environment Social Governance
FM	Facility Management
FMP	Facility Management Processes
FS	Facility Service(s)
HR	Human Resources
HSSE	Health, Safety, Security and Environment
ICT	Information and Communication Technology
IM	Information Model(ling)
IMAC	Install, Move, Add, Change (and Delete)
KPI	Key Performance Indicator
LCC	Life Cycle Costing
OIR	Organizational Information Requirements
OPEX	Operational Expenditure
PDCA	Plan, Do, Check, Act
PIR/PIM	Project Information Requirements/ Project Information Model
QM	Quality Management
REM	Real Estate Management
SDG	United Nations Sustainable Development Goals
SLA	Service Level Agreement
WLC	Whole Life Cycle

4 Organizational aspects of FM

4.1 Fundamentals

To execute its primary processes every organization needs various support functions like human resources, accounting, controlling, customer relations, and ICT. The primary processes also need space, infrastructure, equipment, and other assets. All primary processes and support functions have in common their need for functional, motivating and creativity-supporting facilities that enable their primary processes and offer the users an efficient, comfortable, and safe well-being.

FM is the organizational function that takes responsibility to fulfil these support needs in an optimal way and thus enables the core business to function effectively. The following presents the generic FM model that can be adapted to the specific organizational context.

4.2 Key messages concerning organization

This clause describes in concentrated form the main messages concerning the embedding of an FM organization in an organization (see Annex A and Annex D).

- 1) This document builds on an organizational model that differentiates between the head of the organization (executive level, top or senior management), the core business (primary processes, also applicable for public or non-profit organizations), and the supporting FM organization. Individual organizations (FM implementations) can be derived from this generic model;
- 2) In the FM model, there is a demand-supply situation between the demand organization (representing the organization and its core business) and the FM organization;
- 3) The split between core business (demand) and support function or FM (supply) is organization specific, depends on different criteria (e.g. ownership and use of real estate can influence the individual FM implementation), and needs to be continuously adjusted;
- 4) The priority and quality criteria for the outcomes of the FM processes are determined by specific characters of the organization and should be adapted to changes permanently. Impacting factors are e.g. the size of the organization, products, product cycles, risks to be mastered, or obligations to be fulfilled;
- 5) The interfaces between the demand side and the supply side should be defined, agreed upon, communicated and practiced. The elements to be used are FM strategy, FM agreement, service level agreements, functions and competences, processes, defined outcomes, quality cycles, etc.;
- 6) There is a contradiction of sorts if all support functions/processes/services belong to FM. The document acknowledges the possibility of independent support units (called other support management) in an organization. A maximal inclusion of support functions under one umbrella reduces organizational frictions and therefore achieves better results;
- 7) FM as the responsible function controls the use of required resources and agreed outcomes of the FM processes by specific measures and controls.

4.3 The FM model

To understand FM, an understanding of the common business process model, that categorizes organizational processes within an organization into primary or core processes (primary activities, core business) and into support processes (support services), is essential.

The primary processes are the core processes of an organization. They create the results and contribute directly to the added value of the organization. Furthermore, every organization or business has support processes that interact in many ways with its primary processes. The definition of its core processes and the additional support processes should be decided by every organization individually and is likely to change over time.

To succeed and deliver the required results, FM should be in close synchronization with the mission, vision, objectives and domains of the core business. Further, it is the role of FM to provide strategic guidance to the core business, interpreting needs and translating them into explicit service demand and requirements. This requires a carefully defined interface between the demand side and the supply side and a representation of FM at a high level of the organization.

The specific characteristic of the FM model is that support processes are integrated and optimized and that the output is delivered in the form of coordinated facility services to the organization. This requires specific competences, a holistic approach and distinguishes FM from the isolated provision of one or more services.

FM aligns with goals strategies of the organization, but it also translates this alignment into day-to-day service for individual people, their well-being, their productivity, and their quality of life. FM also supports organizational units, such as business areas, units, sites or departments, in achieving their business results. The FM organization acts on the main three levels: *strategic*, *tactical*, and *operational* (see Annex B).

NOTE Smaller organizations might not have an explicit tactical level.

The FM model, see Figure 1, provides a framework describing how FM supports the primary activities of an organization in an optimal way. It deals with the demand-supply relationship and presents the different levels of possible FM interaction. The FM model derives and aligns workplace and facility related support processes from and with the organization's mission, purpose, values, goals, culture, and strategies. This integrative approach is the core of FM and the source of its added value.

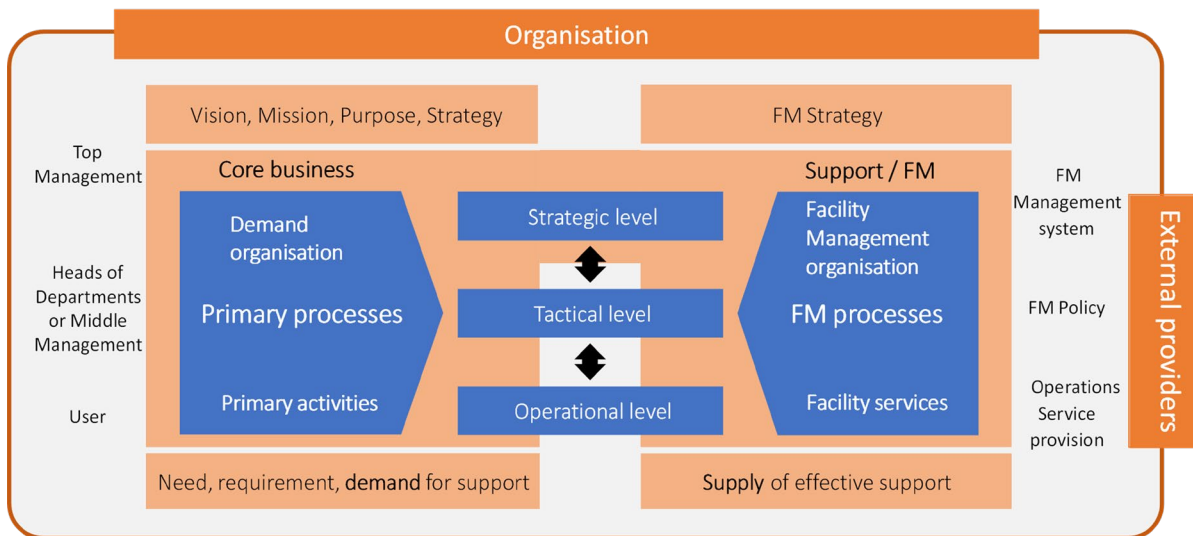


Figure 1 — FM-model - the three levels of interaction between demand and supply

The FM model is useful e.g. for communicative purposes to

- highlight the different levels of interaction between demand and FM organization,
- discuss the interaction on a strategic level,
- explain the demand-supply situation,
- explain in-/outsourcing,
- explain the fundamentals of the FM organization,
- show the relationship between FM related terminology.

An organization usually consists of a representative (executive or top management) on a strategic level, one or more representatives (head of a unit or department) on a tactical level and (end-) users (e.g. employees, customers, visitors, students, patients) on mainly an operational level. It is the responsibility of the representative on a strategic level, to procure the required facility services (FM agreement), whereas the representative on a tactical level specifies and orders the delivery of these services with SLAs within the conditions of the FM agreement. On an operational level the end users receive these support services where appropriate. The interface between the demand organization and FM is governed by the FM agreement. It translates the needs of the demand organization into requirements and deliverables

called facility services. The facility services provided by the corresponding facility processes are specified in an SLA. The use of well stated SLAs and KPIs is essential for measuring performance against targets and goals.

Some of the main needs, actions and restrictions of the demand side, as well as answers and effects of FM are given in Table 2.

Table 2 — Main needs, actions and restrictions of the demand side and effects of FM

Top management demand side	FM organization supply side
Defines and states the need for an enabled and effective core business	Provides a safe, effective, and motivating work and built environment
Makes projections, initiates projects, identifies changes	Uses competences to find solutions for adaptations
Sets financial and other restrictions and delegates responsibilities	Reports on its accountability and executes continuous improvement

A description of tasks on the three levels, strategic, tactical, and operational is given in Annex B.

4.4 Scope of FM

When defining the scope of FM in an organization, there is likely to be a dilemma regarding the inclusion or exclusion of various support functions. See also CEN ISO/TR 41013 [16] on scope, key concepts and benefits. The question is whether all support functions belong to FM or is FM restricted to certain functions. Instead of trying to define these functions which would not suit all implementations of FM in practice, this document acknowledges the possibility of independent support management in an organization but recommends a comprehensive inclusion of support functions under one umbrella (FM) in order to achieve best results and to avoid interfaces and organizational frictions.

Figure 2 illustrates the division of FM and other support services in a simplified graphic using the main terms. See EN ISO 41011 for additional terms and definitions used in FM.

- future-able (flexible, adaptable) and well utilized assets require fewer resources (space, materials, heating, cooling etc.) and are therefore more environmentally sustainable.

The FM organization is the enabling partner for all of this and can, in general, create added value with the following activities and their effects:

- proactive communication, customised reporting and consulting resulting in informed, reliable, and timely decisions;
- anticipatory behaviour and active management of resources resulting in optimal adaptation to changes;
- translation of core business strategy into FM strategy resulting in better strategy alignment;
- systematic evaluation of needs resulting in provision of only the required support reduces costs;
- potentially all required support managed and integrated by one function resulting in increased responsibility, direct control avoids internal conflicts;
- defined responsibilities and accountability resulting in direct leadership and control on target achievement;
- provision of professional competences ensures the required level of competences resulting in lower risks and sustainable solutions;
- result-based processes resulting in high level of satisfaction of employees, safe and motivating work opportunities;
- mastered risks resulting in steady and robust primary process support and compliance with laws and regulations;
- providing KPIs and continuous improvement resulting in effective control and optimization of resources.

FM requires a range of competences, which are based on a broad set of qualifications and on multiple disciplines. It is the responsibility of the top management to ensure, that these competences are organized effectively. The task of defining the needs of the organization is where FM starts and is determined. This task is therefore fundamental for a successful relationship between the core business and the FM organization. The needs of the organization should be explicitly defined in a statement as the top management should commit itself to paying for the resulting service provision. There are four main ways to define and state these needs:

- 1) The top management performs this task itself (preferable for small organizations);
- 2) The top management seeks external support (e.g. from FM consultants, this creates external dependencies);
- 3) The top management is supported by the internal FM organization (drawing from internal know-how);
- 4) FM is directly represented in the top management of the organization and is responsible for this task.

The completely outsourcing of this fundamental task could lead to a lack of competency to control service provision. To reduce this risk, FM organizations can analyse and describe the primary processes and evaluate and derivate need, requirement and demand for space/assets and services thereof (e.g. by

assigning usage types or applying service-specific criteria). The size of the organization is usually a major driver in this task (see Clause 7 and EN ISO 41012 [15]).

FM is responsible for facilities and services, and based on the operational, tactical and strategic policies, FM can provide adequate solutions using the FM processes and adapting them to permanent changes and so achieves the required outcomes. However, a clear assignment of delegated responsibilities by top management is essential:

- Responsibility means giving the function the required resources to fulfil the agreed targets and to deliver the agreed outcomes and effects;
- The FM function requires an adequate set of competences, manages the required resources, adapts to constant changes and creates a motivating and creative work environment for the core business at the agreed place to the agreed amount, in the agreed quality at the agreed time to the agreed cost;
- FM manages the use of its resources to minimize the amount used. This will lead to a potentially strong contribution to the organizations sustainability impact;
- It is the responsibility of FM to link the FM strategy to the core business strategy.

The delegation of responsibilities is linked to accountability. FM is accountable, e.g. via an agreed FM-strategy and policies, FM agreement, SLAs, KPIs, evaluations, and benchmarking.

For a maturity checklist of FM implementation in an organization see Annex G.

5 Translating needs into demand and requirements

5.1 Key messages concerning need, demand, and requirements

To clarify the organization's needs, demands, and requirements, FM, as a systematic approach, starts by exploring, analysing, and defining the organization's needs, continues by shaping these into defined requirements in the form of specifications, assesses delivery options, acquires and organizes these options, ensures measurement of outcomes, accountability, and continuous improvement which could act as a trigger to start a new cycle of these activities.

This is also known and defined in EN ISO 41001 [14] as the "Plan, Do, Check, Act" (PDCA) process approach methodology or controlling cycle, which is a continuous quality improvement model consisting of a logical sequence of four repetitive steps for continual improvement:

- 1) FM should always be in close synchronization with the mission, vision, purpose, strategies, objectives and needs of the core business.
- 2) FM is integrated into the strategic decision-making process and, in this function, actively provides strategic consulting and feedback to the core business to convey how FM can contribute to advancing the core business and ensure that the core business gets the most out of the services.
- 3) FM is interpreting the needs of the organization and translating them into explicit service demand and requirements on the three levels strategic, tactical and operational as part of its responsibility.
- 4) Deviations between defined requirements and experienced service delivery should be subject to communication, quality assurance and the continuous improvement process as part of FM's accountability.

The FM function satisfies the core business's need for a functional, motivating, and creative working environment in an effective and efficient way at the agreed place, at the agreed time, in the agreed quantity and in the agreed quality at the agreed costs. This is achieved e.g. by identifying the needs per

different types of use of areas and complementing these areas with a set of infrastructures, equipment, energy, media and people-related facility services, thus creating the agreed functionality.

5.2 From needs to experiencing delivery

Parts of an organization or the whole organization have underlying needs which may be explicit. These may also be unstated or implied from other needs which may also be expressed precisely or in vague terms.

EN ISO 41012 [15] explains how, the top management, possibly with the help of outside consulting, can define the resulting demand. This demand (requirements) consists of the description of the requested facility services and their specifications, including performance and quality. The elaboration of this demand continues throughout the whole process leading to SLA.

At the time-of-service delivery the characteristic of the service or product may be perceived or experienced differently (gap) by the users then intended and communicated or defined.

All the deviations described above (gaps) may become evident and should be subject to quality assurance and the continuous improvement process.

5.3 Sustainability requirements

5.3.1 The role of FM in achieving sustainability

Sustainability is an important topic for FM, and is becoming increasingly a mandatory practice and a requirement for organizations. FM has a big role in this field as the responsible function for real estate or lease administration, purchase and/or contracting, space management, daily operation, and providing support services and for project development.

A greater focus on sustainability is emerging throughout many organizations, and this challenges the FM organizations' capabilities to ensure the integration of sustainability aspects in all relevant FM processes. See CEN ISO/TR 41019 [22].

The United Nations Sustainable Development Goals (SDG's) consist of 17 global goals for nations and other organizations to pursue. This call for transformation requires FM to develop a global understanding of the risks involved in traditional and current practices, and the role of FM in planning for an uncertain future by addressing:

- demand organization priorities, and FM organization capabilities;
- end-user needs and preferences;
- the ways in which facilities interact and are integrated;
- the systems and performance it influences;
- the SDGs it contributes to;
- the value of resilience and adaptability;
- responsibilities for managing risks.

A growing range of voluntary sustainability concepts can be used to achieve accredited certifications at various levels. This includes certification of an organizations management system (e.g. EN ISO 14001 [1]), various building certifications and reporting formats. The certifications can be used to achieve third-party validation of an organization's status, efforts, and goals or they can be used to guide processes and target setting.

NOTE The European Green Deal policy is a driver for new European rules and regulations. The Corporate Sustainability Reporting Directive (CSRD) requires large companies and listed companies to publish regular reports on the social and environmental risks they face, and on how their activities impact people and the environment. This demand for sustainability reporting of large organizations, in the format of ESG reports (Environment, Social and Governance), is likely to stimulate smaller organizations' sustainability reporting as the mandatory reporting also includes supplier data, and this includes data from suppliers to the FM organizations.

The scope of the ESG reporting relevant to FM is CO₂-emissions, energy sources and efficiency, water consumption, waste management, gender equity and equity in salary.

The sustainability challenges are as mentioned manifold and calls for awareness, commitment, and new capabilities in both the demand and support organization. Some general actions are:

- plan and implement net zero emissions transformations;
- design/purchase/implement/maintain for long-life products (including buildings);
- creation of circular supply chains;
- work towards net zero emissions transportation;
- reduce travelling operations;
- review construction and building material business models;
- achieve net zero carbon owned or leased facilities
- provide for endemic plants and spices locally, and fight loss of biodiversity in general.

Annex H provides descriptions and criteria for a sustainability rating of a building. For additional information on sustainability and resilience, see CEN ISO/TR 41019 [22]. Following, two selected topics are described in more detail.

5.3.2 Resilience

Resilience is the ability to anticipate and adapt to, resist or quickly recover from a potentially disruptive event, whether natural or man-made (see ISO 15392 [30]). The foundation of an organization's resilience is, therefore, effective risk management, which can demonstrate the following criteria at a strategic level:

- a risk management strategy has been approved by top management.
- a risk control matrix is in place and is regularly updated.
- contingency plans are in place and the required processes and responsibilities defined.
- management and staff are educated and there are regular tests and exercises.
- risk management of the core business and the support processes are aligned; risk management can be integrated and provided to the organization by FM as a service.

What sustainability concerns, an important aspect today is the adaptation to climate change which represents adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli or their effects or climate change impacts, risks and opportunities, with a subsequent improvement in resilience. Tactical steps for addressing climate change can involve:

- developing the knowledge base;

- policy and planning approaches to procurement of resources;
- policy and planning approaches to changes to designs or approvals;
- the modification, relocation or replacement of existing infrastructure;
- the alteration of operations or maintenance regimes.

For additional information on sustainability and resilience, see CEN ISO/TR 41019 [22].

5.3.3 Greenhouse gas emission reduction

Due to the more and more commonly agreed need to reduce greenhouse gas emissions and to become less dependent on non-renewable energies, many organizations have set themselves a respective goal within a certain timeframe as part of their sustainability strategy.

The criteria to achieve such a goal are as follows:

- a reduction strategy has been approved by top management;
- emissions are measured and reported in a transparent way;
- reliable (scientifically based) emission factors are applied;
- the scope (direct, indirect, embodied, up-/downstream emissions etc.) is well defined;
- a reduction plan with defined measures, including costs and benefits exists;
- there are sufficient budgets allocated to execute the plan;
- the organization is ready to invest in compensation or neutralization projects.

If organized centrally within FM, planning, process optimization, measuring, reporting, and improvement form part of the facility service 9100 Sustainability (see Clause 8)

6 FM roles and competences

6.1 Key messages concerning roles and competences

The term role in this document refers to the position one or more people hold in a process or the part which someone plays in an organization. The term function, sometimes used nearly synonymous for role, is used for the definition of FM.

CEN ISO/TR 41013 [16] describes factors influencing organizational solutions and consequently influencing the role of e.g. the facility manager.

- 1) Following the allocation of processes, functions and responsibilities, FM requires different competences on the three levels strategic, tactical and operational;
- 2) The roles and type and level of competences depend on e.g. goals, demand, resources, changes, responsibilities and accountability, ownership of assets, size of the organization, etc (see CEN ISO/TR 41013 [16] and competencies assignment matrix);
- 3) The facility manager is typically the head of the FM unit leading and representing the FM unit. In this function or role, this person can be part of the top management of the organization (e.g. CFMO or CSO) and responsible for the support resources and accountable for the outcome and effects;

This document proposes a systematic approach how to link together roles competences, processes (Clause 7) and the facility services map (Clause 8).

6.2 Role model

A role is fulfilled by one or more persons in an organization and each person can have one or more roles in this organization. This depends for example on the size, the complexity, or the business branch of the organization.

EXAMPLE In a small start-up company renting some offices the facility services can be handled by any member of the staff without a distinct FM organization. In a real estate company renting out office space, there is a need for FM for the internal support services integration as well as for servicing the basic needs of their buildings while all tenants have their own FM for their needs.

In Annex E, an example of an organizational hierarchy is provided based on the generic FM processes and the facility services map. However, roles are not necessarily equal to the organizational hierarchy.

Also, in the same Annex, the following three examples of hierarchical role models are given where individual role models can be derived from:

- organizational role model;
- services provision role model;
- project role model (e.g. ICT projects or construction projects).

6.3 Competences assignment matrix

Competences can be characterized as follows:

- professional/technical literacies/competences (knowledge) e.g. professional knowledge;
- method and cognitive competences (skills) e.g. problem-solving and logical thinking skills;
- social/interpersonal and self-competences (abilities) e.g. self-motivating ability.

There are different structures of competences in FM. Therefore, as an example of a systematic approach, a roles and competences assignment matrix is suggested which refers to the FM processes, on each level, and is complemented by the facility services map defined in this document. The aim of the matrix is to support the important task of defining the required competencies in a structured way.

A basic matrix and a detailed example are given in Annex F.

Using the matrix as a checklist, the competences to perform the required combination of roles in the individual situation in an organization can be derived from and defined e.g. to write a job specification in order to hire new staff.

In Annex E, the competences relating to the strategic processes are briefly described. Effectively required competences are individual for each organization.

7 FM processes

7.1 Key messages concerning FM processes

The general process terminology is defined in EN ISO 41001 [14]. This document defines FM processes (FMP) as generic management processes in FM (e.g. S3.2 Leading the FM unit) and specific production/facility services (provision or delivery) processes (e.g. 1170 Cleaning) (see Annex J):

- 1) A process is a set of interrelated activities which at least plan, prepare, do/execute, evaluate, check, report, and improve the process.
- 2) A process consists of inputs, process activities (described as a workflow) and creates outputs.
- 3) Processes are triggered by defined states, the output of other processes or by changes on every level of the organization (requests for change by end-user, middle and top management).
- 4) The activities are carried out in a logical sequence (workflow) and in the execution of identified responsibilities.
- 5) FM processes are linked to the demand (requirements) of the organization.
- 6) Processes should be set up for the specific circumstances and requirements of an organization and be continuously improved.

The application of a system of processes within an organization, together with the identification of interactions between these processes and their management to produce the desired outcome, can be referred to as the “process approach”. An advantage of the process approach is the ongoing control that it provides over the linkage between the individual processes within the system of processes, as well as over their combination and interaction.

In addition, the process approach methodology adopted in EN ISO 41001 [14], known as “Plan-Do-Check-Act” (controlling cycle, PDCA), can be briefly described as follows:

Plan: establish the objectives and processes necessary to deliver results in accordance with customer requirements and the organization’s policies.

Do: implement/execute the processes.

Check: monitor and measure processes and product against policies, objectives and requirements for the product and report the results.

Act: take actions to continually improve process performance.

A process transforms an input into an output. The input of a process are facilities (tangible assets) and other resources like energy, data/information, and conditions. Human resources are required for the transformation (execution, performance of activities). The output of a process is a product. Four product categories are listed: services, software, hardware, and processed materials. In FM this includes facilities, decisions, proposals, data/information, and results. Operational support processes assigned to FM are called facility services processes; their specific products are called facility services and include all four product categories. Therefore, the term facility product may be used synonymously for facility service. The hierarchically structured facility services map is intended to help to define the demand, tendering, develop SLAs, organizational structure, cost allocation, quality measurement and benchmarking in a comparable (benchmarking) and yet flexible manner.

To describe a facility process and its output - the facility services/products - adequately, four dimensions of data are required, see Figure 3:

Dimension 1: **Facilities** (what is used, transformed and/or provided in the process)

Dimension 2: **Activities** (what tasks are performed for the transformation of input into output, preferably structured in a workflow following the EN ISO controlling cycle PDCA)

Dimension 3: **Costs** of resources (what costs (capital, personnel, material, taxes, etc) are generated)

Dimension 4: **Agreement** and SLA (who orders and pays for what service, in what quality, in which time and reaching what effects)

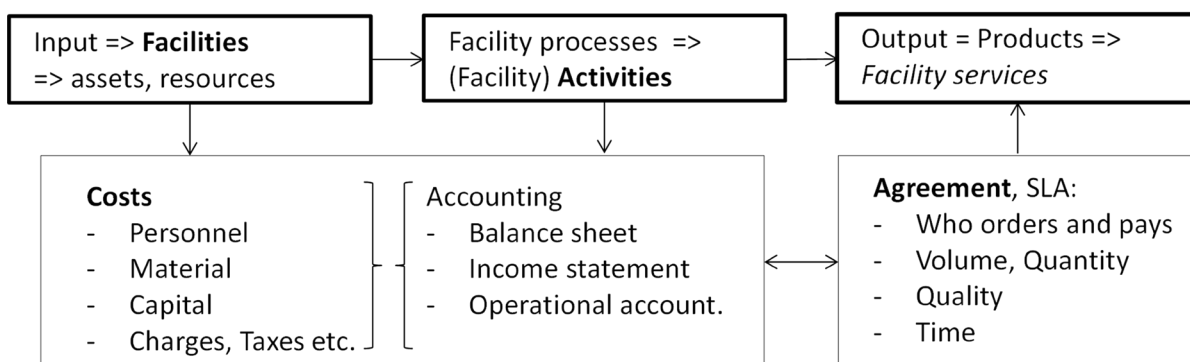


Figure 3 — The four dimensions (bold) required to describe FM processes and facility services adequately (following EN ISO 41001 [14])

7.2 FM processes on strategic, tactical, and operational level

This document differentiates between generic FM processes (FMP) (e.g. leading the FM unit S3.2) and specific production/facility services processes (e.g. 1300 cleaning).

The FMP have been structured in form of a matrix. Each process is part of a horizontal controlling cycle process chain (plan (prepare), do (execute), check (control), and act (improve)) in accordance with EN ISO 41001 [14] definitions. Each process is numbered. Sub-numbers (e.g. for specific strategies like portfolio strategy S4.1x are possible).

On a strategic level, there are vertically the four process chains (themes) interface with top management, quality management, leading the FM unit, and strategy and resources in the matrix, see Table 3 (SOURCE: EN 15221-4:2011 [3] and EN 15221-5:2011 [4]).

Table 3 — Matrix of FM processes on a strategic level

Theme	Plan	Do	Check	Act
1) Top management interface	S1.1 Alignment, setting goals	S1.2 Consulting of top management	S1.3 Reporting to top management	S1.4 Communication, adjustment of goals
2) QM quality management strategic level	S2.1 Identifying need and demand specifications	S2.2 Developing corporate FM standards	S2.3 Fulfilment of requirements	S2.4 Managing risks

Theme	Plan	Do	Check	Act
3) FM-organization	S3.1 FM-agreement	S3.2 Leading FM organization	S3.3 Controlling FM organization	S3.4 Managing cont. improvement
4) FM strategy and resources	S4.1 Strategic planning and strategy development	S4.2 Strategic projects (strategy implementation)	S4.3 Strategic controlling	S4.4 External relations

On a tactical level, there are vertically the five process chains (themes) interface with middle management/department, quality management, leading the facility services provision, specific tasks on this level, and resources on this level in the matrix, see Table 4.

Table 4 — Matrix of FM processes on a tactical level

Theme	Plan	Do	Check	Act
1) Department interface	T1.1 Alignment with departments	T1.2 Coordination, consulting of departments	T1.3 Reporting to departments	T1.4 Change management on tactical level
2) QM quality management tactical level	T2.1 Service level elaboration	T2.2 Implement FM standards	T2.3 Evaluation of performance	T2.4 Compliance
3) FS-organization	T3.1 Service level agreements (SLA)	T3.2 Managing FM departments	T3.3 Administration and documentation	T3.4 Continuous improvement tactical
4) FM policy and plans	T4.1 Tactical planning, policy	T4.2 Service coordination	T4.3 Monitoring conditions	T4.4 Comm. with departments and end users
5) Resources	T5.1 Resource planning	T5.2 Sourcing, procurement	T5.3 Check use of resources	T5.4 Provider management

On an operational level, there are vertically the two process chains (themes) operational facility services provision and quality management on this level in the matrix, see Table 5.

Table 5 — Matrix of FM processes on an operational level

Theme	Plan	Do	Check	Act
1) Facility products and facility services	01.1 Services planning and commissioning	01.2 Production/ Provision (see the services map)	01.3 Acceptance and reporting	01.4 Change management. on operational level, optimization
2) QM quality management	02.1 Organizing of measuring (I/T/O)	02.2 Data collection	02.3 Evaluation and documentation	02.4 Continuous improvement process operational

For detailed facility production/provision processes (01.2) see the facility services map in Clause 8. Each service has an associated facility service (provision) process (e.g. Cleaning 01.2/1170).

The FMP are useful for e.g.:

- Design of process chains (are the questions behind the processes covered?), see examples S.1.1 to S.1.4;
- Building organizational structures (are the responsibilities for these tasks attributed?);
- Cost accounting and time recording on management level;
- Ensuring that PDCA controlling cycles are closed on every level making it an effective performance management system.

Possible questions behind the FMP (examples):

- S1.1: Are the FM organization and its activities aligned with the organization and its mission and strategy?
- S1.2: Does the organization need specific consulting?
- S1.3: Does the reporting cover all the informational needs of the organization?
- S1.4: Is the continuous improvement process formalized and a regular point on the agenda of the senior management?

7.3 Horizontal (PDCA), vertical (top-down, bottom-up) and combined process chains

Within the FMP, there are horizontal process chains (e.g. planning/setting up, leading, controlling and improving the FM unit) following a controlling cycle (e.g. PDCA as defined in EN ISO 41001 [14]), vertical process chains either top-down (e.g. planning a service delivery starts with alignment with the top management and goes down through all three levels) or bottom-up (e.g. service controlling starts with measuring the performance on operational level and ends with reporting back on strategic level), or specific combinations of all (e.g. in EN ISO 41012 [15] the sourcing and service delivery process chain, see 7.6). Each process can be triggered by different processes or other triggers and be part of different process chains and may be repeated several times or performed repeatedly or constantly.

7.4 Sourcing – criteria for in-house vs. outsourcing or out-tasking

For criteria which may have an impact on sourcing strategy (in-house vs. outsourcing or out-tasking) see EN ISO 41012 [15]. As most organizations live in an environment of various phases of change, these sourcing processes should be continuous and always closely linked to the organization's overall business strategy.

There are three predominate models for service provision:

- all services provided and distributed by an in-house FM organization;
- all services outsourced on agreement(s) with one or more external service providers;
- some services provided by an in-house FM organization and some by external service providers.

Even when all services are outsourced or out-tasked, at least minimal FM competence should be available within the organization.

Outsourcing is commonly linked to cost reduction, which typically leads to a corresponding decrease in service quality. It is advisable to develop a sourcing strategy.

7.5 Sourcing and service delivery process chain

The sourcing and service delivery process chain is the most important and most repeated process chain in FM. It consists of vertical (planning top-down and reporting bottom-up) and horizontal (operational service provision) chains of FMP, see Figure 4.

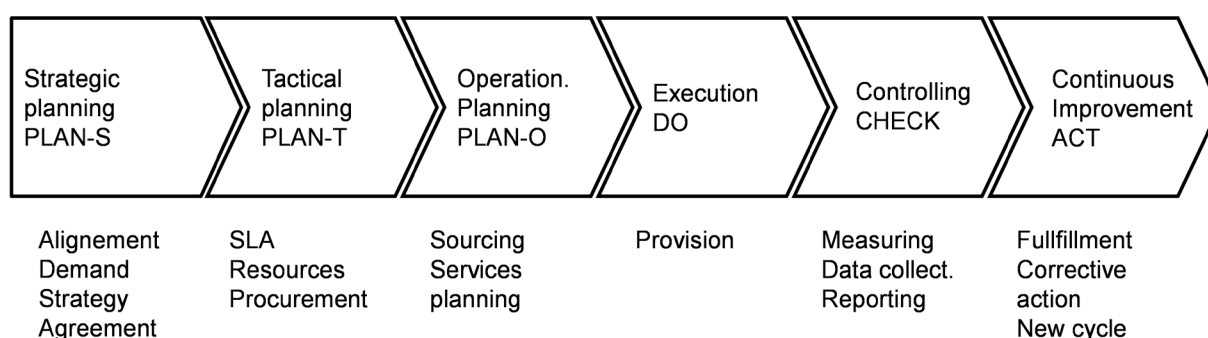


Figure 4 — Service delivery process chain with references to the FMP

The link between the FMPs and the sourcing process chain in EN ISO 41012 [15] is given in Annex K.

7.6 Real estate delivery process

There are similarities but also differences between a service delivery and a real estate delivery process chain, see Figure 5.

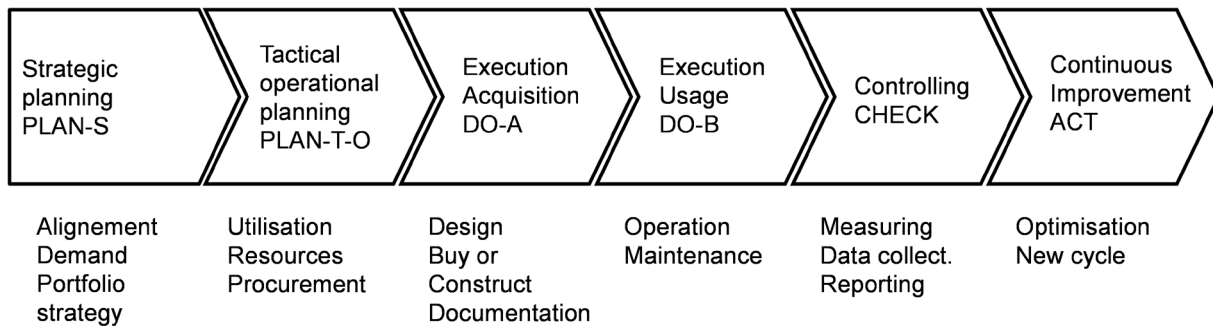


Figure 5 — Real estate delivery process chain with references to the FMP

It is estimated that the costs of a built asset in the operational phase normally exceed the costs in the construction phase. Therefore, it is imperative to optimize the operational cost in the planning and construction (project) phase to minimize whole life cycle costs.

The link between an infrastructure delivery model as an example and the respective FMP is given in Annex K.

8 Facility service processes

8.1 Key messages concerning facility service processes

According to EN ISO management system standards the output of a process is a product which can be a service. Support services which are integrated and managed under FM are called facility services. Due to the EN ISO definition, facility product can be used as an equal term to facility service. Each facility service has its own associated facility service process. These processes are embedded in the operational FMP.

There is a wide array and large number of support/facility services in organizations which can be structured in many different ways. This clause provides a hierarchically structured list of standardized facility services called facility services (process) map in order to enable common definitions, standardized tendering, comparable cost allocation, measurements and benchmarking. The list has been compiled from a database covering more than 1000 facility services related terms and a matching table covering a large number of existing facility services structures and cost structures.

- 1) Out of the large number of support services, a hierarchically structured set of defined or standardized facility services (facility products) has been compiled in the facility services map.
- 2) On a strategic level, the defined service is the sum of the output of the generic FMP on this level (strategic management), and all costs of all facility services are aggregated.
- 3) The map is then structured on a tactical level into services related to Space and Infrastructure (hard services, real estate management, built environment, costs per m²), into services related to People and Organization (soft services, work environment, costs per capita), and into Central functions; Costs are aggregated to these three headings.
- 4) Effective facility services provision is, per definition, taking place on operational level. Costs are allocated on this level.
- 5) To describe a facility service the four separate dimensions facilities, activities/processes, costs, and income (service level agreement) need to be defined.

- 6) The map is adaptable to individual needs without compromising the comparability with other organizations.
- 7) The wide array of services ensures that most individual or special services can be attributed to one of the services in the map in order to remain comparable with the market.

8.2 The facility services map

The facility services (processes) map is a hierarchical structure of a wide array of support services. The map (see Annex L) covers around 100 services. It has been primarily developed from a demand side or users' perspective (e.g. typically, users require a comfortably heated space and not merely square meters and a separate heating system) but can be individually shortened or extended to meet the specific demand of an organization or further detailed for suppliers needs (e.g. cost of space heating system maintenance).

The map provides a basis for:

- 1) uniform specification for the tendering and provision of services,
- 2) standardized cost allocation and cost comparisons,
- 3) measuring quality and performance in a consistent way,
- 4) benchmarking across organizations and national borders,
- 5) standardized facility services process descriptions.

Its use is manifold and includes e.g.:

- check-list for deciding the split between core business and FM (and other support services);
- role model for the internal organization of the FM unit;
- check-list for the elaboration of the FM agreement, the SLAs, and the quality management system;
- check-list for structuring the operational and the asset accounting in the organization and/or FM unit and consequently for cost controlling and reporting (hierarchical cost aggregation);
- standardized reference numbering for the organization of KPI's and benchmarking;
- reference numbering for development of standardized tendering;
- reference numbering for linking assets to services in BIM;
- basis for the development and addition of branch specific facility services (interface in the map provided: services 1900 and 2900).

Possible adaptations to individual needs and uses include e.g.:

- using of upper hierarchical levels only;
- using of a different number of levels depending on the importance of the respective services;
- adding further levels on the bottom for more details;
- adding new levels in between to sub-summarize certain services;

- adding or deleting services as needed (the numbering ensures transparency over what services are included on the next level);
- splitting services into two or more services.

These possible individual adaptations render the map very flexible.

Figure 6 is a high-level representation of the entire services/products map:

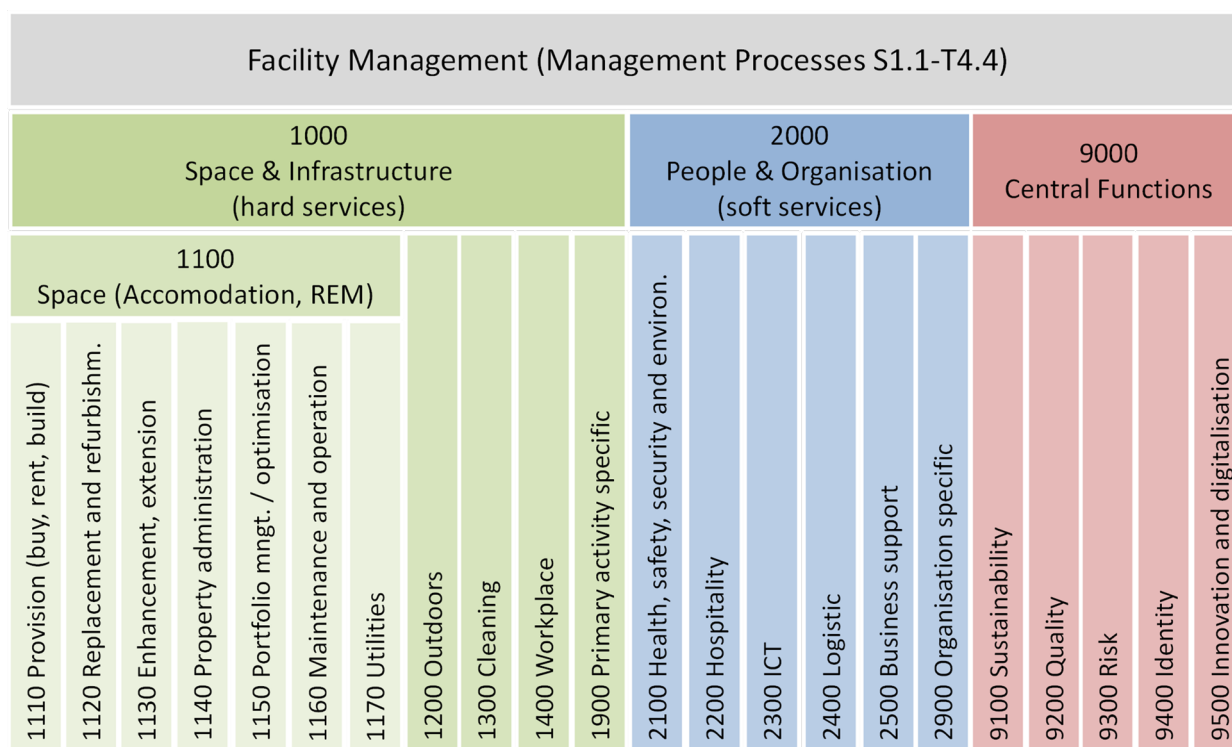


Figure 6 — Hierarchy of standardized facility services (facility services map top levels)

In addition to the more generic facility services there is also a category called Primary Activity Specific under Space and Infrastructure (1900) and similarly a category called Organization Specific under People and Organization (2900). These categories act as interfaces and allow individual organizations to tailor the product map and incorporate business or branch specific elements.

In elaborating the structure, it was essential to draw a clear distinction between facilities (tangible assets, hardware, materials, energy, etc.) and activities (action, doing, workflow). In a construction phase example, bricks and mortar (facilities) are processed by the activity of bricklaying (specified activity) to construct a wall. The wall becomes part of the facility “building” needed to provide the product “Space”. In the operational phase the same wall (facility) will eventually need to be cleaned, repaired, or repainted (activities). This approach requires generic structures (dimensions) which can be freely combined (e.g. the activity ‘cleaning’ can be applied to floors, carpets, windows, walls, ducts, machines, etc.), and the facilities structure can also be used for other purposes (e.g. maintenance and refurbishment planning). The aim is to be able to use consistent data and terminology throughout the whole life cycle of a facility.

With the cost elements attributed as the third independent structural dimension, virtually any existing cost structure can be interlocked and compared. To try to reduce these three dimensions into a one-dimensional list means to repeat elements of the other structures several times or to lose some of the information.

To ensure the services map reflects common practice in FM it has been necessary to slightly modify the structure and alignment in the following areas:

- 1) The product 'Space' and its subdivisions (see Figure 6) are specially designed to facilitate life cycle costing.
- 2) Capital costs in the product 'Space' are separated from annual running costs and divided into three sections: initial investment costs, cost of refurbishment, and cost of enhancement of initial performance (Figure I.1).
- 3) The activities in the product 'Cleaning' have a link to facilities in other products (e.g. cleaning the furniture in 'Workplace').
- 4) Maintenance and Operation is subdivided into fabric and technical building equipment following the facilities structure.

An exemplary table how to describe the facility services is given in Annex C and the detailed services map is included in Annex L.

8.3 Costs

The facility services map treats facilities and associated costs as separate dimensions. Unlike the other services, Space is directly divided into capital expenses (CAPEX) and operational expenses (OPEX). This enables direct life cycle cost analysis and asset accounting (for detailed information see Annex I).

8.4 Income

The provision of services usually generates an income for the FM organization to cover its costs or to generate a profit. The terms of the income generation are described in the FM agreement and/or the SLA.

Possible forms of income include:

- lump sum;
- quantity-based (time or duration, number of, achieved quality, etc.);
- cost-based (hours worked, resources used, external costs, etc.).

For more information (e.g. pricing strategy) see EN ISO 41012 [15].

9 Quality

9.1 Key messages concerning quality

FM should analyse, identify, plan, procure, provide, control, adapt and improve the agreed facility services and resources to enable the primary processes. To be able to define the right level of quality in FM is key to the business enabling responsibility of FM.

This requires the competence to evaluate the quality level and to implement controlling tools as well as to monitor the utilization of the resources and to identify and realize optimization of processes as part of the continuous improvement.

Controlling the FM organization and external partners to achieve the agreed goals for the core business also requires specific procedures, competences, and controlling methods.

- 1) The quality of the support processes may influence the primary processes and the organizational objectives considerably.