

BS EN 15221-4:2011



BSI Standards Publication

Facility Management

Part 4: Taxonomy, Classification and Structures in Facility Management

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National foreword

This British Standard is the UK implementation of EN 15221-4:2011.

BSI, as the UK member of CEN, is obliged to publish EN 15221-4:2011 as a British Standard. However, attention is drawn to the fact that during the development of this European Standard, the UK committee voted against its approval as a European Standard. Throughout its development, the UK committee FMW/1 attempted to ensure that it met its original intent to support the forthcoming benchmarking standard, EN 15221-7, but much of the content of EN 15221-4:2011 does not apply to benchmarking. As a result, there is the potential for conflict between EN 15221-4:2011 and EN 15221-7. Therefore, the committee would recommend users take caution when using both standards together.

As well as this, whilst EN 15221-4:2011 does establish a high level classification and hierarchical coding structure in the classified products list for standardized facility products, the list does not include a structured logic for the allocation of services within the hierarchy. The UK committee would like to point out that this limits its use as a practical guide to facilities managers within the UK. However, the user can create their own definition for those parts of the product classification that have not been standardized and use the informative information contained in Annex E regarding the allocation of costs within the proposed coding structure, in order to overcome this.

The UK participation in its preparation was entrusted to Technical Committee FMW/1, Facilities management.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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**Facility Management - Part 4: Taxonomy, Classification and
Structures in Facility Management**

Facilities management - Partie 4: Taxinomie, classification
et structures

Facility Management - Teil 4: Taxonomie, Klassifikation und
Strukturen im Facility Management

This European Standard was approved by CEN on 8 July 2011.

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Foreword

This document (EN 15221-4:2011) has been prepared by Technical Committee CEN/TC 348 "Facility Management", the secretariat of which is held by NEN.

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 April 2012, and conflicting national standards shall be withdrawn at the latest by April 2012.

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

This European Standard is one of the series EN 15221 "*Facility Management*" which consists of the following parts:

- *Part 1: Terms and definitions*
- *Part 2: Guidance on how to prepare Facility Management agreements*
- *Part 3: Guidance on quality in Facility Management*
- *Part 4: Taxonomy, Classification and Structures in Facility Management*
- *Part 5: Guidance on Facility Management processes*
- *Part 6: Area and Space Measurement in Facility Management*
- *Part 7: Performance Benchmarking*

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

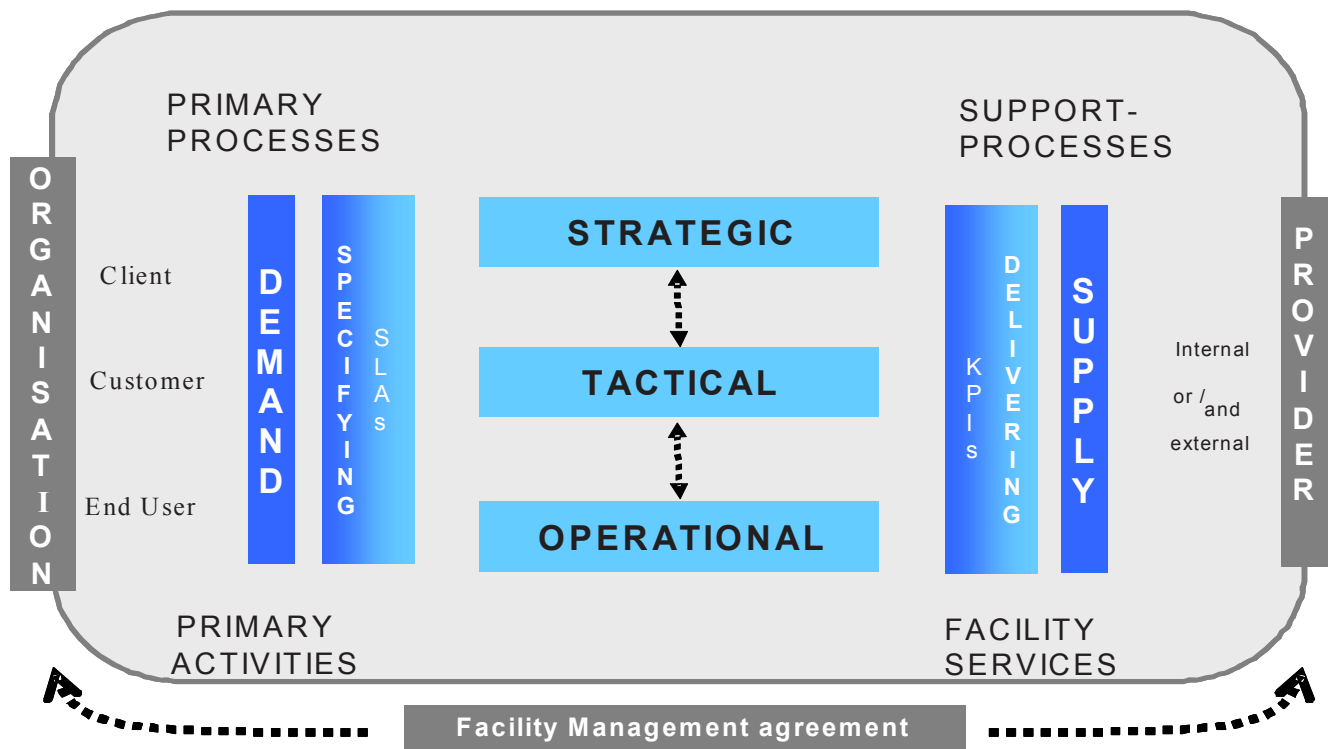
Common Introduction for the European Standards EN 15221-3, EN 15221-4, EN 15221-5 and EN 15221-6

In 2002 the initiative was taken to establish a European Standard for Facility Management benchmarking purposes. It was soon recognized that to reach this objective, preliminary standards had to be elaborated and published. The first result of that process was the standards EN 15221-1:2006 and EN 15221-2:2006. Based on the discussions in the development of those two standards the decision was made to develop four new European Standards for Quality, Taxonomy, Processes and Measurement.

After the realization of those six standards it was possible to pursue developing a European Standard for Benchmarking prEN 15221-7.

The standards, EN 15221-3, EN 15221-4, EN 15221-5 and EN 15221-6 have been developed, adopted and agreed as a set of principles, underlying the Facility Management approach on EN 15221-1, to ensure consistency. These are incorporated in the basic principles of a process-based management system, upon which these standards are founded.

The FM-model of EN 15221-1 is shown below.



Model EN 15221-1:2006

These standards also build on widely accepted management principles, in particular value chain (Porter, M E, (1985), "Competitive Advantage: creating and sustaining superior performance", Free Press, New York) and quality control (PDCA. Deming, W E (1986), "Out of the Crisis", MIT, Cambridge). Reference to ISO 10014:2006, *Quality management – Guidelines for realizing financial and economic benefits*.

The principles of the Deming cycle (PDCA) underpin all of the standards but are applied to a different extent and depth in each. In fact, there are different types of PDCA cycles depending of the term (e.g. long term, short term).

These standards align to EN ISO 9000 family of standards for Quality Management Systems and apply specific guidance on the concepts and use of a process-based approach to management systems to the field of Facility Management.

The term "facility services" is used as a generic description in the standards. The term "standardized facility products" refers to the "standardized facility services" defined and described in EN 15221-4, *Facility Management — Part 4: Taxonomy, Classification and Structures in Facility Management*.

Countries can decide to substitute the term "product" into "service", when they consider that it is important for a good acceptance and use of the standards in their own country.

The aim of all the standards is to provide guidance to Facility Management (FM) organizations on the development and improvement of their FM processes to support the primary activities. This will support organizational development, innovation and improvement and will form a foundation for the further professional development of FM and its advancement in Europe. Therefore, generic examples are provided in the standard to assist organizations.

These standards lay the foundation of the work that has to be done further more in developing Facility Management, for example, benchmark standards prEN 15221-7.

Introduction to Taxonomy, Classification and Structures in Facility Management

In the European Standard EN 15221-1 Facility Management is defined as the integration of processes that support the primary business of an organisation. Facility Management (FM) according to this definition envisages a business model that encourages an organisation to optimise its support services. The key focus is to improve the effectiveness of the primary activities of an organisation by streamlining the service provision and interaction of the parties.

Accessibility to the resources necessary to facilitate knowledge development, innovation and business improvement are important in a global market where leading edge practices are maintaining or improving competitive advantage as key objectives of a successful business or governmental organisation. Taxonomy provides a framework within which knowledge is able to be identified and categorised for ease of access by practitioners.

Based on various definitions, the most evident conclusion is that taxonomy is a classification system for improved information management, which contributes to improving the capability of users to sustain and improve the operations of their business. The key concept relates to how the use of taxonomy will improve the operations of the business. In this regard, the structure of taxonomy should be closely aligned to business processes so that the user's access to information is intuitively driven.

EN 15221-4 provides a taxonomy with a relationship model which integrates the FM-model, the process matrix, the product/service structure and a classification system. These are essential contributions to the removal of barriers to harmonisation and cross border trade.

This standard uses the term product in accordance with EN ISO 9000 which defines a product as the result of a process. In the context of FM, a product is a result of a process and the respective activities / facilities.

The standardised (classified) facility products are a well defined (commodified) and hierarchically organised set of facility services. They have been selected from the countless number of individual (customised) facility services to provide a basis for standardisation in the field of process definition, cost allocation, standardised tendering etc. They have been selected from a client perspective and attempt to integrate different European customs and practices.

1 Scope

FM covers and integrates a very broad scope of processes, products / services, activities and facilities. The approach of this standard is to consider the added value provided to the primary activities by adopting a product perspective as recognised by the primary processes or core business in the organisation. This standard therefore introduces the concept of standardised (classified) facility products.

The scope of this standard is to provide taxonomy for FM which includes:

- relevant interrelationships of elements and their structures in FM;
- definitions of terms and contents to standardise facility products which provide a basis for cross border trade, data management, cost allocation and benchmarking;
- a high level classification and hierarchical coding structure for the standardised facility products;
- expanding the basic FM model given in EN 15221-1 by adding a time scale in the form of the quality cycle called PDCA (Plan, Do, Check, Act);
- a linkage to existing cost and facilities structures;
- alignment with the primary activities requirements.

Additional benefits from this standard are:

- Introducing a client rather than a specifically asset oriented view;
- Harmonisation of different existing national structures (e.g. building cost codes) on an upper level relevant for the organisation and its primary activities.

2 Normative references

The following referenced documents are indispensable for the application 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 15221-1:2006, *Facility Management — Part 1: Terms and definitions*

EN 13306, *Maintenance — Maintenance terminology*

3 Terms and definitions

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

3.1 General taxonomy of Facility Management related terms and definitions

3.1.1

adaptability

possibility (ability) of changing characteristics like volume or function or space in order to meet new requirements

NOTE 1 Adaptability consists of:

- Elasticity: The possibility of changing the volume;

- Generality: The possibility of changing the function;
- Flexibility: The possibility of changing the distribution of space.

NOTE 2 Usability is defined in ISO 9241.

3.1.2

classification

system for grouping and categorising items with similar characteristics (attributes)

3.1.3

facility manager

person responsible for the facility management organisation who is the single point of contact for the client on strategic level; leads the FM organisation, ensures quality and continuous improvement and conducts strategic projects and tasks

NOTE If he is a member of the board of the organisation, the facility manager is also called Chief Facility Management Officer CFMO or Chief Facility Executive CFE.

3.1.4

facility process

support process which is integrated and managed by FM

NOTE 1 The output of a facility process is a facility product.

NOTE 2 Facility processes are subdivided into facility management processes on strategic and tactical level and facility services processes on operational level.

3.1.5

FM product map

structure of the standardised (classified) facility products in FM

NOTE Based on EN ISO 9000 the term product is used to cover service, software and hardware.

3.1.6

hierarchy

structure of levels in which each level includes its lower levels

NOTE Taxonomies are frequently arranged in a hierarchical structure. Typically they are related by supertype-subtype, also called parent-child relationships.

3.1.7

real estate

encompasses land along with anything affixed to the land, such as buildings

NOTE Real estate, immovable property, real property, realty are used synonymously.

3.1.8

standardised facility product

one of a defined set of classified and hierarchically organised facility services. Depending on national language customs, the term standardised facility service may be used synonymously

NOTE 1 The term product is used in accordance with EN ISO 9000 being the output of a (facility) process which can be a single or a package of material (hardware) or immaterial provisions (software), supplies or services which support the primary activity of the organisation and its properties.

NOTE 2 The term "Facility product" has been chosen due to its more commodified (classified) and therefore more comparable nature to enable benchmarking while facility services generally are of a more individual and customised nature. The products have been defined from a client perspective while considering different European customs.

NOTE 3 In this standard the term "Facility" (= a tangible asset, see EN 15221-1) is used in the sense of "facilitation", to provide services, assets, tools and consumables to make work easier/to support the primary activities. This includes a whole production site of an organisation and goes down to a single sheet of paper which needs to be purchased, stored, supplied, bound, archived and recycled. Facilities like a building or a sheet of paper are always embedded in activities and the provision of services.

3.1.9 **structure**

relationships between classes, groups and categories and how they are linked together

3.1.10 **support processes**

a workflow of activities not designated as primary activities (non-core activities)

NOTE Support processes which are integrated and delivered by FM are called facility processes.

3.1.11 **taxonomy**

practice and science of classification

NOTE A knowledge map of a topic typically realised as a controlled vocabulary of terms and or phrases. An orderly classification of information according to presumed natural relationships. A classification system for improved information management, which should contribute to improving the capability of users to sustain and improve the operations of their business, into a series of hierarchical groups to make them easier to identify, study, or locate.

3.1.12 **tenant**

individual or business which has temporary possession of or pays rent for real estate owned by another party (landlord)

3.2 Financial and administrative terms and definitions

NOTE When registering, recording or collecting facility costs, as well as allocating them to products, it is necessary to indicate the nature of the costs and revenue. A definition of cost types and terms related to costs used in this standard is given below. For more detailed definitions this standard refers to national or international accounting standards.

3.2.1 **asset management**

activities aiming to optimize the life cycle costs of facilities which have a value for the organisation

NOTE In the context of facility management, this is either an activity within the FM organisation and each standardised facility product concerning the facilities needed to provide its support services or a support service to the primary activity and concerning e.g. its production facilities.

3.2.2 **cost of capital**

interest and provision for capital

3.2.3 **cost of enhancement of initial performance (improvement costs)**

costs needed to change a facility to meet new requirements

3.2.4

depreciation

estimated or expected decline in value of an asset

NOTE The term is used in accounting, economics and finance to spread the cost of an asset over the span of several years.

3.2.5

FM cost centres

element within the accounting system which captures FM-costs

3.2.6

material costs/costs of materials

costs of goods (e.g. consumables, tools, spare parts)

3.2.7

personnel costs/costs of personnel

wage costs (the gross annual salary, including social plans and taxes, holiday pay, gratuities, bonuses and profit sharing) and other personnel costs

3.2.8

primary activity cost centres

element within the accounting system which captures costs

NOTE A cost centre often represents a division that adds to the cost of the organisation.

3.2.9

revenue

earnings

NOTE Costs and revenue are linked to the time when they are generated. Costs therefore are not necessarily equal to expenditure, and revenue does not, by definition, constitute receipts and vice versa.

3.2.10

tax costs

costs such as taxes, fees and offsetting of non-reclaimable VAT (value added tax)

3.3 Definitions of main standardised facility products

NOTE Facility products are hierarchically structured. The principle structure is outlined in the body of this standard and the terms are therefore added in this chapter. The structure follows the examples given in the annex of EN 15221-1 with minor adaptations. A more detailed definition of these standardised facility products as well as the definitions of the products on lower levels are given in Clause 5.

3.3.1

business support

services supporting mainly the management of an organisation, for example, legal counsel

3.3.2

cleaning

services related to hygiene and cleanliness that maintain a proper working environment and help to maintain assets in a good condition

3.3.3

Health, Safety, Security and Environment (HSSE)

services protecting from external dangers or internal risks and protect assets and the health and well-being of the people and providing a safe and sustainable environment

3.3.4

hospitality

services providing a hospitable working environment making people feel welcome and comfortable

3.3.5

ICT

services related to information and communication technologies

3.3.6

logistics

services concerned with the transport and storage of goods and information and improving the relevant processes

3.3.7

organisation specific

services related to people and organisation which are specific to the type or branch of the organisation

3.3.8

outdoors

services related to the outdoor areas including land, maintaining parking facilities, gardening etc.

3.3.9

primary activity specific (Industry sector specific)

services related to space and infrastructure which are specific to the type or branch of the organisation

NOTE A boiler for example can supply heating for buildings or steam for industrial processes. The latter would fall under this product to make investment and energy used in the buildings comparable to other buildings and industry processes comparable to similar industry processes and thus enabling benchmarking.

3.3.10

space (accommodation)

services for the provision of accommodation like design and build, acquisition or renting of space, including the administration and management of space and its disposal

NOTE 1 It includes the utilities and technical infrastructure (technical building equipment) resulting in a comfortable climate and supplying lighting/ shading, electrical power, water and gas.

NOTE 2 The investment costs of the technical infrastructure are generally included in the costs of space. The consequences are that technical infrastructure cannot be a product of its own on this level.

NOTE 3 The term space has several other meanings as well. This definition applies in the context of the standardised facility products.

3.3.11

sustainability

state in which components of the ecosystem and their functions are maintained for the present and future generations

NOTE See ISO 15392 - Sustainability in building construction.

3.3.12

workplace

services related to the working environment, for example, furniture, equipment and tenants fit out

4 Derivation of Facility Products and Relationship Model

4.1 General

The principle reason FM exists as an entity is to support the primary activities of an organisation more effectively, therefore alignment of facility processes that deliver facility services or facility products which are an essential support and/or add value to the client organisation with the primary processes is of fundamental importance.

In the field of Facility Management, there have been many different approaches to the definition, structuring and allocation of costs. The varying requirements have historically not been met by one single cost structure without compromise or repetition of items. This standard therefore defines generic structures and methods for the classification of hierarchically organised and standardised facility products which will allow consistent cost allocation and improve the ability to combine, analyse and present information. Based on EN ISO 9000 the term product is used to cover service, software and hardware.

The map of standardised facility product provides a basis for:

- a) uniform specification for the provision of services;
- b) cost allocation and cost comparisons;
- c) measuring quality and performance in a consistent way;
- d) benchmarking across organisations and national borders.

The creation of a set of high level standardised facility products will, if widely adopted, allow organisations to align internal structures and costs and, over time, benchmark with other similar companies with increased certainty.

Adoption of a detailed costing structure demands considerable time and effort. Every organisation has to determine the appropriate level of detail included in its cost allocation system, however, all organisations should be capable of implementing the high level structures of standardised facility products contained in this standard.

4.2 The generic structures needed to describe a facility product

In the field of Facility Management, there are differing relationships between information and costs. The information can be shown in different ways following different structures. The differing relationships cannot be accommodated by one single (cost) structure without compromise or constant repetition due to the fact that there is usually more than one dimension (independent structure) involved. This taxonomy standard therefore defines generic structures and cost allocation methodologies to consolidate the information and asset evaluation. The various partly overlapping existing structures in Facility Management (cost structures, activities, facilities, processes, resources, life cycle phases, building areas, utilities, ICT network, etc.) have been reduced to a minimal set of three generic structures needed to describe a Facility Product.

When the proposed structure is adopted, organisations will have the ability to compare costs of standardised facility products as well as costs of individual facility services in accordance with already existing cost structures. This ability will be further enhanced by the use of a standard computer based accounting system. At a certain level, cost information used in an accounting system will not be sufficient and physical or measured data like m², kWh, etc. is required. This is the point where the application of an enhanced accounting system like e.g. a CAFM (Computer Aided Facility Management) is recommended.

Two of the resulting generic structures, the activities structure and the facilities structure, are connected together in form of a matrix. Adding cost information as the third structure, the resulting three dimensions (each dimension is representing an independent generic structure) can be visualised in Form of a cube (Figure 1). This cube is used as a model to show that with these generic structures either the cost of each facility or the cost of each activity or the cost of each activity performed on a facility or any other combination

can be displayed separately. The 'fourth' dimension contains information on who has ordered and will pay for the product (the client or customer) and how the price of the product will be charged or billed.

It is 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". The same wall (facility) will eventually need to be cleaned 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. asset management or 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 this cube into a one dimensional list means to repeat elements of the other structures several times or to lose some of the information. To overcome this, delimited volumes within these three dimensions have been defined as products.

This taxonomy standard proposes to use existing structures where applicable, especially existing cost and facilities structures, while activities structures in most cases require further standardisation in FM.

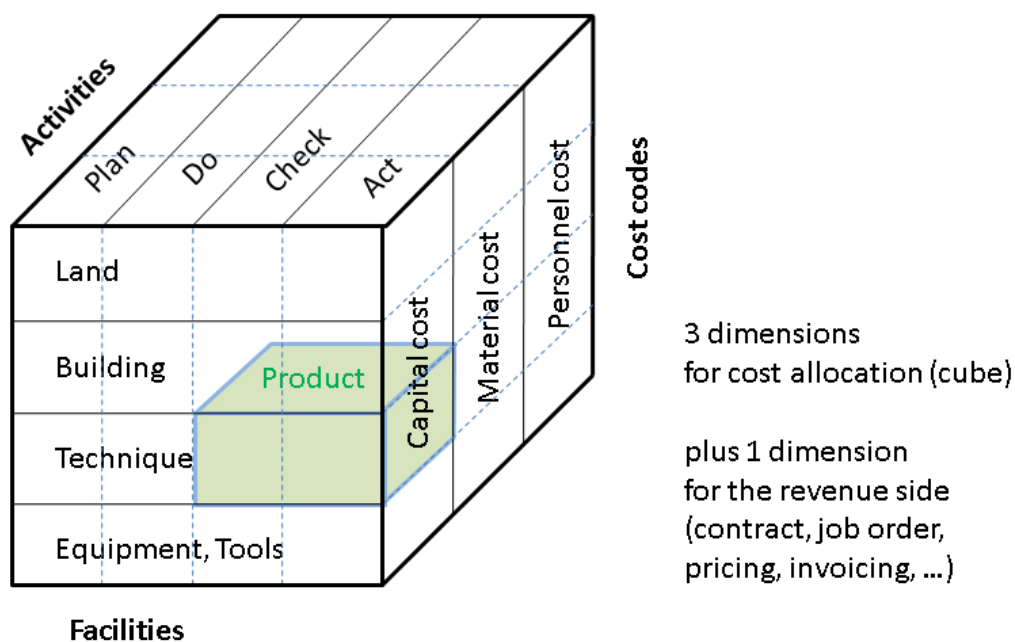


Figure 1 — Exemplary representation of the relationship of the three independent structures (Dimensions) required to describe a product

4.3 Facility Management relationship model

Figure 2 shows the FM relationship model linking the following structures together:

- a) the product map (Clause 4) which includes the standardised facility products (Clause 5);

- b) the facilities related to Space & Infrastructure and People & Organisation as defined in EN 15221-1:2006 (Clause 4);
- c) strategic, tactical and operational levels as defined in the FM model in EN 15221-1:2006 (Clause 6);
- d) the FM process / activities matrix structured aligned with the quality cycle of Plan, Do, Check and Act (PDCA) as defined in ISO 10014:2006 (Clause 6) for the processes/activities;
- e) the cost structure divided in the exemplary main headers of a provider income statement: costs of capital, personnel costs, material costs and depreciation (Clause 7) as used e.g. in international accounting standards (IAS);
- f) the revenue structure which leads to the contract party who orders and pays for the products (client or organisational unit).

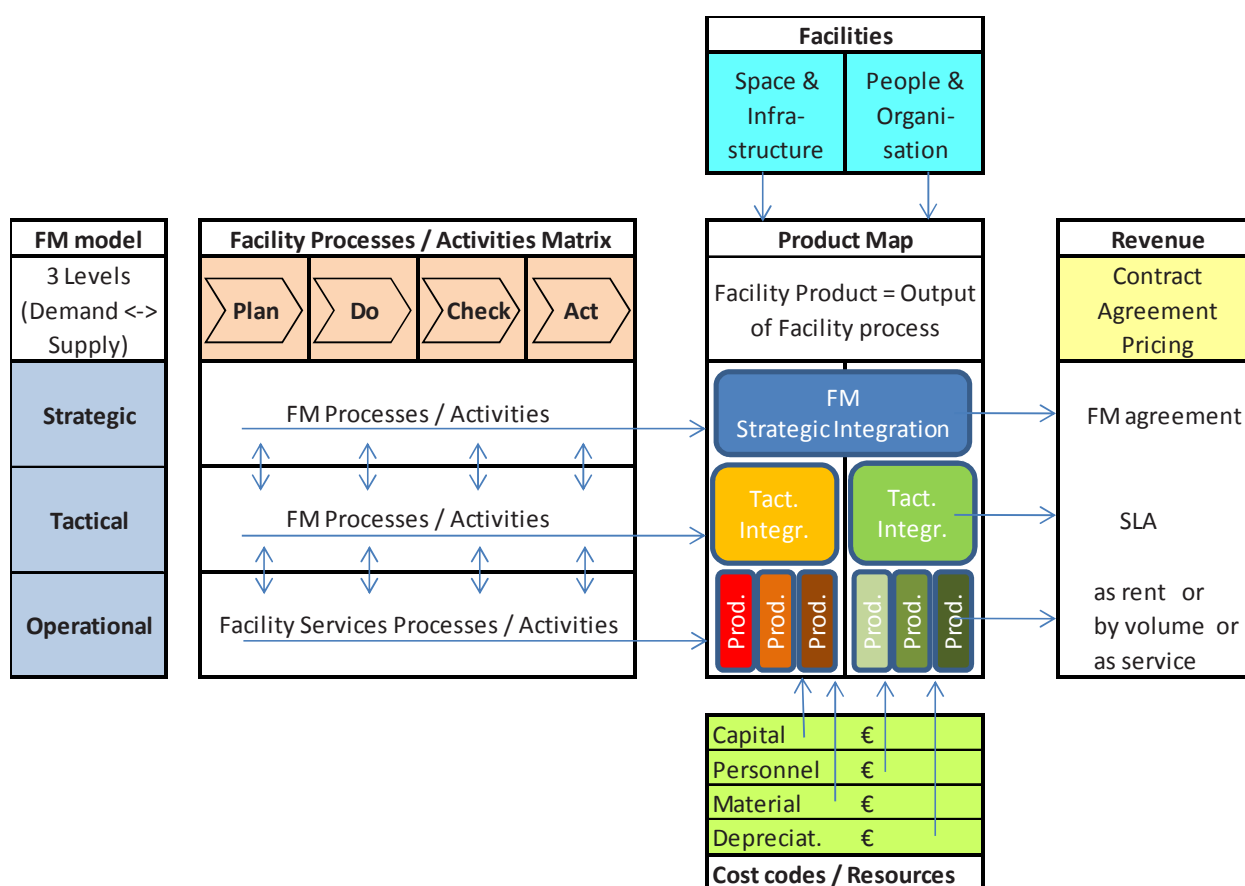


Figure 2 — FM relationship model linking the FM model, the FM process/activities matrix, the facility product map and facilities, cost and revenue structures together

The FM product on a strategic level is the integration of FM processes in accordance with the definition of FM in EN 15221-1. The strategic processes deliver the necessary input from the strategic level (clients demand) to the integration of processes on tactical level. Additionally, there is a set of horizontal or central functions managed on this level.

The integration of processes on a tactical level is divided in the two main groups in accordance to EN 15221-1: Tactical integration related to Space & Infrastructure and tactical integration related to People & Organisation.

The facility products on operational level follow the subdivision on tactical level and are further subdivided within the facilities structure as shown in Figure 3. The Figure is an expansion of the central facility product map (activities-facilities matrix) in Figure 2. It contains an exemplary number of activities for each phase of the PDCA cycle. The quality cycle is applicable on all levels, as well as on each sub-process and single activity (Annex C).

Each intersection in this matrix can be defined as a process producing a product. The activities (and sub-processes) and the facilities are used to describe these facility processes (Figure A.1). Costs (resources) are then allocated to these processes. This level of detail may be required in some organisations. For practical purposes and clarity, this standard defines a workable number of standardised facility products within this detailed matrix. These are the generic facility products, which were found to be common in most industry sectors and organisations. The resulting facility product map is easy to understand and to use whilst being capable of extension (scalable) to meet individual business needs.

In addition to the generic standardised facility products there is also a product category called Primary Activity Specific under Space & Infrastructure and similarly a product category called Organisation Specific under People & Organisation. These product categories allow individual organisations to tailor the product map and incorporate business specific elements.

Activities / Subprocesses			Facilities					People & Organisation						
			Space	Outdoors	Cleaning	Workplace	Primary activity/spec.	HS&E	Hospitality	ICT	Logistics	Business Support	Organis. specific	
Integration on strategic level (PDCA)														
Integration on tactical level (PDCA)														
Operational level	Plan	Plan, Design Activities Acquisition Activities like (examples): Buy, rent, lease, construct Real estate development	1100	1200	1300	1400	1900	2100	2200	2300	2400	2500	2600	
	Do	Administration Activities Operation Activities Maintenance Activities												
	Check	Accounting Activities Controlling Activities												
	Act	Quality, Documenting Activities Execute Improvement Activities												
Cost of Capital														
Cost of Personnel														
Cost of Material														
Depreciation, Taxes etc.														

Figure 3 — Facility product map (facilities/activities matrix with standardised facility products) with exemplary activities list opened for the operational level (for the other levels see Appendix A.1)

A description of each standardised facility product and its sub-products is provided in Clause 5. A graphical overview of the standardised facility products and their sub-products is included in Annex A. Additional information on some specific facility products or groups of facility products (e.g. in relation to their life cycle costing) is given in Annex B.

The basic rule of the products on the upper hierarchical levels is that they contain all facilities, activities and associated costs from the linked items on the lower levels. For example, maintenance of outdoor assets is included in the product Outdoors and not in a separate product Maintenance which would reflect the activity structure. One of the consequences of this rule is that the technical building equipment is not a separate product on this level as its capital costs are included in the cost of space (rent).

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

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

4.4 Processes

4.4.1 General

Processes are sets of working models for activities. Processes are specific orderings of work activities across time and place, with beginnings and endings, and clearly defined inputs and outputs. Processes have to be set up for specific organisations.

The organisation and its specific processes are considered as a whole, regardless of the corporate structure with its entities of the primary activities.

4.4.2 Facility Management Processes

The basis for process standardisation is an interlock between the FM-model contained in EN 15221-1, the processes described in EN 15221-5 and the proposed standardised facility products defined in this standard. This FM-model defines and describes demand from an organisation and supply from a provider view and the connection and coordination / cooperation at all 3 levels (strategic, tactic and operational).

4.4.3 Classification of facility products

This standard promotes a new approach to the structure of facility services by forming a defined set of hierarchically structured classified facility services called standardised facility products.

The classification creates a product hierarchy. There is no necessity for an organisation to demand or for a supplier respectively to supply the complete range of products or these standardised services only.

The classification structure covers all three levels.

- The "facility product" at a strategic level is called FM strategic integration, It is considered as active integration and not just as a bundle of facility products.
- At the tactical level, products related to Space & Infrastructure and related to People & Organisation are integrated and resources allocated.
- At the operational level, there is a set of about 100 standardised facility products on another three hierarchical levels. The classification serves as an identification code positioning the product within

the hierarchical structure. There is no standardisation in terms of internal quality or quantity of the facility product for both the provider and the purchasing and using or consuming organisation.

4.5 The quality cycle in the FM relationship model

The integration performed by FM, in accordance with the definition given in EN 15221-1, is best described by the Quality Cycle Plan-Do-Check-Act (PDCA) described in ISO 10014, *Quality management – Guidelines for realising financial and economic benefits* and also in EN 15221-3.

The basic concept is that each activity should be planned and checked. To close the quality cycle with a continuous improvement process, (key-)performance indicators and benchmarking data is required. To achieve this, standardised processes, products and cost allocation methods are needed. The quality cycle is applicable on all levels, not only on the strategic level, but also for each single activity, if suitable.

In Figure 4, the FM model from EN 15221-1 is linked with the quality cycle as a third dimension of the FM model. If the PDCA activities are performed in sequence, this process dimension can be seen as a time scale.

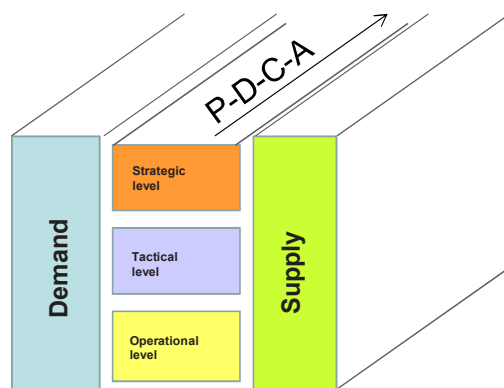


Figure 4 — FM model from EN 15211-1 linked with the quality cycle as a form of time scale

The matrix in Figure 5 integrates the FM model with the quality cycle shown. It includes the main activities (processes) performed in the PDCA cycle divided into strategic, tactical and operational levels. A more detailed matrix with reference to the processes described in EN 15221-5 as an example how the process matrix could be used is given in C.1.

	Plan	Do	Check	Act
Strategic level	Client interface FM-Contract Strategic planning	Integrating all products (services)	Strategic controlling Fulfillment of requirements	Change management Managing improvement process
Tactical level	Customer interface Defining SLA Acquisition/resources	Coordination Central functions	Quality control Cost control	Continuous improvement process
Operational level	Ordering facilities and products/services	Operational doing Facility Production	Evaluation of products	Operational measures

Figure 5 — Exemplary FM process matrix linking the FM model with the quality cycle (refer to Annex C)

FM, in accordance with its definition, aims to improve the effectiveness of the primary business activities. Thus, Act (continuous improvement) becomes an important factor for the industry and added value for the business/ customer. It influences the productive processes by giving feedback to the primary process and providing data for strategic decision making.

4.6 Client perspective and national customs

The standardised facility products in this taxonomy standard have been defined primarily from a client perspective with respect to the more detailed needs of the provider side. A top down approach was used while considering different European customs. This perspective is different from a building oriented perspective. Buildings are considered as a product which may be used by an organisation during a certain period of time.

To accommodate potential for variance in lease structures and implications across sectors and countries this standard provides pan-European definitions (see bottom section of Figure B.6).

NOTE A typical lease for office space in some countries will include the maintenance and repair of the main structure, external fabric and engineering services within the base rent. Also, during the term of a lease the landlord may be involved in additional repairs and refurbishment which again are covered in the base rent. In other countries, such as United Kingdom, the lease structure typically requires the tenant to perform these activities and the cost is therefore an addition to the base rent over the term of the lease. Therefore, as part of any analysis or review of FM activity between organisations, within countries or across European borders, it is vital that the details of the lease structure and obligations are understood, and normalised according to this standard before any comparison is undertaken.

These differences in the lease structure or rent in different countries are the reason why the product "Space" is not equal to the rent and why rent is consequently not defined as a product.

On a European level, the standardised facility products defined in this standard are designed and recommended to compare costs and quality of services. The structured data forms a data pool. From this data pool, existing (national) cost structuring systems can be populated and historical data can be reconfigured to compare costs at the product and sub-product levels (Figure 6).

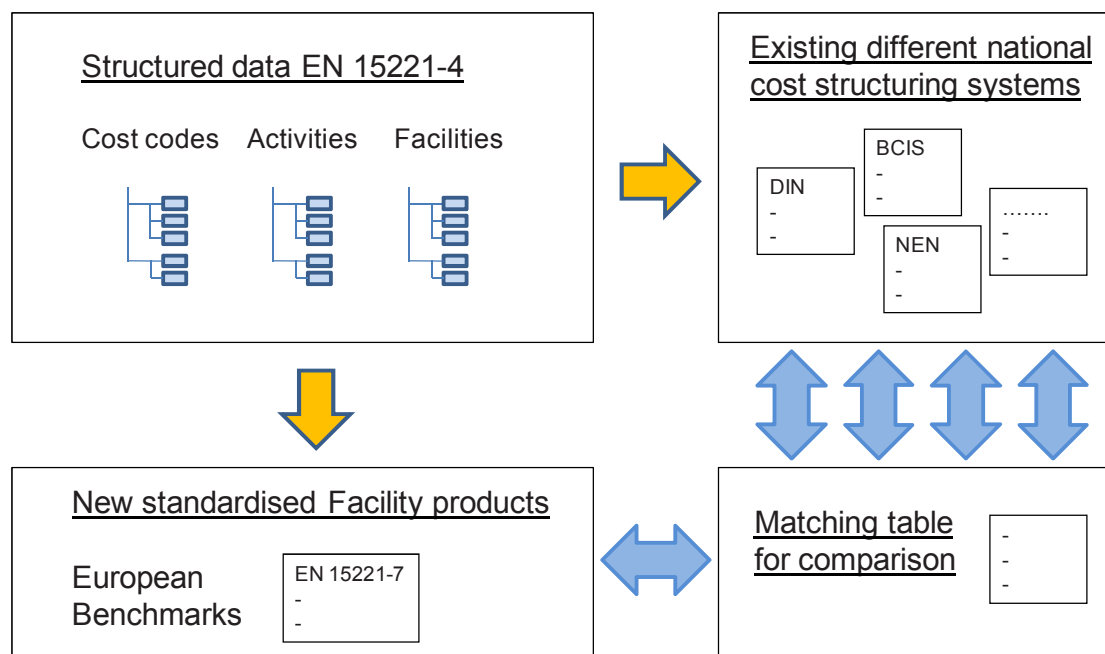


Figure 6 — Idea of a structured data pool leading to flexibility in cost allocation and benchmarking (EN 15221-7) while using existing cost structures

A detailed structuring of cost data demands considerable time and effort. Every organisation has to determine the appropriate level of detail for its cost allocation system. External service provision is a possible way to reduce this effort.

5 Description of the Standardised Facility Products

The following table contains a description of each standardised Facility Product and its classification. Each product includes all the activities (including personnel, manpower), facilities (including resources, materials) and processes required to provide the product if not defined otherwise.

Table 1 - Facility Management – Integration

Product	Facility Management - Integration on Strategic Level	Integration on Tactical Level (Space & Infrastructure)	Integration on Tactical Level (People & Organisation)	Central (horizontal) Functions
Product No.	1 -FM	1000	2000	9000
General description	The strategic management of the facility management organisation and integration of services and third party suppliers. Advisement of the parent organisation on alignment with organisation strategy.	Tactical integration or product integration Middle management processes applicable for or servicing all products related to Space & Infrastructure	Tactical integration or product integration Middle management processes applicable for or servicing all products related to People & Organisation	Summary of a number of central functions or shared processes applicable to all products, which are part of the strategic level (strategic planning and controlling)
Items included	Total cost of all activities, facilities and processes for all standardised facility products plus cost of strategic management processes	Cost of tactical management, cost of internal administration, costs of all services related to Space & Infrastructure	Cost of tactical management, cost of internal administration, costs of all services related to People & Organisation	This product acts as a cost collector for all horizontal products
Items excluded	None	None	None	Refer to specific sub-products
Sublevels	Space & Infrastructure People & Organisation	Products related to Space & Infrastructure	Products related to People & Organisation	Refer to specific sub-products
Specific activities (examples)	Translating goals of the organisation; negotiating FM-agreement; developing general vendor/sourcing strategy; benchmarking performance	Implementing strategies, communicating with customers, planning adaptations to short term changes, ordering services, controlling costs, monitoring performance, and reporting to strategic management in relation to Space & Infrastructure	Implementing strategies, communicating with customers, planning adaptations to short term changes, ordering services, controlling costs, monitoring performance, and reporting to strategic management in relation to People & Organisation	Refer to specific sub-products
Specific facilities (examples)	Office workplace	Office workplace	Office workplace	Refer to specific sub-products
Remarks				

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Table 2 - Central (horizontal) functions I

Product	Sustainability	Life Cycle Planning / Engineering	Quality	Standards and Guidelines
Product No.	9100	9110	9200	9210
General description	Policy development for the reduction of resources, economic use of facilities like buildings and areas as well as enhancement of health and welfare of people (social responsibility). For operational measures and legal compliance refer to 2130	Provision of a long term perspective on assets, supporting the decision making for investments and maintenance strategies	Responsibility for the (FM) quality management system	Responsibility for the, designation and development of (corporate) standards and guidelines as the basis for the QS system, certification of quality systems
Items included	All costs of personnel and consultants and capital investment	Not yet standardised	Not yet standardised	Not yet standardised
Items excluded	Running costs like maintenance costs of special technical equipment e.g. photovoltaic panels	Not yet standardised	Not yet standardised	Not yet standardised
Sublevels	Life cycle planning/engineering	Not yet standardised	Standards and Guidelines	Not yet standardised
Specific activities (examples)	Using renewable resources, Energy benchmarking, Prevention of pollution	Estimation of future energy prices	Re-auditing internal audits managing continuous improvement	Not applicable
Specific facilities (examples)	Sustainability rating or certification systems like LEED, BREEAM or DGNB	Database of running costs	Quality management system	Not applicable
Remarks				

Table 3 - Central (horizontal) functions II

Product	Risk	Risk policy	Identity	Innovation
Product No.	9300	9310	9400	9410
General description	Evaluation and management of risks and threats to the (FM) organization	Support concerning risk policy, legal compliance	Branding, (Corporate) responsibilities, government, architectural, web based and fleet related exposure; symbolically representing the organization; FM as being the glue of the company; the way in which the parent organization contributes to the visual quality of the outside world – by her facilities.	Provision of innovation in regards of the FM organisation as well as innovative ideas to enhance the effectiveness of the primary business
Items included	Not yet standardised	Special tools, external providers	Consultants and materials	Not yet standardised
Items excluded	Not yet standardised	Office space	Capital costs are part of other products e.g. space	Not yet standardised
Sublevels	Risk policy	Not yet standardised	Innovation	Not yet standardised
Specific activities (examples)	Not applicable	Assuring legal compliance	Advise and execute the exposure symbolically representing the organization in relation to the surrounding world; Realising an atmosphere of being home at the office. Advise and execute the way in which the parent organization contributes to the visual quality of the outside world by her facilities.	Testing of new methods and technologies Research on the latest development in FM
Specific facilities (examples)	Not applicable	Database with mandatory or recommended activities and the associated penalties	Branding system signage Illuminated advertising	Balanced score card looking at future potential
Remarks			Visual Exposure, image, branding, identity related to real estate	

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Table 4 - Space & Infrastructure – Spacel

Product	Space (accommodation)	Building Initial Performance	Owner / occupier	Asset Replacement and Refurbishment
Product No.	1100	1110	1111	1120
General description	Provision of accommodation like design, build, acquisition or renting of space, including the administration and management of space from construction to its disposal. To support life cycle analysis the next level is differentiated between expenses listed as an asset for acquisition, restoring the value and improvements resulting in capital costs and annual running cost for administration, operation and maintenance.	Cost of capital to own a building or costs reimbursed by an occupier to a Landlord for renting/leasing buildings. Also costs for project management e.g. in case of a new construction.	Owner occupier costs associated with fair market value / open market rental value or depreciation of buildings	Cost of capital associated with expenses listed as an asset in the balance sheet of the organisation resulting from maintenance (EN 13306) of the main structural elements of a building (external building envelope, façade and roof) and the technical building equipment (bringing back to original performance).
Items included	Refer to specific sub-products	Owner occupier costs and all costs paid for renting space within a site or building. Should be the current annual rental cost paid to the building owner.	Not yet standardised	Includes structural frame, facades, windows & roof and technical building equipment. Includes upgrades to current standards (e.g. state of the art windows).
Items excluded	Refer to specific sub-products	It excludes the costs of providing services / periodic running costs (service charge) and for the land (see Outdoors).	Not yet standardised	Not yet standardised
Sublevels	Refer to specific sub-products	Owner/occupier Renting/leasing Financial investment (Construction) Project Management	Not yet standardised	Main structure, external façade, roof, windows and doors
Specific activities (examples)	Refer to specific sub-products	Not applicable	Building owner responsibilities	Not applicable
Specific facilities (examples)	Refer to specific sub-products	Not applicable	Not applicable	Not applicable
Remarks				