

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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Facilities management - Partie 4: Taxinomie, classification et structures

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

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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.

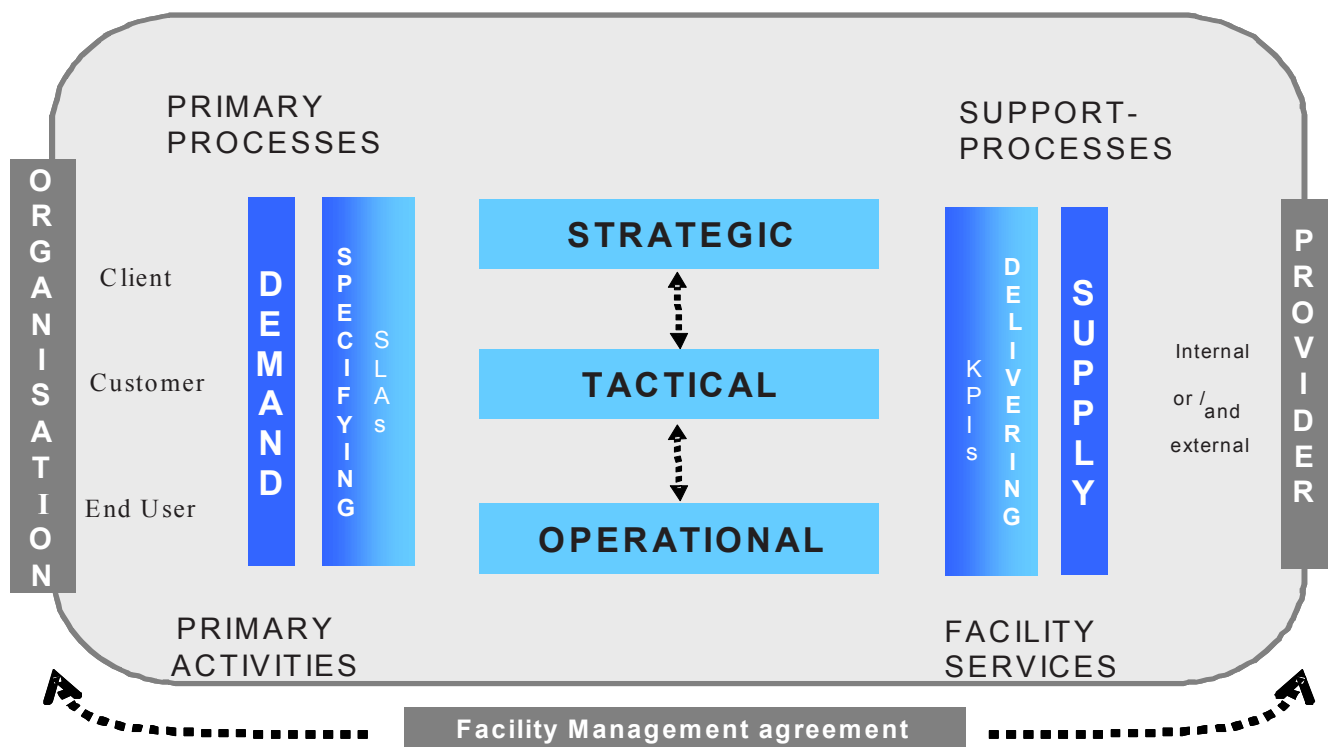
Common Introduction for the European Standards EN 15221-3, EN 15221-4, EN 15221-5 and EN 15221-6

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.

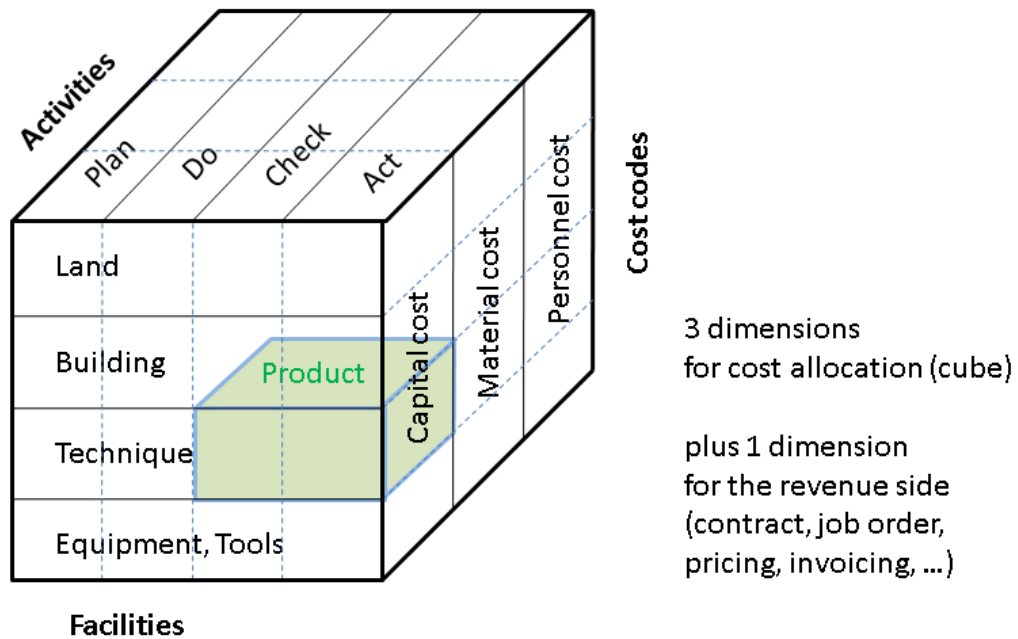
Two of the resulting generic structures, the activities structure and the facilities structure, are connected together in form of a matrix. Adding cost information as the third structure, the resulting three dimensions (each dimension is representing an independent generic structure) can be visualised 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.



2

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).

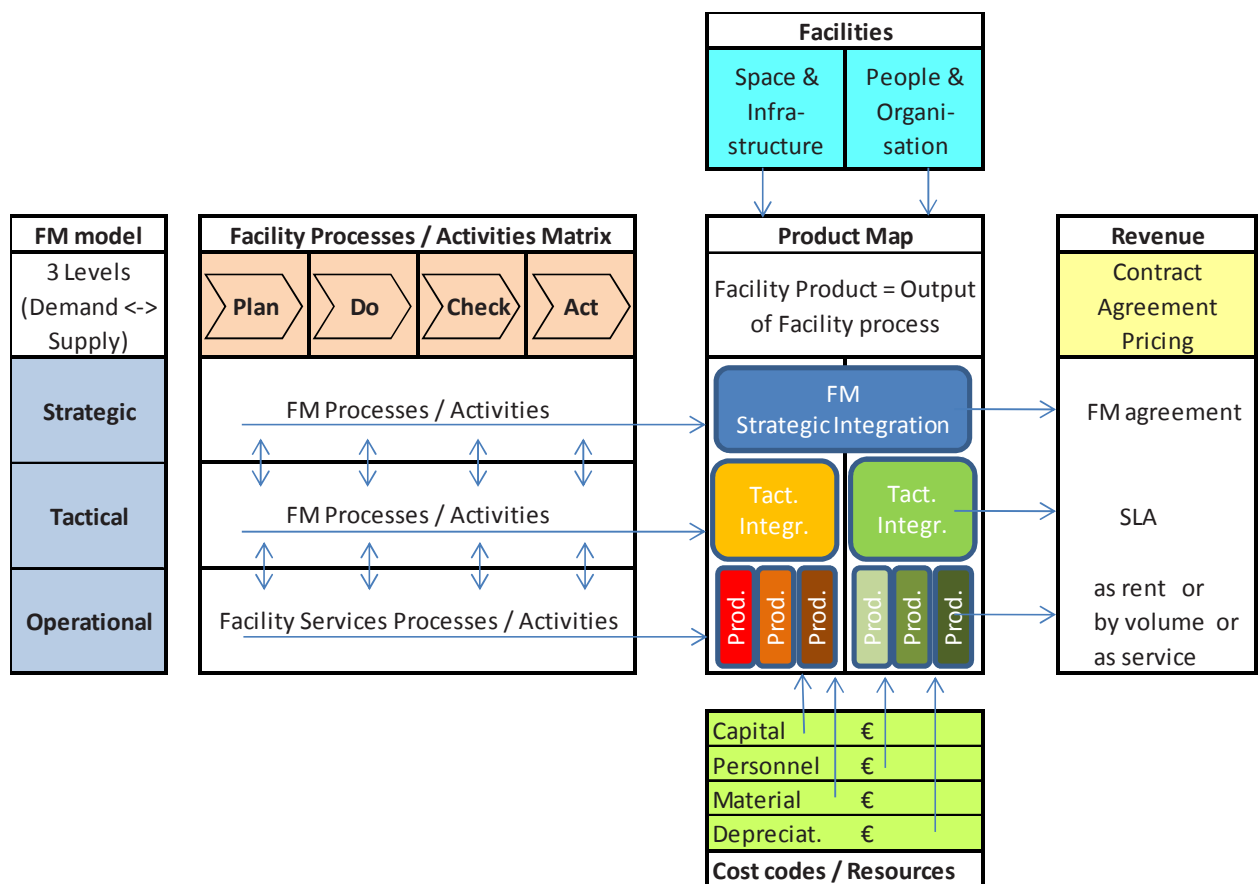


Figure 2 — FM relationship model linking the FM model, the FM process/activities matrix, the facility product map and facilities, cost and revenue structures together

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.

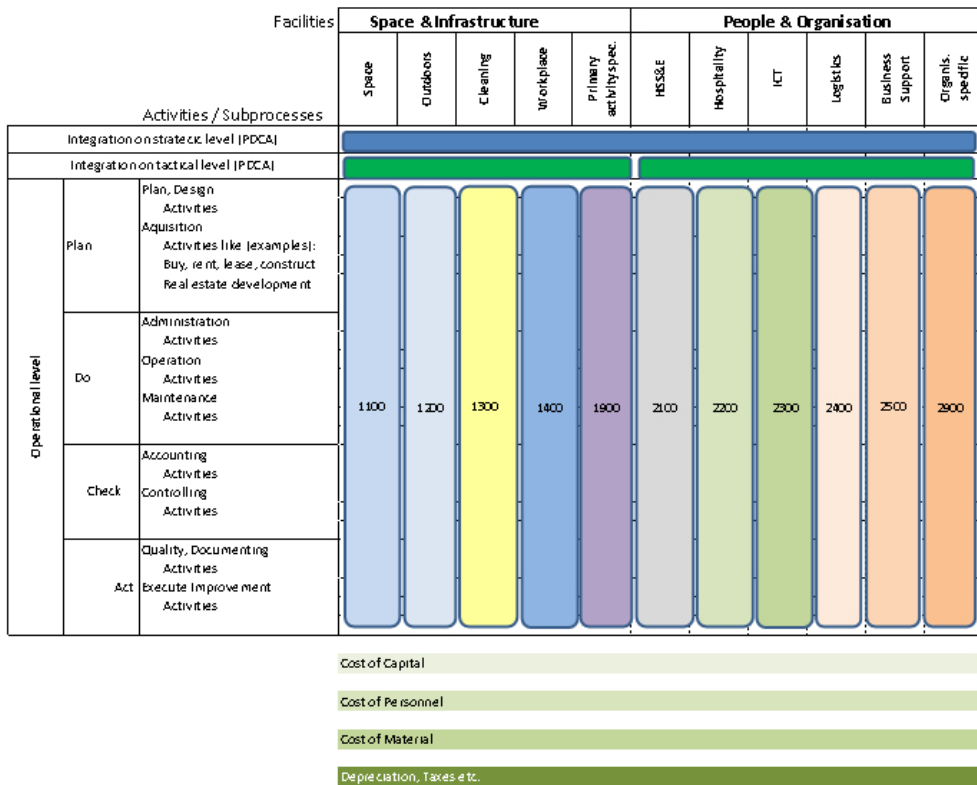


Figure 3 — Facility product map (facilities/activities matrix with standardised facility products) with exemplary activities list opened for the operational level (for the other levels see Appendix A.1)

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.

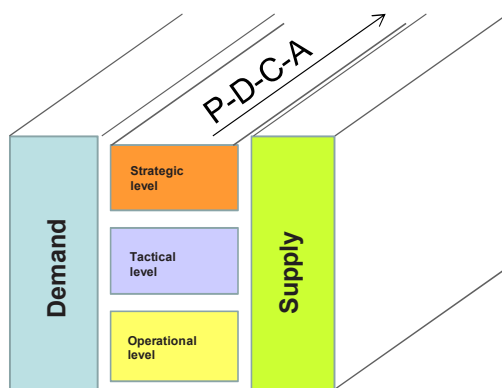


Figure 4 — FM model from EN 15211-1 linked with the quality cycle as a form of time scale

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).

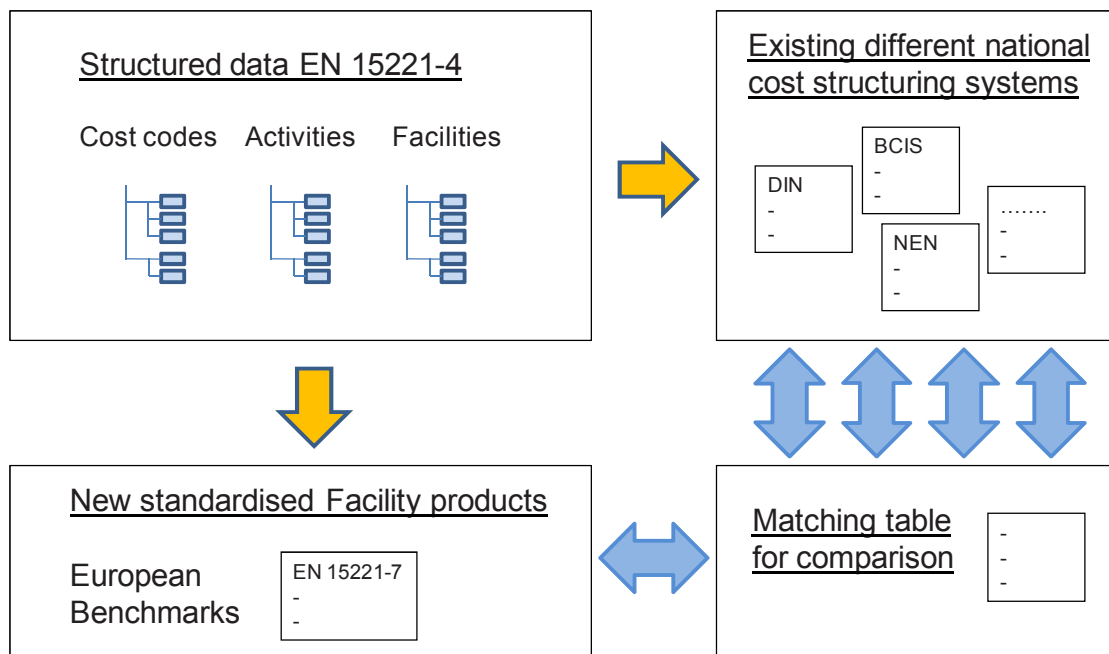


Figure 6 — Idea of a structured data pool leading to flexibility in cost allocation and benchmarking (EN 15221-7) while using existing cost structures

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				

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	

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				

Table 5 - Space & Infrastructure – Space II

Product	External structure and fabric	Internal structure and fabric	Technical building equipment	Enhancement of Initial Performance
Product No.	1121	1122	1123	1130
General description	Cost of capital as a result of refurbishment/replacement of external building structure and fabric without adding new functionality	Cost of capital as a result of refurbishment/replacement of internal building structure and fabric without adding new functionality	Cost of capital as a result of refurbishment/replacement of technical building equipment (infrastructure) without new functionality	Cost of capital (expenses listed as an asset) for improvements of fabric and technical infrastructure, including adaptation of existing installations, replacing with new installations with increased functionality and adding new types of installations which add value to the assets.
Items included	Consultants and contractors/service providers and materials	Consultants and contractors/service providers and materials	Consultants and contractors/service providers and materials	Share of costs which add additional value due to increased functionality or usability to the assets (e.g. another floor on top of the building)
Items excluded	Planned maintenance	Planned maintenance	Planned maintenance	Cost of refurbishment/replacement to reach initial performance
Sublevels	Structure Fabric (refer to national building cost codes)	Structure Fabric (refer to national building cost codes)	BMS, Heating, Ventilation/cooling, Sanitation, Lighting, Lifts/escalators (refer to national building cost codes)	Not yet standardised
Specific activities (examples)	Project management, Planning, Procurement/tendering, Execution	Project management, Planning, Procurement/tendering, Execution	Project management, Planning, Procurement/tendering, Execution	Project management, Planning, Procurement/tendering, Execution
Specific facilities (examples)	Not applicable	Not applicable	Not applicable	Not applicable
Remarks				

Table 6 - Space & Infrastructure – Space III

Product	Property Administration	CAFM	Portfolio development	Real estate optimisation
Product No.	1140	1141	1150	1151
General description	Administrative activities associated with property and real estate	Provision and operation of a CAFM-System	Major strategic portfolio planning activity including acquisition and disposal activity. Also called portfolio management or corporate real estate management (CREM).	Optimisation including management of vacant space and subletting activity.
Items included	Includes all fees, taxes, insurances, rent administration etc. Benefit of rental income. Also any income from tenants for additional services provided by the Landlord.	Acquisition and operating costs	All costs associated with the strategic planning of land and buildings. Including definition of requirements and standards, assessment, valuation, acquisition, condition monitoring, disposal, site investigation, legal fees, consultancy and feasibility	Real estate asset management
Items excluded	Excludes portfolio optimisation, occupier fit-out and internal moves; Value changes of estate may be initiated by the activities of this product, but are not included in the cost or benefit side	Specific modules which can be charged to the respective facility product	Excluding capital investment, internal moves, building improvements & occupier fit-out	Internal moves, building improvements & occupier fit-out. Space management
Sublevels	Not yet standardised	Not yet standardised	Not yet standardised	Not yet standardised
Specific activities (examples)	Not applicable	Data management	Not applicable	Not applicable
Specific facilities (examples)	Not applicable	CAFM software	Portfolio valuation, condition monitoring and maintenance budgeting system	Not applicable
Remarks	Occupier fit out (1410) in most cases does not improve the building		Dilapidations not equal tenant alterations	

Table 7 - Space & Infrastructure - Space IV

Product	Maintenance and Operation	Help desk incl. janitor	Structure operation	Structure maintenance
Product No.	1160	1161	1162	1163
General description	Operation and maintenance (see EN 13306) of buildings and their technical installations. As a subdivision of the definition in EN 13306 this product and its sub-products contain only expenses which are not listed as an asset in the balance sheet and allocated as annual running costs. For costs of maintenance that are listed as an asset refer to product 1120.	Operation of a help desk with communication between users and the FM organisation in relation to job orders, faults, complaints, feedback, documentation and reporting	Operation of building structure according to EN 13306	Running costs for maintenance of building structure according to EN 13306
Items included	Service provider, help desk system, building management system (BMS), condition monitoring, spare parts, oil and machinery	Service provider and help desk system, janitor (or housekeeper or caretaker) according to national customs	Service providers and materials	Cost of consultants and contractors/service providers and materials which are not listed as an asset
Items excluded	Investments in relation to upkeep and improvements.	Not yet standardised	Not yet standardised	Improvements
Sublevels	Help Desk, Building operation, Building maintenance, Technical operation, Technical maintenance	Help desk service Help desk system	Refer to national building cost codes	Refer to national building cost codes
Specific activities (examples)	Refer to specific sub-products	Telephone service On-line service	Repair malfunctioning doors, windows and furniture, locks, Putting up pictures and pin boards	Project management, Planning, Procurement/tendering, Execution
Specific facilities (examples)	Refer to specific sub-products	Help desk work station	Tool box Maintenance planning system	Movable lifts/cranes, Scaffolding
Remarks				

Table 8 - Space & Infrastructure – Space V

Product	Technical building equipment operation	Technical building equipment maintenance
Product No.	1164	1165
General description	Operation of technical infrastructure according to EN 13306	Running costs for maintenance of technical infrastructure according to EN 13306
Items included	Service providers, help desk system, building management system (BMS), lubricants and consumables	Consultants and contractors/service providers and materials which are not listed as an asset
Items excluded	Improvements, supply infrastructure before main meter and internal distribution	Improvements
Sublevels	Refer to national building cost codes	Refer to national building cost codes
Specific activities (examples)	Help desk service, Monitoring and control Service checks, Changing light bulbs, Repairs	Project management Planning, Procurement/tendering, Execution
Specific facilities (examples)	Help desk, BMS, Ventilation rooms, Ducts, Movable lifts/gondolas	Ventilation rooms, Ducts, Movable lifts/cranes, Scaffolding
Remarks		

Table 9 - Space & Infrastructure – Space VI

Product	Utilities	Energy	Water	Waste
Product No.	1170	1171	1172	1173
General description	Supply of energy and water and waste treatment and disposal. Can include procurement from external producers and/or internal production including the necessary infrastructure to an interface to internal distribution/collection system	Energy supply to a built facility. Can include procurement from external producers and/or internal production of energy and includes the necessary infrastructure typical to a meter, but not the internal distribution system	Water supply to a built facility. Can include procurement from external producers and/or internal production of water and includes the necessary infrastructure typical to a meter, but not the internal distribution system	Waste treatment and disposal, including sorting and reuse of solid waste as well as liquids and sewage. Usually only includes collection of filled containers and replacing with empty containers and not the internal collection and handling.
Items included	All cost of procuring and producing energy and water and of treatment and disposal of waste and the operation, maintenance and improvements of the infrastructure as well as possible related incomes	All cost of procuring and producing energy and the operation, maintenance and improvements of the infrastructure	All cost of procuring and producing water and the operation, maintenance and improvements of the infrastructure, includes waste water	All cost of treatment and disposal of waste as well as possible related incomes
Items excluded	Internal distribution, processing and consumption of energy and water and the related infrastructure. primary sorting of waste at the source done by staff not otherwise involved in waste treatment	Internal distribution, processing and consumption of energy and the related infrastructure	Internal distribution, processing and consumption of water and the related infrastructure	Primary sorting of waste at the source done by staff not otherwise involved in waste treatment, waste water
Sublevels	Energy Water Waste	Heating, cooling, electricity, gas, oil, wood, etc.	Mains water, ground water, rain water	Burnable waste, waste water, Paper, Hazardous waste, Glass, Kitchen waste
Specific activities (examples)	Refer to specific sub-products	Procurement, Production, Monitoring, Maintenance	Procurement, Production, Monitoring, Maintenance	Collecting, Sorting, Disposal
Specific facilities (examples)	Refer to specific sub-products	Transformers, Main pipes and cables	Pump rooms, Sprinkler centres, Water basins	Dust rooms, Containers, Drains
Remarks				

Table 10 - Space & Infrastructure – Outdoors I

Product	Outdoors	Land, Site, Lot	Additional Space on site	Parking Facilities
Product No.	1200	1210	1220	1230
General description	Outdoor areas including land, maintaining parking facilities, gardening etc. For benchmarking reasons capital and operating cost of land or site is to be separated from the building costs	One or more lots of land on which one or more buildings are situated and there could be secondary accommodation and storage facility, roads, green areas, parking facilities and sublevel infrastructure	Secondary accommodation and storage facility in addition to the mentioned buildings on one of the lots / areas of land. Includes semi covered structures.	(Parts of) buildings, uncovered, and covered structures and land intended for parking vehicles including Parking facilities for bicycles, mopeds, cars, boats
Items included	Refer to specific sub-products	Outdoor property administration and the beautification of outdoor terrain which is mainly engaged in exterior works and gardening, Design, planting and maintenance of trees, flowers, grasses. maintenance of water features fountains, maintenance of kerbs, walkways, pavements and non-mains drainage, snow clearing.	Operation and maintenance of structure and services supporting the secondary construction	Operation and maintenance of structure, services, access equipment, security equipment, safety equipment. parking rental income
Items excluded	Refer to specific sub-products	Major secondary accommodation like flatted and/or roads, squares, sporting / golfing courses, major green areas, harbour facilities and complex extending sublevel infrastructure, security (elsewhere addressed), Waste disposal (elsewhere addressed)	. Utilities, including water, electricity, security (elsewhere addressed) Major secondary accommodation including surface / sublevel car parking facilities, roads, squares, sporting / golfing courses, major green areas, harbour facilities and complex extending sublevel infrastructure	Acute repairs and upgrading. Utilities including water, electricity, security (elsewhere addressed) Major flatted and/or multi storey parking facilities
Sublevels	Refer to specific sub-products	Additional space on site, Landscaping and gardening	Technical maintenance Cleaning	1 Indoor car park 2 Roof car park 3 Outdoor car park
Specific activities (examples)	Landscaping close surroundings of the mentioned buildings and within the	Technical maintenance Snow clearing	Technical maintenance, cleaning	Technical maintenance, cleaning, snow clearing

	boundary of the site (lots/ area). Procurement, Production, Monitoring, Maintenance	Gardening Outdoor cleaning		
Specific facilities (examples)	Refer to specific sub-products	Outdoor furniture, Planting, ponds & fountains, hard landscape features	Pump houses, smoking enclosures loading docks	Gates, barriers, access systems automatic number plate recognition systems)
Remarks	Refer to specific sub-products		Should only cover independent / isolated buildings and structures. i.e. not attached to the main buildings. In case of major secondary accommodation like surface / sublevel car parking facilities, roads, squares, sporting / golfing courses, major green areas, harbour facilities and complex extending sublevel infrastructure, it will be more appropriate for significant benchmarking reasons to account these site facilities separately	In case of major surface level / sublevel parking facilities, it will be more appropriate for significant benchmarking reasons to account these site facilities separately

Table 11 - Space & Infrastructure – Cleaning

Product	Cleaning	Routine Cleaning	Special Cleaning	Pest control
Product No.	1300	1310	1320	1321
General description	Services related to hygiene and cleanliness that maintain a proper working environment and help to maintain assets in a good condition	Cleaning of ordinary surfaces in a building which takes place daily or periodically more than once each year (daily, weekly, monthly, quarterly, half yearly, etc.)	Cleaning of special surfaces (e.g. facades or ceilings) or equipment (e.g. computer or telephones) or cleaning by order (e.g. cleaning of construction site, after an accident or fire, branch specific)	Activities to combat unwanted presence of wild animals and insects etc. (for instance rats, pigeons and bees)
Items included	Only building related activities and processes.	Cost of periodic cleaning a building, its facades and the workplaces, emptying waste baskets	Cost of special cleaning a building, its facades and the workplaces, art works, machines etc.	External specialists/providers
Items excluded	All not building related processes (outdoor) see 1200	Cleaning of specific areas like canteen, production (colours, food) outdoors cleaning	Cost of space (cleaning room), cradle hoist for window cleaning outdoors cleaning	Not yet standardised
Sublevels	Refer to specific sub-products	Daily Cleaning Fabric cleaning Glass Cleaning	Periodic cleaning (>1 year) Cleaning on special request Construction site cleaning	Not yet standardised
Specific activities (examples)	Refer to specific sub-products	Vacuum cleaning Dusting Mopping Polishing	Sealing of surfaces Event-related cleaning	Not yet standardised
Specific facilities (examples)	Refer to specific sub-products	Cleaning room Cleaning machines Cleaning equipment Consumables, detergents	Cleaning room Cleaning machines Cleaning equipment Consumables, detergents Cleaning robot	Closed cupboard for poisons
Remarks				Usually done by external specialists

Table 12 - Space & Infrastructure – Workplace I

Product	Workplace	Occupier Fit out and Adaptations	Space Management
Product No.	1400	1410	1420
General description	Ensure usable workplace and space for any place where work is, or is to be, performed by a worker, or a person conducting a business or undertaking	Change activity within a site (land or building) to meet business requirements. Includes e.g. moveable walls which are not to be provided by the landlord nor included in the rent	Optimising and planning space within a site to meet the needs of the organisation. "Translation" of core business strategies into workplace distribution and performance measurement as basis for improvements
Items included	Refer to specific sub-products	Includes initial fit-out activity to configure the space to meet requirement of the occupier.	All cost attributable to this product
Items excluded	Outdoor workplace (addressed in 1200)	Excludes building improvements, fixed walls even if provided and owned by the tenant	Excludes office relocation, moves (see 2400)
Sublevels	Refer to specific sub-products	Adaption of adequate room sizes, integration of conference space / kitchenette	Acquisition of space data, Space allocation
Specific activities (examples)	Refer to specific sub-products	Relocate partition panels, carpenter services, Paintwork	Data management, analysis of space allocation, redistribution of space
Specific facilities (examples)	Refer to specific sub-products	Not yet standardised	CAD workplace planning tool
Remarks	This definition includes places commonly recognised as workplaces, such as offices, shops, factories, construction sites or hospitals. It also includes many other types of less obvious workplaces, such as a vehicle supplied by an employer for use by a worker in the performance of work.		

Table 13 - Space & Infrastructure – Workplace II

Product	Furniture	Plants and Flowers	Art works
Product No.	1430	1431	1440
General description	Provision, installation and maintenance of furniture and office equipment.	Supply and care for the internal plants and flower arrangements	Decorations as paintings, sculptures etc. to improve the environment at the workplaces
Items included	Refer to specific sub-products	Replacement of old plants, flower arrangements etc.	Acquisition and maintenance
Items excluded	Excludes technical, production and catering equipment and ICT	Not yet standardised	Not yet standardised
Sublevels	Tendering, installation, disposal	Tendering, care, disposal	Tendering, installation, disposal
Specific activities (examples)	Determination of demand, price comparison, order	Determination of demand, price comparison, order, Watering, Fertilisation, Trimming	Determination of demand, price comparison, order
Specific facilities (examples)	Workshop (Repair)	Watering system	Database of art works
Remarks			

Table 14 - Space & Infrastructure - Primary activities specific

Product	Primary activities specific	Primary process related utilities	External workplaces (off site Facilities)	Maintenance of biomedical equipment (Health care business related)
Product No.	1900	1910	1920	1990.H1 (H for Health care)
General description	This product covers a wide range of organisation or industry sector specific services related to space & infrastructure. The separation of these makes the other products more comparable.	Separately measured energy or water supply and production for energy or water intensive production processes	Providing external accommodation. All activities, services and resources relating to accommodation outside the organization.	Maintenance of technical equipment e.g. in hospitals supporting health care processes
Items included	Refer to specific sub-products	Maintenance for the facilities necessary for primary activity, Monitoring devices and material needed	Rent or capital, maintenance and utility costs; furniture, operation costs	Special tools, external providers not related to utilisation phase
Items excluded	Refer to specific sub-products	Energy and water needed for the primary activity	Travelling costs; ICT costs; Permanent exhibition buildings;	Investment and operating costs for biomedical equipment
Sublevels	Refer to specific sub-products	Measurement, analysis and optimisation of energy and water consumption	1. External workplaces 2. Workplaces at home 3. Canteens 4. Temporarily exhibition space	Maintenance of operating room, radiology (e.g. instruments, facilities)
Specific activities (examples)	Refer to specific sub-products	Monitoring, maintenance, management of warranties	Rent building, secure catering and IT infrastructure	Maintenance, Monitoring of legal inspection cycles, management of warranties
Specific facilities (examples)	Refer to specific sub-products	Space, technical equipment, monitoring tools, sprinkler centre	CAFM System, management tool for space and services	Not yet standardised
Remarks			In case of major permanent accommodation like satellite office building, it will be more appropriate to account these sites separately	

Table 15 - People & Organisation - Health, Safety, Security and Environment (HSSE) I

Product	Sterilization service (Health care business related)	HSSE	Health & Safety	Workplace safety
Product No.	1990.H2	2100	2110	2111
General description	Cleaning and sterilization of medical equipment in order to prevent patients from infections	Protecting from external dangers and/or internal risks and protecting assets and the health and well-being of the people and providing a safe and sustainable environment Implementing legal and organisational obligations, legal compliance	Providing health and welfare of people on their workplace	Providing safety of the workplaces, especially in production, mining, transport and construction industries
Items included	Manpower and special tools, external providers, energy and media related to provision of sterile goods Investment and operating costs for sterilization equipment	Refer to specific sub-products	Not yet standardised	Not yet standardised
Items excluded	Costs for surgical instruments	Refer to specific sub-products	Not yet standardised	Not yet standardised
Sublevels	Order and supply of sterile goods (gloves, surgical instruments), laundry services of sterile textiles,	Refer to specific sub-products	Refer to specific sub-products	Not yet standardised
Specific activities (examples)	Monitoring, process quality control,	Not applicable	Not applicable	Examination and auditing of workplaces, air quality testing, securing legal compliance
Specific facilities (examples)	Not yet standardised	Not applicable	Not applicable	Fire evacuation plans, Special measuring instruments
Remarks				

Table 16 - People & Organisation - Health, Safety, Security and Environment (HSSE) II

Product	People occupational health	Security	Securing people	Securing property (physical and intellectual)
Product No.	2112	2120	2121	2122
General description	Providing health and welfare of people such as; healthcare like company doctor, fiscal or manual therapist, safe working practices, policy on health and welfare facilities and special food & beverages	Protection of people and assets, to secure and guarantee the security	Protection of people	Protection of assets
Items included	Not yet standardised	Basic building related costs such as locks, card readers, tourniquets, camera's and basic people related costs such as guarding and Emergency response plan	People related costs such as guarding and emergency response plan	Building security equipment such as locks and keys, card readers, tourniquets, camera's
Items excluded	Not yet standardised	Not yet standardised	Not yet standardised	Not yet standardised
Sublevels	Not yet standardised	Body guards	Not yet standardised	Not yet standardised
Specific activities (examples)	Periodical examination Health check	Crisis management preparation	Body guards	Guard and patrols
Specific facilities (examples)	First aid room Fitness centre	Command room in case of a crisis	Risk analysis	Access control system, locks and keys
Remarks		Building (technical, reception, surveillance)		

Table 17 - People & Organisation – Hospitality I

Product	Environmental Protection	Hospitality	Reception and contact centre	Catering and Vending
Product No.	2130	2200	2210	2220
General description	All activities, services and means that are focused on the implementation and controlling of the environmental policy (see product 9100 Sustainability) for the organisation and the execution of legal obligations and improvements for the environment.	Providing a hospitable working environment making people feel welcome and comfortable	Welcome, registration and guidance of visitors.	Provision of food and beverage to personnel and guests
Items included	Not yet standardised	Refer to specific sub-products	Costs related to reception facilities (space costs, etc.)	Costs of food and beverages, costs of all facilities needed to provide catering and vending services
Items excluded	Not yet standardised	Refer to specific sub-products	Signage in other facilities than the reception room(s)	Usage of equipment and kitchen facilities for events
Sublevels	Not yet standardised	Refer to specific sub-products	Not applicable	Restaurant Vending Extra services (Board, VIP, etc.)
Specific activities (examples)	Securing legal compliance	Refer to specific sub-products	Not applicable	Special coffee vending
Specific facilities (examples)	Database of environmental laws and regulations	Refer to specific sub-products	Cleaning of clothing	Coffee shop
Remarks			Catering	Distribution of clothing

Table 18 - People & Organisation – Hospitality II

Product	Meeting rooms and Events	Work wear and other Textiles	Laundry
Product No.	2230	2240	2441
General description	The deliverance of support in arranging meeting rooms and events	The deliverance, cleaning and keeping in good order of work wear for the staff, for instance security people, chauffeurs, room keepers, management and front office workers and other textiles (e.g. sanitary textiles)	The laundry of textiles (clothing, curtains/doormats/carpets, table linen, bed linen and towels (e.g. hotels, hospitals) including logistics and planning/organisation
Items included	Staff, all costs of providing meeting rooms and catering related to meetings and events, costs of technical equipments	Providing work wear, including costs of obtaining, maintaining and replacing, custom tailoring and changing, sanitary textiles: obtaining, cleaning and replacing	Cost of staff, machinery, and washing powder, maintenance of washing machines.
Items excluded	External support, costs of vending	Not applicable	Cost of space (washing room), sterile textiles (elsewhere; see Sterilization services)
Sublevels	Meeting rooms Events internal Events external	Laundry	Not yet standardised
Specific activities (examples)	Not applicable	Deliverance of clothing	Washing Pressing
Specific facilities (examples)	Not applicable	Store room for clothing and textile Laundry	Laundry facility and equipment
Remarks	Primary business related textiles like bed sheets in hospitals are included		Primary business related textiles like bed sheets in hospitals are included

Table 19 - People & Organisation – ICT I

Product	ICT	Service Desk IT	End User Services IT	Client Hardware Devices IT
Product No.	2300	2310	2320	2321
General description	Information and Communications Technology (ICT) is the header of data processing and communications support. The Strategic Management of the ICT department and Third Party Suppliers and strategic advisement of the parent organisation on ICT: Business alignment and integration ICT to company strategy.	Contact point for (End) User to communicate with the ICT department in case of incidents or requests.	Hard- and software, local support, remote maintenance at working place. Installation, moves, additions, changes, packaging and distributing of client hard- and software. Client hardware special devices	The primary IT equipment for the workplace.
Items included	ICT includes technologies and features that are intended to fulfil information processing and communications functions to support the primary activities of the organisation. Costs of external strategic consultancy of all ICT services.	Personnel, hardware, software and third party suppliers	Personnel, hardware, software, travelling and third party suppliers	Primary IT equipment is defined as the basic, standard IT hardware user need to perform their tasks. Energy used by the Client Hardware devices.
Items excluded	Space and space related utilities like energy and security and generic integration of all facilities (which is addressed separately elsewhere). Business IT (which is addressed in 2900)	Core Business Applications Support	Core business related services. Energy used by the Client Hardware devices.	Not yet standardised
Sublevels	Refer to specific sub-products	Not yet standardised	Client Hardware Devices IT Client Software On Site Support Managed Client Service IMAC Packaging & Distribution Client Hardware Special Devices	Not yet standardised

<p>Specific activities (examples)</p>	<p>Translating goals of the organisation; negotiating FM-ICT-agreement; developing general vendor/sourcing strategy; benchmarking performance ICT department</p>	<p>Example: Answering an (End) User with an incident, registering this incident and solving this incident at this first contact with the (End) User.</p>	<p>Examples: Answering an (End) User with an incident, registering this incident and solving this incident at this first contact with the (End) User; IT staff fixing a computer at the location of the (End) User or remotely, packaging software so that it can be automated installed on the (End) Users computers with the correct parameter settings included in the package.</p>	<p>Evaluate and control third party suppliers</p>
<p>Specific facilities (examples)</p>	<p>Managed working place ICT</p>	<p>Not applicable</p>	<p>Examples: Provisioning of Desktop, Notebook, Monitor, Keyboard, Mouse, mobile printers, e-paper readers, beamers and mobile printers; provisioning of licenses of software or anti-virus protection at the desktop; replacing a written off computer of the (End) User,</p>	<p>Not applicable</p>
<p>Remarks</p>	<p>This is the non-core business ICT. For benchmarking reasons core business IT applications are addresses in 2900. Examples of Core Business Applications are ERP, Dealing Room (Banking Branch), Traffic Control (Transport Branch), Production Control (Chemical Branch), CAD (Engineering Branch).</p>	<p>This is the first line solving unit of the ICT off-site support with restricted means.</p>	<p>Hard ware special devices are not part of the basic workplace IT devices and telecom devices, (End) Users need in order to perform their daily tasks.</p>	

Table 20 - People & Organisation – ICT II

Product	Client Software	On Site Support	Managed Client Service	IMAC
Product No.	2322	2323	2324	2325
General description	All the software and associated licenses for the IT equipment located at the workplace of (End) Users.	The local, physical support for workplace hard- and software.	The remote management of workplace equipment.	Install, Move, Add, Change and Delete activities for the hard- and software for the workplace.
Items included	In case 'thin client systems' are in use, presentation software is included.	Staff assisting the (End) User by supporting him at his physical workplace in case of IT issues.	This is the second line solving unit of the ICT off-site support with extended means.	Not yet standardised
Items excluded	Not yet standardised	Not yet standardised	Not yet standardised	Not yet standardised
Sublevels	Not yet standardised	Not yet standardised	Not yet standardised	Not yet standardised
Specific activities (examples)	Evaluate and control third party suppliers	Travelling (with multiple sites), Components.	Software maintenance	Software and hardware maintenance
Specific facilities (examples)	Not applicable	Not applicable	Third Party Suppliers	Third Party Suppliers,
Remarks				

Table 21 - People & Organisation – ICT III

Product	Packaging and Distribution	Client Hardware Special Devices	Central and Distributed Services	File Services
Product No.	2326	2327	2330	2331
General description	The preparing of software for automated digital remote delivery (packaging) and the automated digital remote delivery of software to the workplace.	All IT equipment which is neither a primary IT Equipment nor a primary Telecommunication Client Hardware device.	Providing and maintaining the network drives of the (End) Users on which they are able to save their data, their E-mail facilities, their Printers and Print servers (including print queue) and a directory service which manages their rights and policies	The management of the network drives of the (End) Users on which they are able to save their data.
Items included	Not yet standardised	Not yet standardised	Personnel, Hardware, Software, Data Centre, Third Party Suppliers	Not yet standardised
Items excluded	Not yet standardised	Not yet standardised	Printing supplies (paper, toner, etc.)	Not yet standardised
Sublevels	Not yet standardised	Not yet standardised	File Services E-mail Services Print Services Directory Services	Not yet standardised
Specific activities (examples)	Software and hardware maintenance	Software and hardware maintenance	Examples: setting up of E-mail servers, managing of print queues, giving users access rights to network drives	Software and hardware maintenance
Specific facilities (examples)	Third Party Suppliers	Third Party Suppliers	Availability of E-Mail and to print, having software/file rights	Data Centre,
Remarks			Be sure about including costs of external Data Centre. Be sure about including costs of external Data Centre. Printer and toner will be included by office requirements like pencils and cahiers.	

Table 22 - People & Organisation – ICT IV

Product	E-mail Services	Print Services	Directory Services	Connectivity & Telecommunications
Product No.	2332	2333	2334	2340
General description	The management of the E-mail facilities for (End) Users.	The management of the Printers and Print servers (including print queue) for the (End) Users.	The management of a directory service which manages the user rights and policies.	Providing connection of the workplaces, both inside and outside the organisation, to internet, WAN environment. Wired and mobile telecommunication networks, including related Devices and Personal Digital Assistants (PDA's).
Items included	Not yet standardised	Not yet standardised	Not yet standardised	Personnel, hardware, software and third party suppliers
Items excluded	Not yet standardised	Not yet standardised	Not yet standardised	Peripherals which are to be build into vehicles (hands free kits).
Sublevels	Not yet standardised	Not yet standardised	Not yet standardised	Connectivity Services IT Connectivity Services CT Client Hardware Devices CT
Specific activities (examples)	Software and hardware maintenance	Software and hardware maintenance	Software and hardware maintenance	Examples: Provisioning an End User with internet connectivity and mobile phones, the management of the PABX or VOIP systems
Specific facilities (examples)	Third Party Suppliers	Third Party Suppliers	Third Party Suppliers	having connectivity, phones
Remarks				

Table 23 - People & Organisation – ICT V

Product	Connectivity Services IT	Connectivity Services CT	Client Hardware Devices CT	Training (ICT)
Product No.	2341	2342	2343	2350
General description	Providing the LAN and wireless LAN connection of the workplaces, the connection to the internet and WAN environment.	Providing the connection of landline and mobile phones to the telecommunication network, including related peripherals and Personal Digital Assistants (PDA's).	The telephone devices (landline and mobile) for the (End) Users.	Training End User in ICT application
Items included	Not yet standardised	Not yet standardised	Not yet standardised	Out of pocket costs
Items excluded	Not yet standardised	Not yet standardised	Not yet standardised	Spending time end users
Sublevels	Not yet standardised	Not yet standardised	Not yet standardised	Not yet standardised
Specific activities (examples)	Software and hardware maintenance	Software and hardware maintenance	Software and hardware maintenance	Example: Training End Users in order to use Standard Working Place Applications.
Specific facilities (examples)	Third Party Suppliers	Third Party Suppliers	Third Party Suppliers	Training courses, training software
Remarks				Standard Applications are becoming part of basic education End User. (Training) Business Applications are not part of Facility Management ICT. (External) Learning facilities will be considered by 'Meeting Rooms' or External Facilities

Table 24 - People & Organisation – Logistics I

Product	Logistics	Office Supplies, Stationary	Document Management	Reprographics
Product No.	2400	2410	2420	2421
General description	The transport of persons and the transport and storage of goods and information and improvement of the relevant processes	The provision, distribution and storage of any supplies like paper, stationary, toners, ribbons, pens, printers cartridges, small office equipments, presentations support, etc. (consumable goods related to the workplace)	Coordination and control of the flow (storage, retrieval, processing, printing, copying, routing, distribution and disposal) of electronic and paper documents in a secure and efficient manner.	Coordination and control of copying and disposing of paper documents in an efficient manner.
Items included	Refer to specific sub-products	Cost of providing stationary and any kind of office supplies	Refer to specific sub-products	Equipment, maintenance and service, together with the cost of any dedicated staff and servicing. Also included is the save disposal (e.g. shredding) of paper documents.
Items excluded	Refer to specific sub-products	Not yet standardised	Not yet standardised	Costs of consumables (including paper - see office supplies)
Sublevels	Refer to specific sub-products	Not yet standardised	Not yet standardised	Central reprographics distributed reprographics
Specific activities (examples)	Refer to specific sub-products	Not applicable	Not applicable	Not applicable
Specific facilities (examples)	Refer to specific sub-products	Not applicable	Not applicable	Not applicable
Remarks				

Table 25 - People & Organisation – Logistics II

Product	Post room and internal distribution	Library and Archives	Moves – people & furniture
Product No.	2422	2423	2430
General description	Post room, messenger and in-house distribution services	Coordination, management and control of library and archives	Business change activity involving relocation of staff
Items included	Costs of opening, collating, distributing, collecting, packaging, stamping, scanning, recording and despatching mail as well as costs of inter-site distribution, Includes staff, and post room costs that would otherwise be posted to other products – rent, utilities and so on. May also include porter services	Both internal and outsourced archiving costs, costs of running buildings for archiving purposes (where these are either off-site or on-site in self-contained and identifiable buildings), archiving systems, dedicated labour and retrieval of records.	Includes all cost associated with moving people, furniture, ICT equipment and personal belongings.
Items excluded	Costs of stationery, paper and all other office supplies	Not yet standardised	Building improvement, portfolio optimisation, occupier fit-out, furniture & modifications to work areas or workstations to accommodate the move
Sublevels	Post room services internal distribution services	document management library archiving knowledge management	Moves within building Moves between buildings Move projects (more than 10 workplaces involved)
Specific activities (examples)	Not applicable	Purchasing and distributing journals, storing documents according to the laws	Transport of furniture and office material, time scheduling
Specific facilities (examples)	Not applicable	Librarian and archiving software	CAFM drawings showing the workplaces
Remarks			

Table 26 - People & Organisation – Logistics III

Product	Mobility	Fleet management	Travel services	Transport services
Product No.	2440	2441	2442	2443
General description	Conveyance of persons and goods for organisational purpose	The management of motor vehicles such as cars, vans and trucks.	Arrangement of travel and accommodation of personnel for business purposes except leased cars	Transport of goods and personnel on or between site(s).
Items included	Refer to specific sub-products	Fleet (vehicle) management include a range of fleet management functions, such as vehicle financing, vehicle maintenance, driver management, fuel management and transport related health & safety management and fleet administration. May include cost of the vehicles and capital costs, fuel, cleaning, insurance etc.	All activities, services and resources aimed at the conveyance of persons within the organization by public transport, by taxi or by air.	Bus schemes and public transport subsidy for staff travel, all executive chauffeur services, staff costs and vehicle costs and maintenance, cost of good transport both on and off site
Items excluded	Refer to specific sub-products	Not yet standardised	Off site accommodation (will be addressed elsewhere)	Cost of vehicles provided for the exclusive personal use of members of staff moves as defined in 2430
Sublevels	Refer to specific sub-products	Not yet standardised	Conveyance by 1. Public transport 2. Taxi 3. Air	1. Staff transport off site 2. Staff transport on site 3. Goods transport on site 4. Goods transport off site
Specific activities (examples)	Refer to specific sub-products	Tour planning	Not applicable	Tour planning
Specific facilities (examples)	Refer to specific sub-products	Not applicable	Not applicable	Not applicable
Remarks				

Table 27 - People & Organisation – Business Support I: Business Services / Management Support

Product	Business Support (management support)	Finance & Accounting	Accounting	Assets, property
Product No.	2500	2510	2511	2512
General description	Services supporting mainly the management of an organisation	Financial management services supporting the organisation	Accounting services supporting the organisation	Asset management or property management services supporting the organisation
Items included	Refer to specific sub-products	Special tools, external providers	Special tools, external providers	Special tools, external providers
Items excluded	Refer to specific sub-products	Financial services for the FM organisation itself (included in tactical integration)	Office space	Office space
Sublevels	Refer to specific sub-products	Accounting Assets. Property Controlling, Reporting	Financial accounting Operational accounting Project accounting (construction) Cash management	Not yet standardised
Specific activities (examples)	Refer to specific sub-products	Budgeting, Coordination of activities in sub-products	Invoicing, allocate bills to cost codes, general accounting, balance sheet, income statement, oversee external audit	Evaluating the value and depreciation of assets, buy and sell assets, develop an investment strategy, bookkeeping of assets in the accounting system
Specific facilities (examples)	Refer to specific sub-products	Accounting, controlling and reporting system (ERP)	Accounting IT system	Asset management system
Remarks	Strategic decision how much of these tasks is being given to the (external) FM provider			To discharge the primary activities from support processes, this product can include the management of financial investments in real estate or even shares

Table 28 - People & Organisation – Business Support II: Business Services / Management Support

Product	Controlling, reporting	HRM	Salaries and Pensions	Recruiting
Product No.	2513	2520	2521	2522
General description	Controlling and reporting services supporting the organisation	Human resources management services supporting the organisation	Administration of salaries and pensions	Supporting the recruiting of staff
Items included	Special tools, external providers	Special tools, external providers	Special tools, external providers	Special tools, external providers
Items excluded	Office space	HRM for the FM organisation itself. (included in tactical integration)	Office space	Office space
Sublevels	Not yet standardised	Salaries & Pensions Recruiting Training & Development	Not yet standardised	Not yet standardised
Specific activities (examples)	Definition of controlling strategy, auditing activities, coordinate data collection, statistics, report generation, chart drawing, propose recommendations for improvement	Job descriptions, job adds, wages and salaries, manage pension funds, interaction regarding alternative workplace strategies which impact on terms and conditions of employees	Calculating salaries and pensions, reporting and statements, payment of wages	Writing and placing adds, first selection of applicants, headhunting
Specific facilities (examples)	Controlling IT system, management information system MIS, reporting software	Coordination of activities in sub-products	Salaries and pensions administration IT system	Recruiting tests
Remarks		Strategic decision how much of HRM is being given to the (external) FM provider	Questions of security to be addressed	

Table 29 - People & Organisation – Business Support III: Business Services / Management Support

Product	Training & Development	Legal counsel and contracts	Legal advice	Patents and copyrights
Product No.	2523	2530	2531	2532
General description	Supporting the training & development of staff	Legal counsel supporting the organisation	Support concerning legal advice, court cases	Management of patents and copy rights
Items included	Special tools, external providers	Special tools, external providers	Special tools, external providers	Special tools, external providers
Items excluded	Office space	Legal services for the FM organisation itself.	Office space	Office space
Sublevels	Not yet standardised	Legal advice Insurances Contracts	Not yet standardised	Not yet standardised
Specific activities (examples)	Internal training administration, offering courses, offering individual staff development plans	Hiring legal advice	Managing court cases	Applying for a patent
Specific facilities (examples)	Training courses	Legal advice software	Database of court cases and laws	Database of patents and patent laws
Remarks				

Table 30 - People & Organisation – Business Support IV: Business Services / Management Support

Product	Insurance	Contracts	Marketing and communication	Procurement
Product No.	2533	2534	2540	2550
General description	Management and optimisation of all insurances in an organisation	Controlling and archiving all contracts, producing standard contracts for the organisation	Corporate communication, promotion and marketing services supporting the organisation	Procurement services supporting the organisation
Items included	Manpower and special tools, external providers	Manpower and special tools, external providers	Manpower and special tools, external providers	Manpower and special tools, external providers
Items excluded	Office space	Office space	Office space	Office space
Sublevels	Not yet standardised	Not yet standardised	Promotion Corporate communication - Public relations - Advertising	Tendering and negotiations Submissions and ordering
Specific activities (examples)	Negotiating insurance contracts, find uncovered risks	Support the negotiating of contracts, monitor dates of contracts ending, ensure that regular payments and contracts are aligned	Operate corporate website Press releases Market research/studies	Conduct submissions, evaluate providers, negotiate rebates
Specific facilities (examples)	Database of insurance contracts	Database of contracts with responsibilities	Marketing studio Web-site software	Internet submission tool
Remarks		Rental contracts are part of Real estate administration		

Table 31 - People & Organisation – Organisation specific (or Industry Sector specific) I

Product	Secretarial services, translations	Organisation specific	Business Application Providing
Product No.	2560	2900	2910
General description	Secretarial services supporting the organisation including translations	This product covers a wide range of organisation or industry sector specific services. The separation of these makes the other products more comparable across all branches.	Business Information Technology (BIT) is the facility to process data and aid communications in order to plan, execute, control and improve core business processes.
Items included	Manpower and special tools, external providers	Refer to specific sub-products	ERP Systems (Business Administration) Production Control (Chemical Branch), Traffic Control Systems (Transport Branch) Dealing Room (Banking Branch) CAD (Engineering Branch)
Items excluded	Office space	Refer to specific sub-products	non-core office applications like text processing, calculation, E-mail Services, Telecommunication systems and devices
Sublevels	Documentation Translations	Not yet standardised The numbering system is open for industry representatives to add their own product structure according to their needs	Strategic Management Business IT & Advisement Service Desk Business IT Central & Distributed Services Business IT Connectivity Business IT Training End Users Business IT
Specific activities (examples)	Planning meetings Taking minutes Editing and proofreading documents	Not applicable	Not applicable
Specific facilities (examples)	Office software, translating software, communication tools	Not applicable	Not applicable
Remarks			non-core business applications will be part of ICT products as mentioned elsewhere

Table 32 - People & Organisation – Organisation specific (or Industry Sector specific) II

Product	Branch Specific e.g. Health care	Patient transport (Health care business related)	Bed sterilization (Health care business related)	Broadcasting services (Health care business related)
Product No.	2990	2990.H1	2990.H2	2990.H3
General description	This product is open for industry sectors to specify products for their own needs.	Transportation of patients inside a hospital e.g. from ward to radiology or transportation from one hospital to another	Provision of sterilized beds for patients in hospitals and other health care facilities	Broadcasting of radio and television programs for patients
Items included	Refer to specific sub-products	Investment and operation cost (maintenance, taxes special tools such as cars and communication tools, planning tools/IT, external providers	Special tools, external providers, energy and media for the bed sterilization process, linen services, storage and logistics related to the provision of sterilized beds	Investment and installation of technical equipment and public and private fees for the programs
Items excluded	Refer to specific sub-products	Not yet standardised	Investment costs, maintenance of beds (allocated elsewhere)	energy costs
Sublevels	Not yet standardised	In-house transport transport to external locations	Sterilization of standard bed sterilization of bed for intensive care unit (ICU)	Not yet standardised
Specific activities (examples)	Refer to specific sub-products	Dispatching tour planning	Not applicable	Not applicable
Specific facilities (examples)	Refer to specific sub-products	Storage rooms, transportation vehicles	Central bed sterilization area	Storage room
Remarks	Refer to specific sub-products			Energy costs not included because already allocated to ward

Annex A (informative)

Graphic representation of the Facility Product Map

This standard emphasises the need for the creation of standardised FM products. Some basic reasons are:

- a) FM costs need to be collected in the same granularity that they are allocated to products/charged to the clients. For example if a tenant fit-out is to be charged separately, the costs of this work need to be collected separately in the construction phase;
- b) standardised (classified) products are required for benchmarking and cost allocation;
- c) the market needs clarity and a consistent approach on the separation / integration of activities into classified products;
- d) standardised products are a necessity to create standardised submissions, measure quality and performance and compare prices.

<u>INPUTS TO PROCESSES</u> (Example: technical infrastructure)		Facilities			
		F1 Heating	F2 Ventilation	F3 Aircond.	F4 Water
Process codes and cost allocation					
Activities	A1 Planning (Plan)	A1:F1*) €	A1:F2 €	...	
	A2 Operation (Do)	A2:F1 €	
	A3 Controlling (Check)	A3:F1 €	...		
	A4 Upgrading (Act)	...			

*) A1:F1 Code of subprocess: Planning the heating system
€ Cost of subprocess

Figure A.1 — Exemplary matrix of facilities and activities

Figure A.1 visualises the relation between facilities (e.g. heating, cooling, water supply) and activities (e.g. planning, operation, controlling, upgrading). The intersections can be defined as processes producing a product. This level of detail may be required in some organisations and is easily defined using this structure. For practical use and for communication between demand side and supplier, it is too complicated to work with hundreds of processes and products. This standard therefore defines a workable number of standardised facility products within this detailed matrix. One major goal was to keep the resulting FM product map simple and easy to understand and use.

Activities / Subprocesses			Facilities					People & Organisation					
			Space	Outdoors	Cleaning	Workplace	Primary activity spec.	HSS&E	Hospitality	ICT	Logistics	Business Support	Organis. specific
Strategic level	Plan	FM agreement Activities Plan service organisation Activities Alignment with client Activities	<div style="border: 2px solid blue; border-radius: 20px; padding: 20px; background-color: #4a86e8; color: white; font-weight: bold; font-size: 1.2em;"> FM - Integration on strategic level </div>										
	Do	Introduction of processes Activities Integration of processes Activities Strategy development Activities											
	Check	Quality Management System Activities Reporting to client Activities											
	Act	Feedback to client Activities Enable Improvement Activities											
Integration on tactical level (PDCA)													
Operational level (PDCA)			1100	1200	1300	1400	1900	2100	2200	2300	2400	2500	2900

Figure A.2 — Matrix of facilities and exemplary activities (facility product map) on strategic level

Activities / Subprocesses			Facilities					People & Organisation					
			Space	Outdoors	Cleaning	Workplace	Primary activity spec.	HSS&E	Hospitality	ICT	Logistics	Business Support	Organis. specific
Integration on strategic level (PDCA)													
Tactical level	Plan	SLA Activities Resource planning Activities Alignment with customer Activities	<div style="border: 2px solid green; border-radius: 20px; padding: 20px; background-color: #2e8b57; color: white; font-weight: bold; font-size: 1.2em;"> Integration on tactical level Space & Infrastructure </div>					<div style="border: 2px solid green; border-radius: 20px; padding: 20px; background-color: #2e8b57; color: white; font-weight: bold; font-size: 1.2em;"> Integration on tactical level People & Organisation </div>					
	Do	Manage Integration Activities Develop procedures Activities Supervise processes Activities											
	Check	Accounting Activities Controlling, Reporting Activities											
	Act	Quality, Documenting Activities Manage Improvement Activities											
Operational level (PDCA)			1100	1200	1300	1400	1900	2100	2200	2300	2400	2500	2900

Figure A.3 — Matrix of facilities and exemplary activities (facility product map) on tactical level

Activities / Subprocesses			Facilities					People & Organisation					
			Space & Infrastructure					People & Organisation					
			Space	Outdoors	Cleaning	Workplace	Primary activity spec.	HSS&E	Hospitality	ICT	Logistics	Business Support	Organis. specific
Integration on strategic level (PDCA)													
Integration on tactical level (PDCA)													
Operational level	Plan	Plan, Design Activities Aquisition Activities like (examples): Buy, rent, lease, construct Real estate development	1100	1200	1300	1400	1900	2100	2200	2300	2400	2500	2900
	Do	Administration Activities Operation Activities Maintenance Activities	1100	1200	1300	1400	1900	2100	2200	2300	2400	2500	2900
	Check	Accounting Activities Controlling Activities	1100	1200	1300	1400	1900	2100	2200	2300	2400	2500	2900
	Act	Quality, Documenting Activities Execute Improvement Activities	1100	1200	1300	1400	1900	2100	2200	2300	2400	2500	2900

Figure A.4 — Matrix of facilities and exemplary activities (facility product map) on operational level

Figure A.2 to Figure A.4 Matrix of facilities and exemplary activities (facility product map) with the strategic, tactical and operational levels enlarged to show examples of the activities on each level.

Figure A.5 to Figure A.7 is a graphical representation of the hierarchical structure of the standardised facility products.

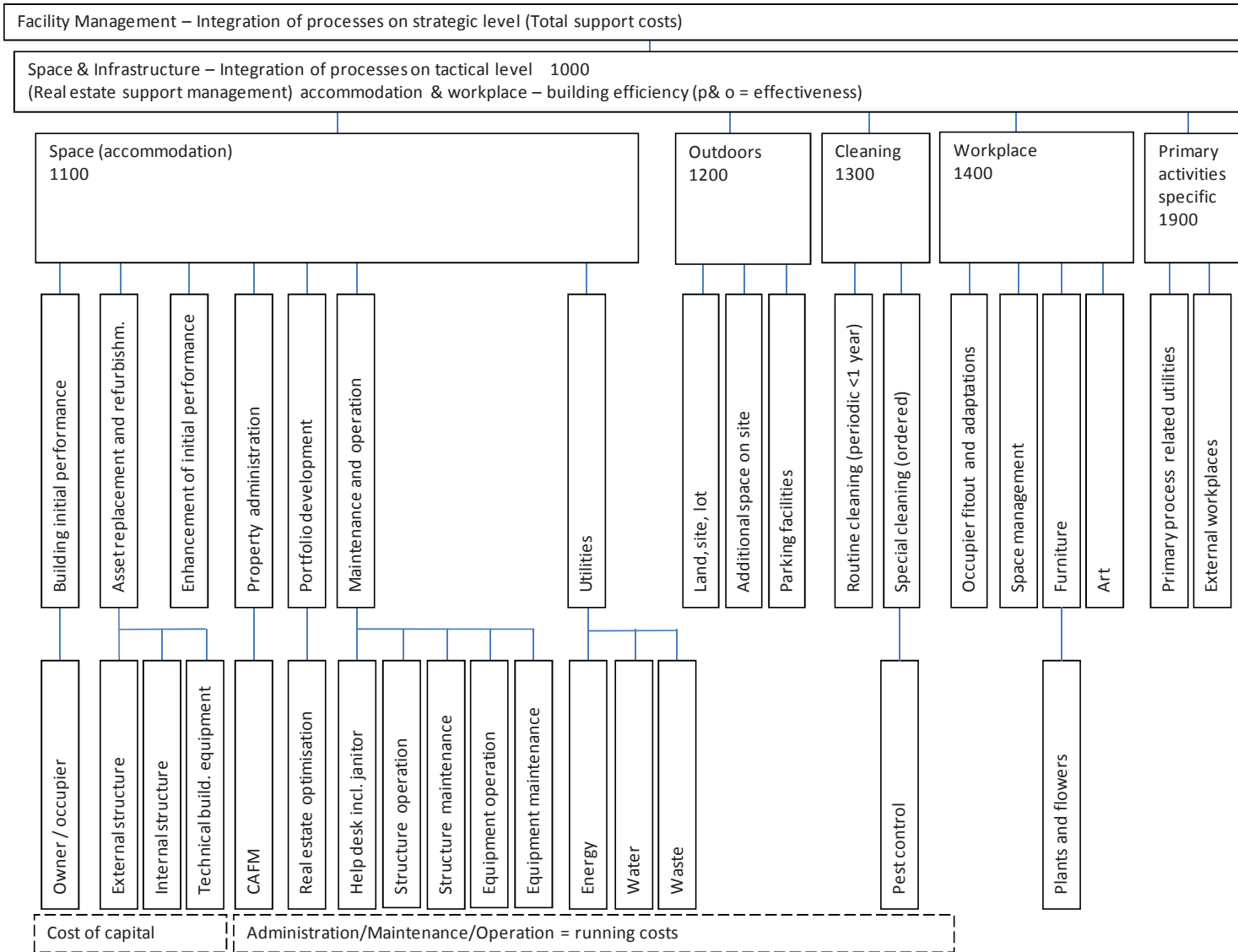


Figure A.5 — Facility product map Space & Infrastructure, related to FM Model EN 15221-1

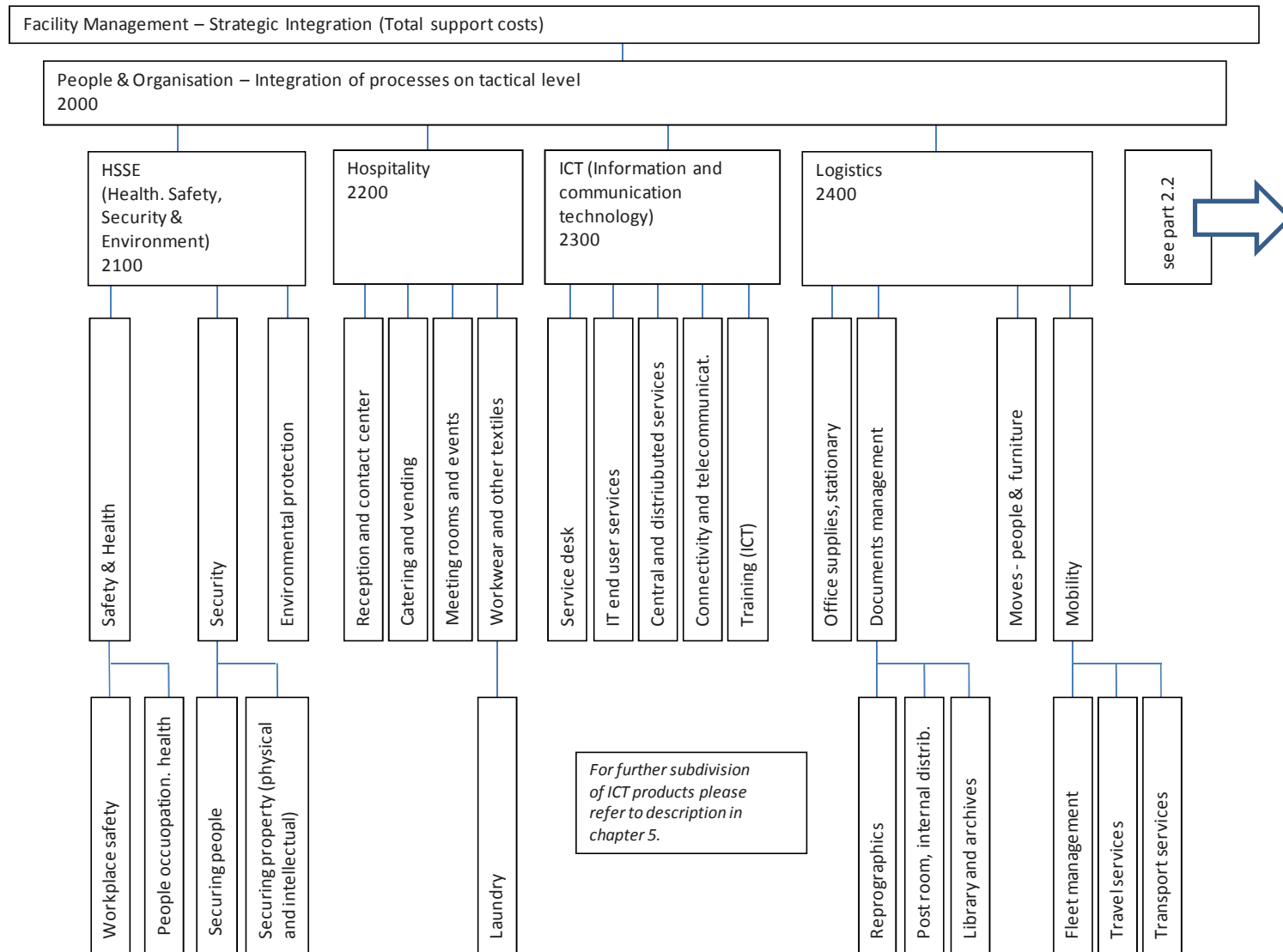


Figure A.6 — Facility product map People & Organisation part I, related to FM Model EN 15221-1

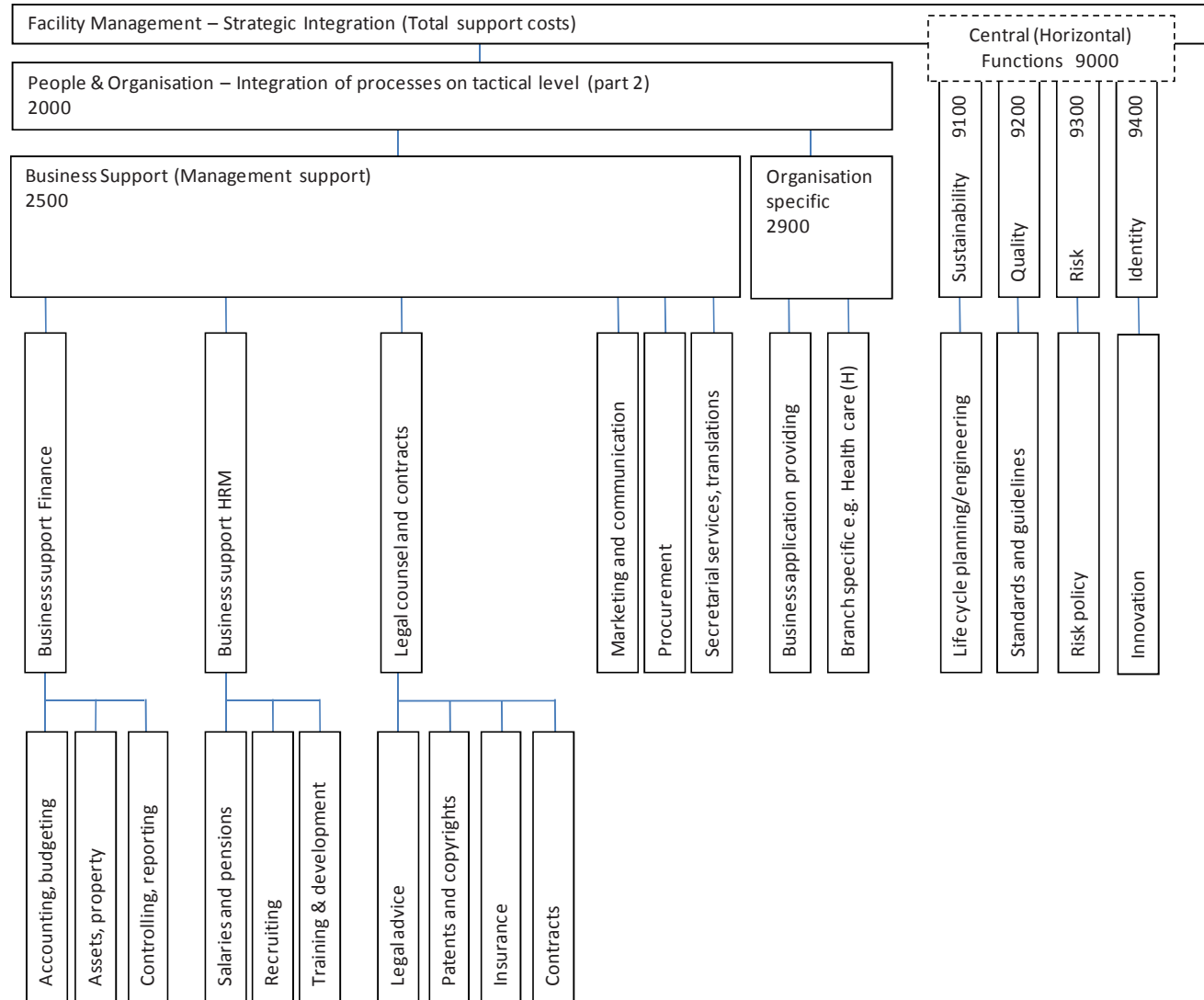


Figure A.7 — Facility product map People & Organisation part II, related to FM Model EN 15221-1

Annex B (informative)

Additional comments to specific Facility Products

B.1 Reference to the FM model and interaction with organisation

The approach to FM in this standard is to consider the added value provided to the primary activities from a product perspective as recognised by the primary processes or core business in the client organisation.

This chapter gives additional information on how the above defined facility products are placed in and interact with the organisation.

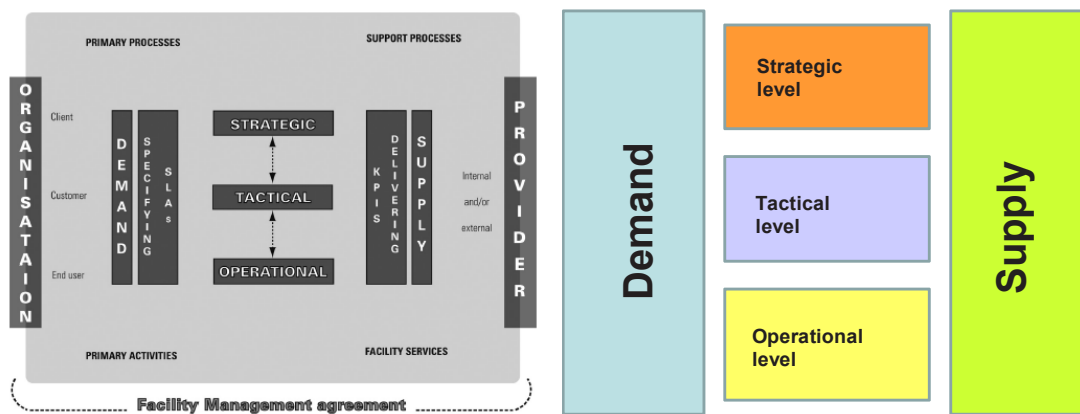


Figure B.1 — FM Model EN 15221-1 and its pictogram used in this standard

The FM model provided in EN 15221-1 can be expanded to indicate roles and organisational alignment. Figure B.2 shows a typical form of implementation and examples of organisational roles and responsibilities. It draws attention to the importance of a clear communication between customer and provider; especially if sub-providers are involved in the provision of facility products to the end-user directly.

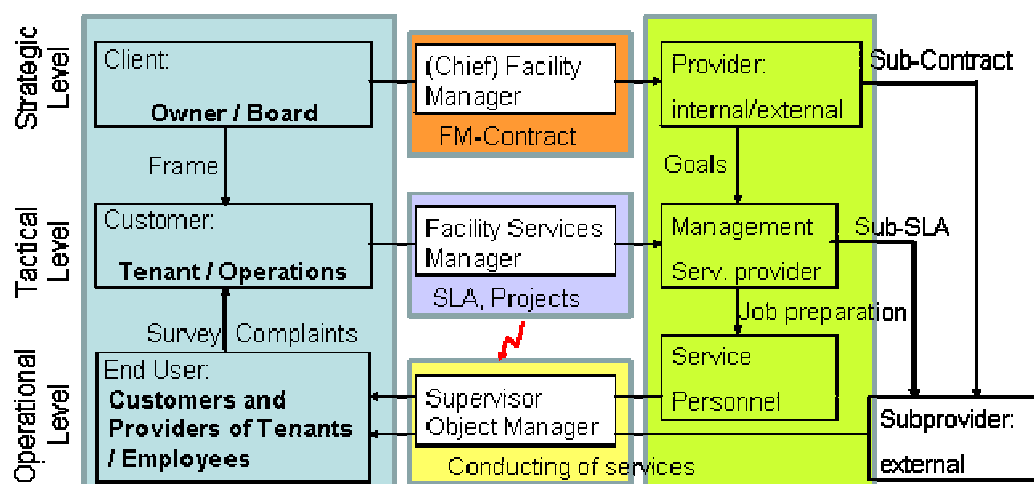


Figure B.2 — Extended FM Model, showing an example of an implementation of FM at the three levels

B.2 Product FM – Facility Management – Strategic Integration

Facility management – strategic integration is the only product on strategic level. It could be used to sum up all costs of FM (a cost collector). Besides the integration of the processes following the definition of FM in EN 15221-1 the alignment with the client’s primary activities and the reporting to the client are some of the major activities within this product. To be able to perform these tasks a close link to the board of the organisation as representative of the client is recommended. The following example shows how this close link could be established in an ideal organisational model.

This product is the interface between the client (strategic level) and the provider.

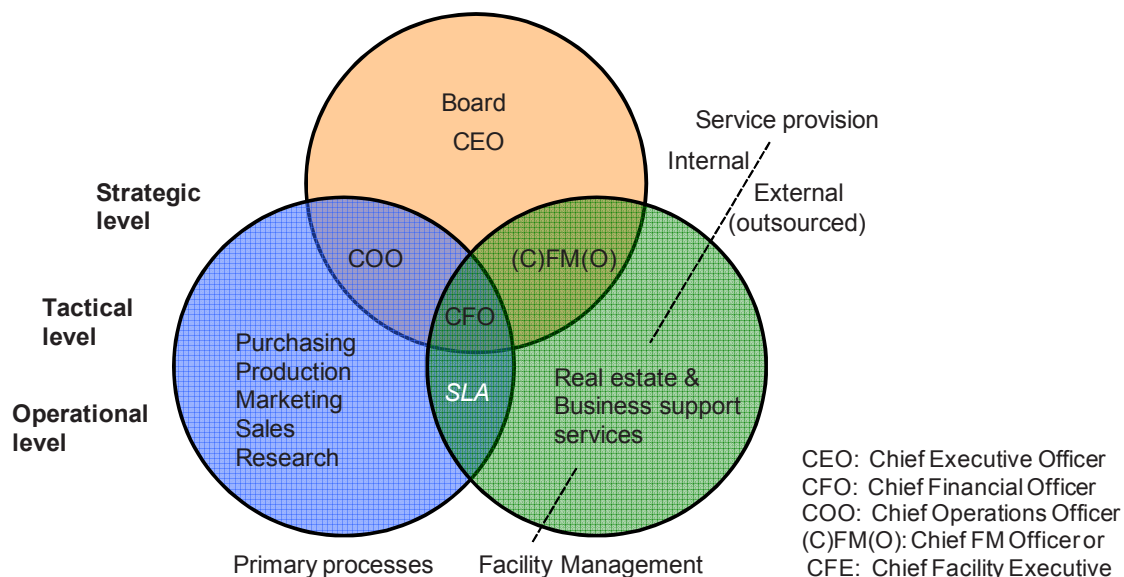


Figure B.3 — Example of an organisational model based on the FM-model where the primary activities and the support activities are organised on an even level and the FM organisation is incorporated on board level. The line between Internal and External represents the flexibility in outsourcing

B.3 Product 1000 Tactical Integration (Space & Infrastructure) and 2000 Tactical Integration (People & Organisation)

B.3.1 General

The two products are the summary of activities on the tactical level. Except for large organisations, this product has been introduced to summarise two sets of products with different characteristics.

FM, like all management disciplines, relies on skill, competencies and knowledge of practitioners to enable the delivery of highly efficient and effective products / facility services that contribute to the success of a business.

B.3.2 Roles

There are different roles and responsibilities within and outside an organisation and its FM depending on the organisational structure and approach. In any organisation more than one role can be played by the same person or organisational unit.

Different organisational role models are typically used for:

- products related to Space & Infrastructure;

— products related to People & Organisation.

The division on tactical level is a consequence of these two different role models.

B.3.3 Space & Infrastructure products - organisational role model.

In this division, the roles depend much on the ownership of the facilities.

Organisation / activity	Ownership			Ownership			Ownership			Ownership		
	Real estate owned and used by the organisation			Real estate owned by Facility Management unit			R. estate owned by external organisation (landlord)			Real estate as financial investment		
	Owner Investor	User	Service Provider	Owner Investor	User	Service Provider	Owner Investor	User	Service Provider	Owner Investor	User	Service Provider
Organisation (primary activity)	X	X	--	C	X	--	--	X	--	X	--	--
Facility Management (support process)	R	R	X	X	R	X	C	R	O	R	--	X
<i>Corporate Real Estate Management</i>	O/R	--	--	O/R	--	--	--	--	--	O/R	--	--
<i>Portfolio Management</i>	A	--	--	A	--	--	O/A	--	--	O/A	--	--
<i>Real Estate Management</i>	A	--	A	A	--	A	O/A	--	O/A	O/A	--	O/A
<i>Property/Asset Management</i>	A	--	O	A	--	O	--	--	--	O/A	--	--
<i>Building Management</i>	O	--	A	O	--	A	--	--	O/A	--	--	O/A
Facility Service Providers	--	--	S	O/X	--	S	--	--	S	--	--	S
Landlord (external)	--	--	--	--	--	--	X	--	--	--	--	--
Facility Management (landlord)	--	--	--	--	--	--	R	--	X	--	--	--
Tenant (external)	--	--	--	--	--	--	--	--	--	--	X	--
Facility Management (tenant)	--	--	--	--	--	--	--	--	--	C	R	O

Legend:

- X Responsible (Process owner)
- R Representation
- C Contracting (renting)
- A Activity (e.g. administration)
- S Service provision
- O Optional (alternatives)

Figure B.4 — Example of a Space & Infrastructure related role model from the perspective of the primary activity of the organisation showing the different roles and activities depending on ownership of real estate (facility)

The exemplary role model in Figure B.4 is built on the premise to maximise the support of the primary activity by discharging it from all support processes and by fully integrating these support processes. In the given example this includes the management of financial investments (financial assets).

There is a confusing number of different management terms around Space & Infrastructure like (Corporate) Real Estate-, Portfolio-, Property-, Asset- or Building Management. These terms have no common European definition and are often used synonymously or in an overlapping manner, depending on national or organisational preferences. Generally, these are seen as support processes and should therefore be integrated by the Facility Management on strategic level. Figure B.4 highlights the importance of the integration of the support processes by clearly defining the tasks, competencies and responsibilities to avoid frictions and inefficiencies.

B.3.4 People & Organisation products - organisational role model

In this model, unlike the Space & Infrastructure products role model, the ownership of an asset is less relevant. The owner is usually defined as the contract partner. The product is delivered to the users or representatives of the primary activities.

In accordance with the FM model, the FM organisation supports three types of roles on the demand side as shown in Figure B.5

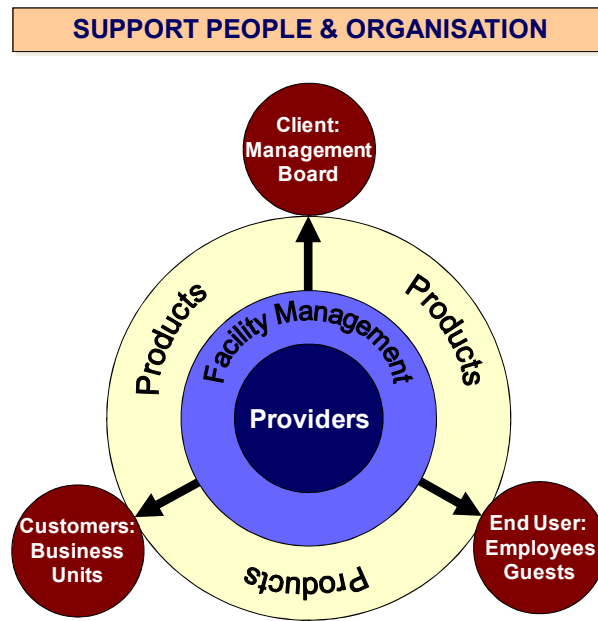


Figure B.5 — Role model related to People & Organisation

B.4 Product 9100 Sustainability

Sustainability is an important topic for facility management professionals, and is becoming more of a mandatory practice than an optional trend. Many global, financial and environmental factors are contributing to the need for a shift to sustainability. Facility Management can add substantially to the sustainability of an organisation because it covers a broad spectrum of activities concerning economic, environmental and social aspects. Facility management with its holistic approach will play an important role in the next years to manage the future requirements.

The field of sustainability is changing and developing. Standards on sustainability for the construction sector are being elaborated on European and ISO by:

ISO/TC 59/SC 17 Sustainability in building construction

CEN/TC 350 Sustainability of construction works

B.5 Product 9200 Quality

This product comes into use if the introduction, updating and reassessment of a quality management system (e.g. according to EN ISO 9000) is planned and executed. It may also contain the support of the primary activities in this field.

B.6 Product 1100 Space

Very often projects are decided based on lowest investment only without considering the consequences e.g. the following running (up keep) costs. In recent years, it has become more common to take all these costs into consideration. In some types of primary processes change of demands has high frequencies (hospitals, terminal building on airports, shopping etc.). In those cases, it is important to take the improvement (upgrading) costs into consideration. These costs are depending on the adaptability of the building. If the solutions to the demand on changing the building do not exist or are very costly due to lack of adaptability the change will not be done and the effect on primary business costs can be high.

The product "Space" and its subdivisions are specially designed to facilitate life cycle costing (LCC). Capital costs are separated from annual running costs and divided into the three sections: initial costs, cost of refurbishment and cost of enhancement of initial performance.

LCC is a strategic or tactical planning tool. It is using a lot of estimation and predicting, e.g. past data which is not available anymore or future prognosticated values. This limits the usage of this instrument to handle specific problems and questions. Also LCC of a building does not incorporate strategic relevant questions like policy and strategy of the whole organisation, relation to other buildings in the portfolio, the suitability of the place and the construction for the desired usage and non-economical aspects of sustainability. Whilst an initial life cycle assessment may be undertaken, this analysis should include a strategic assessment in terms of the impacts/opportunities as regards to the existing estate portfolio, business operations and business strategy/plans.

Although the products and costs related to People & Organisation are more organisationally specific, the standardised facility products allow the application of LCC in a consistent way (e.g. in 'ICT' or 'Fleet management').

LCC is defined in ISO 15686-5, *Buildings and constructed assets – Service-life planning, Part 5: Life cycle costing* and in the Nordic standard NS 3454, *Life cycle costs for building and civil engineering work – Principles and classification*.

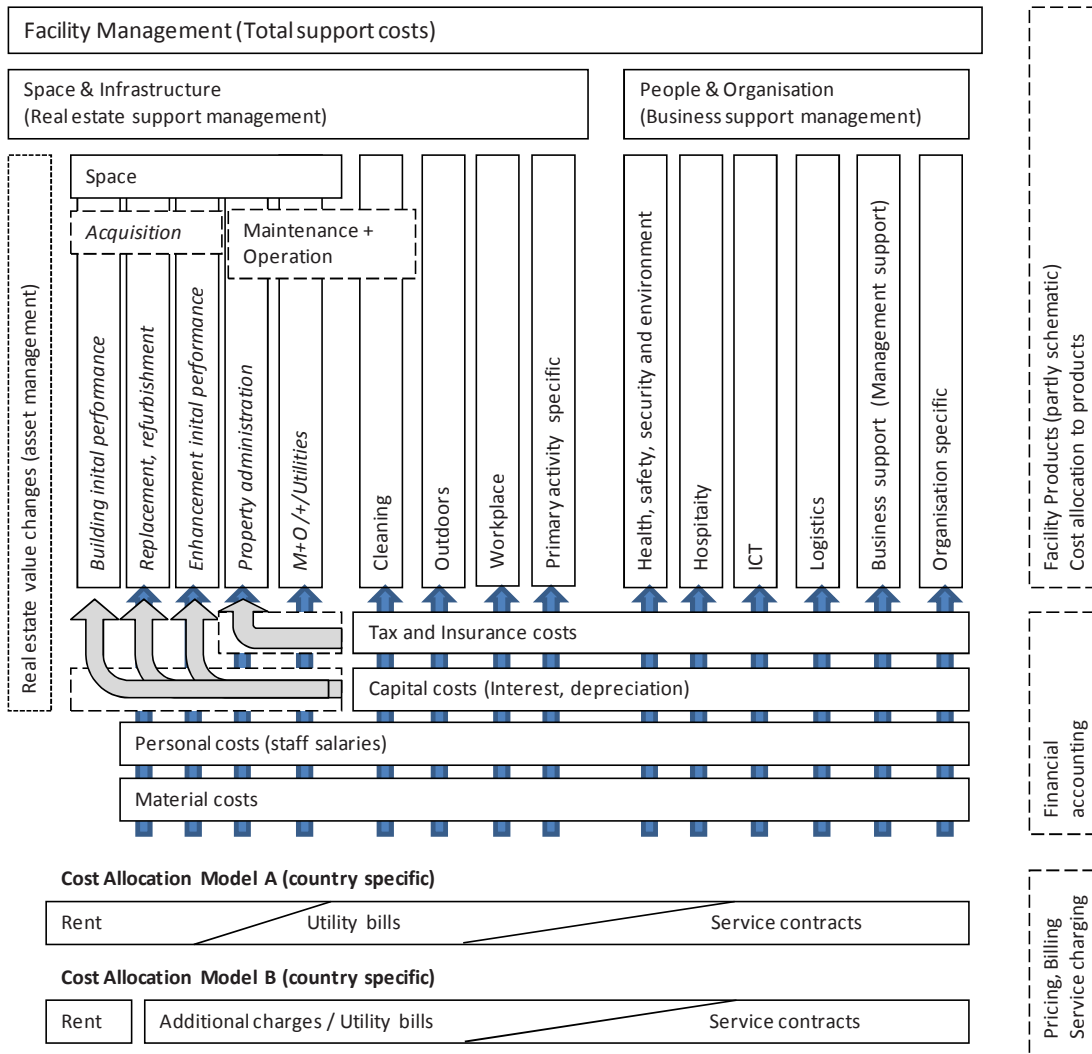


Figure B.6 — Nationally different cost allocation models and cost allocation structure for the facility product Space (Cleaning is shown next to Space to highlight a possible summation of running costs within this structure)

B.7 Product 1110 Building initial performance

This product covers the activities and the investment needed to provide the initial existing or required performance of a building. This initial performance is usually achieved by either buying, renting, leasing or designing and constructing of a facility.

Is the construction phase of the life cycle of an asset or facility (e.g. a building) part of the support services which are to be integrated by Facility Management? In smaller organisations, the construction of a building is not part of the usual business and will be contracted out to specialised companies. However, it is an FM activity to steer and control the construction process to accommodate the longer term impacts and requirements of future owners and the potential users. This can be done in the form of a steering committee incorporating user groups.

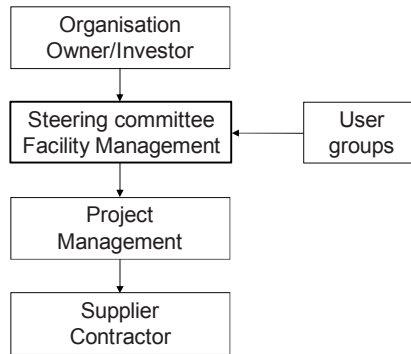


Figure B.7 — Example of an organigram to represent the owner/investor/user interests in a project

In larger organisations, there is often a separate construction department to be found. Usually there is a competition between the construction and the services department. Facility Management offers the opportunity to integrate these different departments to optimise the interfaces and the performance. It is this integration where Facility Management can produce further added value to an organisation.

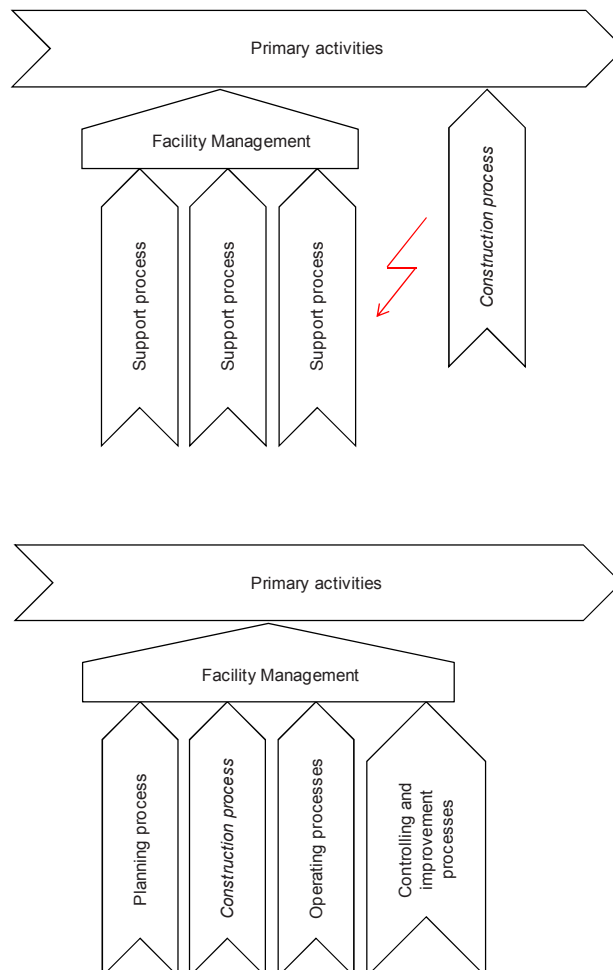


Figure B.8 — Additional interface (broken life cycle) if construction related support processes are provided separately and optimisation by integration of the construction processes by FM: The life cycle is closed and integrated.

This problem has lost much of its actuality due to the fact that many large organisations have sold their real estate and shifted from owning buildings to renting or leasing. However, this can be well incorporated in the acquisition process within Facility Management.

B.8 Products 1120 Asset Replacement & Refurbishment and 1160 Maintenance & Operation

For the definition of the terms maintenance and operation refer to EN 13306, *Maintenance – Maintenance terminology*. In the field of FM the integration of the technical definitions in EN 13306 and cost allocation considerations, which are not covered in the maintenance standard, was aimed for. It is not satisfactory to count investment costs which are listed as an asset in the balance sheet and running costs from the income statement together. The solution is that the part of maintenance activities that is being listed as an asset in the balance sheet of the organisation is called asset replacement and refurbishment. The division is determined by either the value, the periodicity or any other trigger based on national customs or organisational preferences.

The same applies to the differentiation between maintenance and operating costs. These costs are often separated by the accounting department based on value. In some countries, this division determines the regulated billing of services which are not included in the rent. For these reasons, it was decided to use a joint product on this level and to propose a subdivision on the next level below. If maintenance and operation costs need to be allocated and reported separately, an additional level of products (e.g. 1160.1 Maintenance and 1160.2 Operation) may be inserted in the product hierarchy.

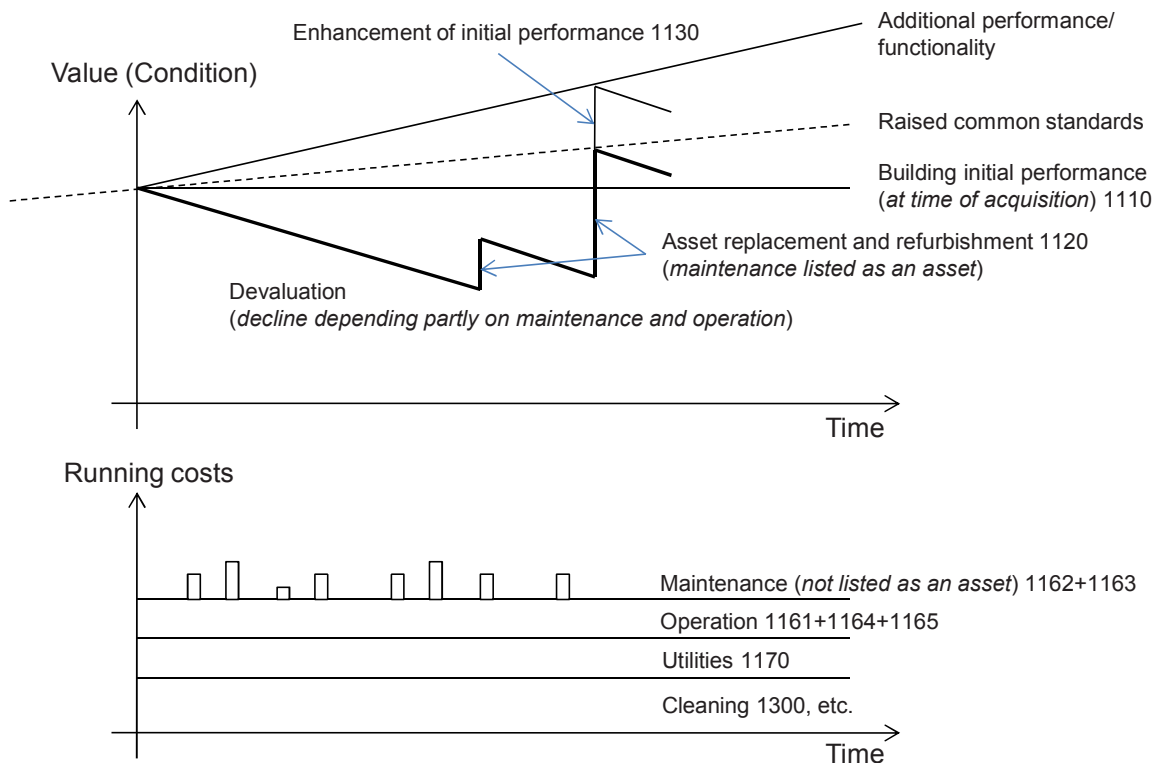


Figure B.9 — Illustration of products related to maintenance and building value

B.9 Product 1170 Utilities

The investment costs of the technical infrastructure or the utilities are generally included in the product "Space". The consequences are that these cannot be a product on their own on top level. On the lower levels of the product hierarchy other criteria's have been used to define the sub-products. As stated above the product "Space" has been designed to facilitate Life Cycle Costing. The utilities are usually an important part of the annual operating costs of a building and have therefore been subsumed under the product "Space".

In large organisations operating on complex sites there is often an internal charging mechanism for apportioning "rent" and/or service charges to operating units/profit centres. Very often energy consumption needs to be allocated to a certain unit of space before it can be allocated to a customer. This shows the close link between "Utilities" and "Space". Furthermore, standard accounting systems do not understand kWh or l and an energy management system may be required.

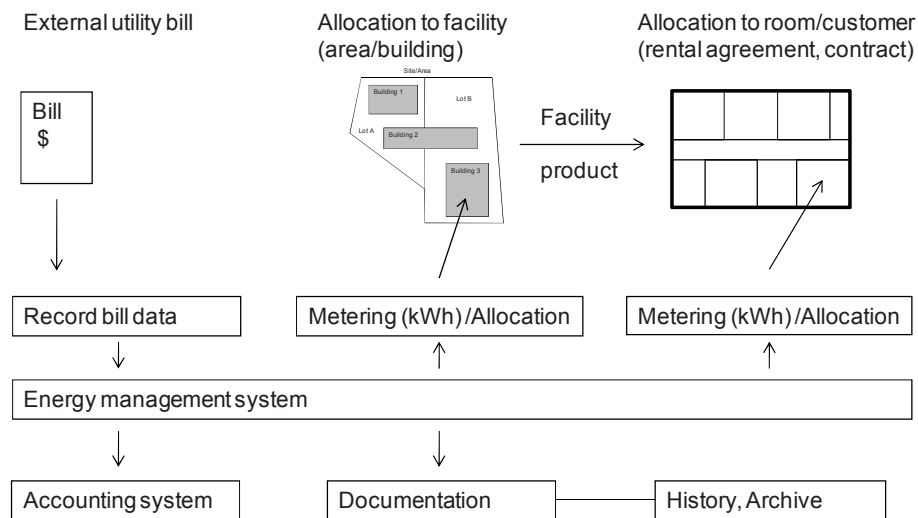


Figure B.10 — Allocation of energy costs in a large organisation

Annex C (informative)

Graphic Representation of FM Process Matrix

C.1 FM Process matrix

The FM process matrix builds the link in the FM relationship model (Figure 2) between the FM model in EN 15221-1 Terms and Definitions, the FM product map in this standard, the quality cycle PDCA described in EN 15221-3 (Quality) and the exemplary FM processes given in EN 15221-5 (Processes).

Figure C.1 shows a FM process matrix as an example how to use the FM process matrix to develop a structured quality cycle (PDCA) approach on facility management processes. The principles of the quality cycle (PCDA or an adapted version of it) underpin all of the strategic or operational activities and processes but may be applied to a different extent and depth depending on maturity and experience of the organisation. The basic principle of the quality cycle means that every activity and every process requires planning, controlling and continuous improvement which leads to renewed planning. Therefore, each theme on each level contains a full horizontal quality cycle. The little arrows indicate vertical processes for translating the clients demand into product planning, reporting the operational output back to the client and leading the change management process from top down.

The processes on strategic level define the duties and responsibilities of a Facility Manager.

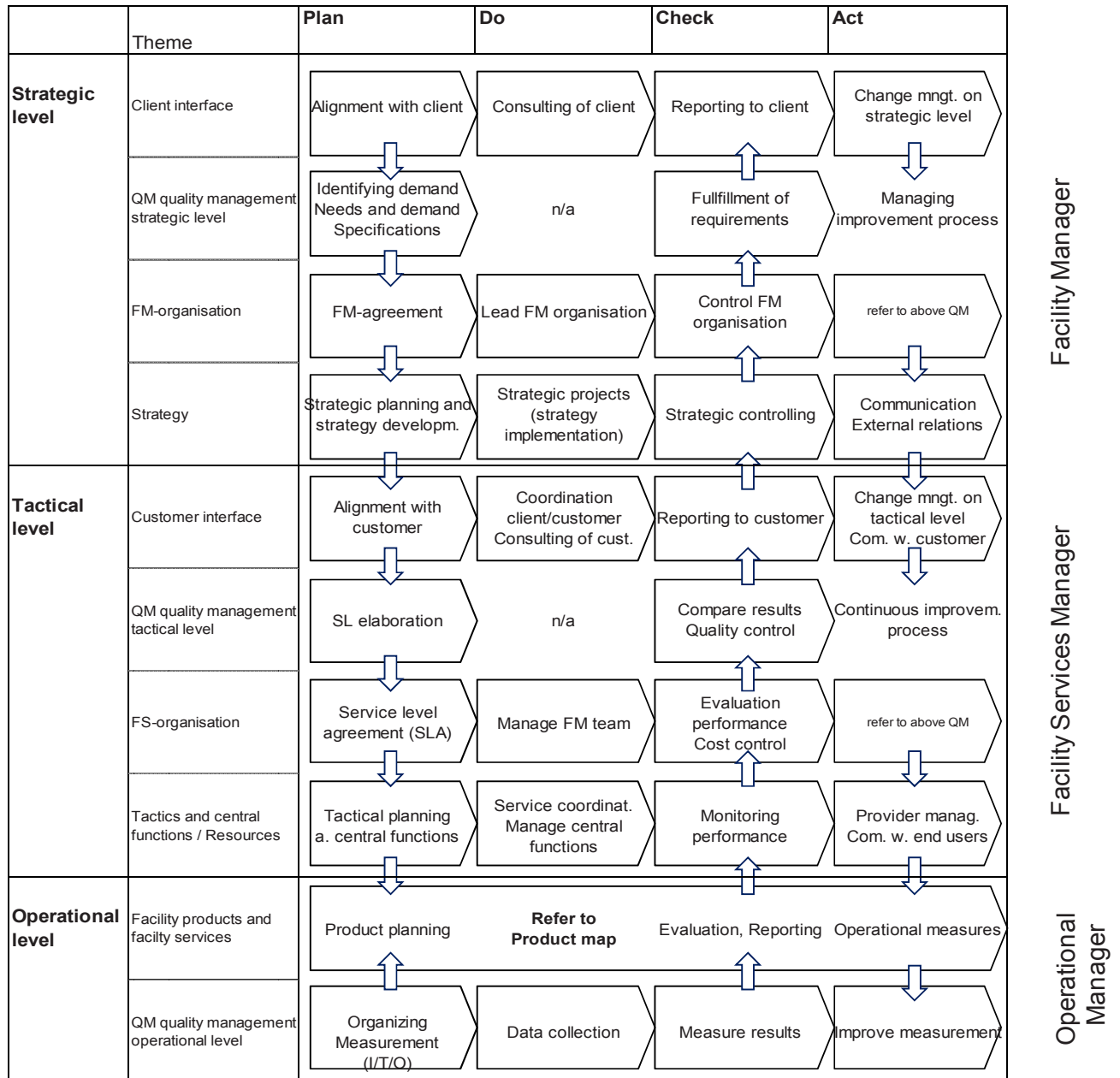


Figure C.1 — Example of a strictly structured theoretical FM process matrix using PDCA cycles on every level

The generic process strategy development in the example may include asset management strategy, strategic space planning, procurement strategy, initiation of corporate standards, a framework for risk management and sustainability (input for central functions) etc. Depending on their importance for the organisation, these items can be defined as separate processes of their own.

The initial implementation of the processes is seen as part of a strategic project and not shown separately.

The central (horizontal) functions are part of the product map (Sustainability, Quality, Risk management, Identity). Their importance may also differ from organisation to organisation, depending on the nature of the primary activities.

The processes on strategic level may be used to define the tasks of the facility manager or leader of the facility management organisation.

In practice, the set of structured generic processes usually needs to be adapted to the specific needs of the organization. Figure C.2 shows the link of the exemplary FM processes as described in EN 15221-5 to the generic processes. In EN 15221-5, the strategic processes have been numbered from S1 to Sn (blue), the tactical processes from T1 to Tn (green) and the operational processes from O1 to On if they did not refer to a numbered facility product in the product map.



Figure C.2 — FM Process matrix with links to the processes defined in EN 15221-5

Annex D (informative)

Structures

D.1 Description of facilities and activities

D.1.1 Facilities (e.g. space, equipment, consumables)

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 starts with 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.

D.1.2 Facilities (e.g. space, equipment, consumables)

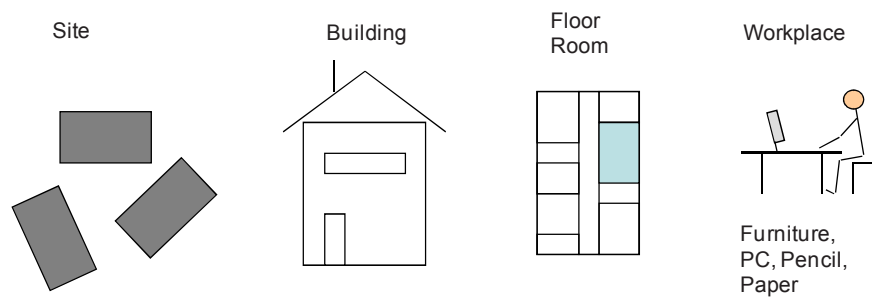


Figure D.1 — Facilities at different scales

Facilities usually are hierarchically structured. These structures are used to represent them in a CAFM system.

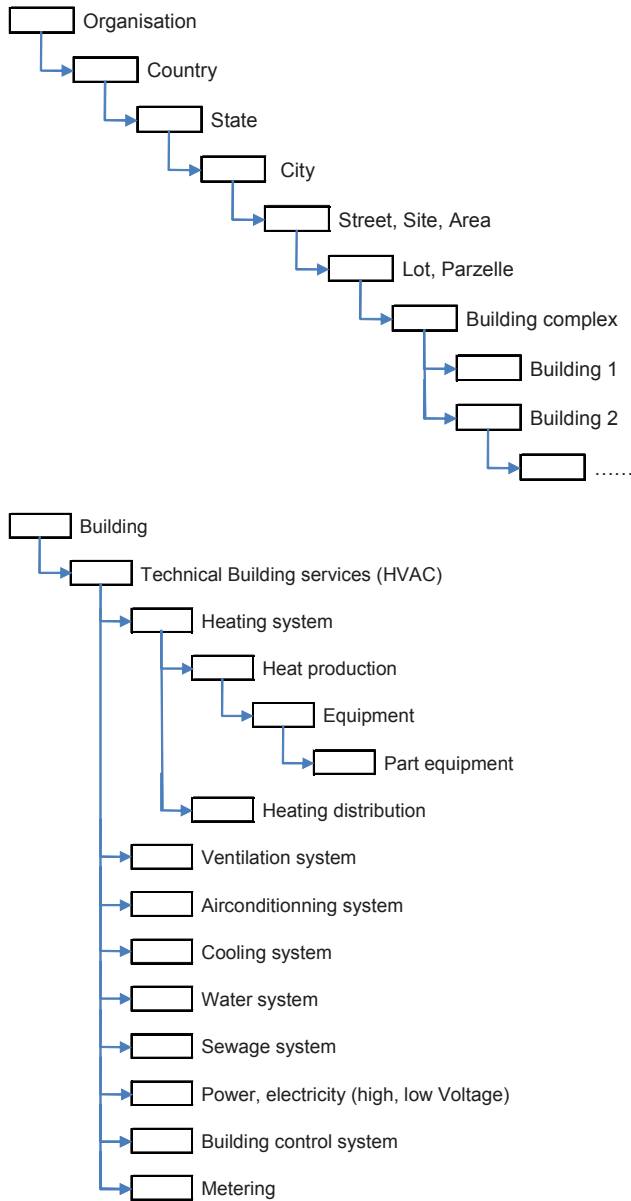


Figure D.2 — Examples of hierarchical structures: technical building equipment and location

D.1.3 Activities

Activities are performed by personnel/people/staff often with the help of tools, machinery or equipment (facilities) which are not transformed in the process. The distinction between an activity and a (sub-) process is a matter of definition. The provision of facilities is always embedded in activities.

Sometimes, the same term is used to describe an activity, a product and its process (e.g. cleaning).

Table D.1 — Examples of differences and similarities between primary activities and FM (secondary~, support~) activities

Quality Cycle	Categories of Facility Management activities	Categories of Primary activities
Plan	Management Acquisition & Disinvestment	Management Procurement
Do	Administration Operation Maintenance	Administration Production Sales and Marketing
Check	Accounting and Controlling	Accounting and Controlling
Act	Continuous improvement	Research and Development

D.2 Physical structure – facility product structure

The physical structure and the facility product structure may not be the same due to differing organisational perspectives. ICT is used as an example to clarify this:

Table D.2 — Physical structure versus facility product structure

A) Physical structure of ICT	Facilities (physical structure)	B) Facility product structure of ICT	Facilities (physical structure)
Hardware	Server PC Telephone Printer	IT end user services	PC Software Printer
Software	Operating system Office suite CAFM Specific software	Central and distributes services	Server Network Applications
Network	Switches Cabling	Service Desk	Help Desk
Support	Help Desk Education	Training (ICT)	Education

Standardised facility products are sometimes defined differently from the physical structures generally used. The reason is this standard provides common European definitions from a client perspective.

Annex E (informative)

Cost and revenue considerations in Facility Management

E.1 Facility Management cycle

This annex presents a model for bringing facility processes, facility products and costs together and allocating the FM costs within the organisation. Because this model touches the principles of cost allocation in FM, it is also about pricing, billing, profitability and their relation to products and costs – in order to be able to:

- a) determine the price of the facility product (product pricing, planning, budgeting);
- b) determine the profitability of the facility product (controlling, comparison of target and actual business results) for the provider;
- c) provide a basis for effective benchmarking (continuous improvement).

Figure E.1 FM cycle shows the typical relationship between processes and costs in an organisation:

- d) demand is defined in the *Plan* phase in the form of an FM agreement and SLA's;
- e) steering and managing the processes is part of the *Do* phase;
- f) resources are required to produce the agreed facility products. They form the input into the processes and can either be Facilities (capital cost, material costs, etc.) or Activities (personnel costs);
- g) the Output of a process is, in accordance with EN ISO 9000, a product or a service. The performance of the product is measured with (Key) Performance Indicators (see EN 15221-3);
- h) the costs of the resources used to produce a product are allocated to this product in the operational accounting system. The differences between an operational accounting system for the primary business and for FM are described in this Annex E;
- i) this standard proposes a consistent allocation of costs to the defined facility products in order to facilitate a comparison of cost performance. Cost allocation is part of the *Check* phase;
- j) where required, the cost of individual facility services forming part of a standard facility products can be calculated;
- k) the price of an FM product is often determined in the Planning phase as a result of the scope defined in the FM contractor service level agreement (SLA). The cost allocation is used to control the profit margin of the product;
- l) effectiveness is measured (e.g. customer satisfaction) and the result is used to improve the processes and the resulting products or to adjust the demand. This continuous improvement forms the phase *Act*.

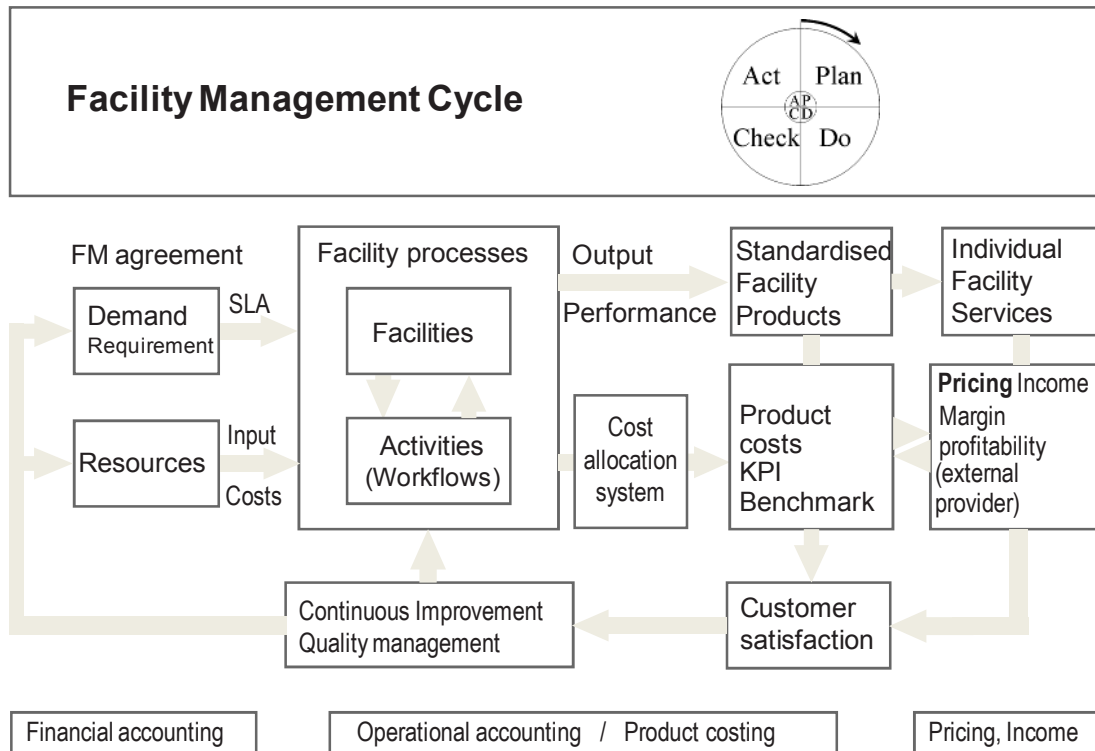


Figure E.1 — FM cycle showing the relationship between processes and costs, the application of the quality cycle (PDCA) to this relation and the relevant accounting systems

NOTE A profit margin is only applicable to profit centres and external providers.

E.2 Model of FM as a cost centre providing facility products

The allocation of costs to products is usually done in an operational accounting system. Standard elements of such a system are:

- cost codes (given by the financial accounting and internal and/or international standards);
- cost centres (organisational units responsible for cost and revenue);
- cost units (products or parts of products sold at a price; the difference between costs and price is the profitability).

The Facility Management cost centre is responsible for the facility products necessary to support the primary activities. It can be organised as one or several cost centres and is producing or procuring the facility products or facility Services which are necessary to support the production of the primary products of the organisation (Figure 8).

The Facility Management cost centre is not directly involved in the production process of the primary activities. Therefore it is also called secondary cost centre. The primary activity cost centres are the customers ordering and paying for the Facility Products. Within the Facility Management cost centres the costs are allocated and charged to the primary activities cost centres via the facility products which have been agreed for. Allocated to these cost centres, the Facility Management costs flow either into the direct or the indirect costs of their primary products (cost units of the primary activities).

A direct allocation of FM costs to the primary products is the exception e.g. if each primary activity cost centre produces only one product or if FM is given the responsibility to allocate these costs directly. A well defined cost allocation scheme is essential to clarify the situation between customer, FM and facility services provider.

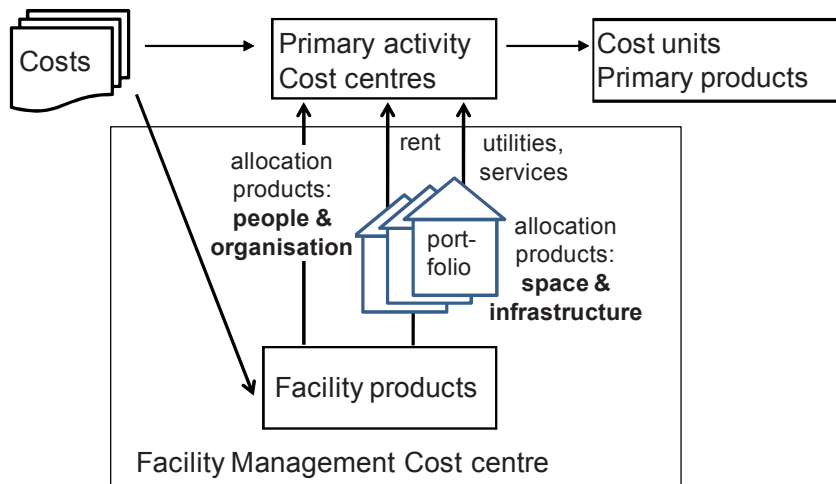


Figure E.2 — Basic model of cost allocation (e.g. by internal allocation or by invoices in case of an external provider)

Facility products can also be sold directly to external clients by an internal Facility Management organisation (e.g. renting space to external tenants). These Facility products are not considered as being part of the primary activities products but as a supplementary business conducted by the Facility Management organisation. This is not represented in Figure E.2.

E.3 Representation of Facility Management in accounting systems

As a rule, standard accounting systems are not designed to represent the Facility Management activities. The principal reason is that they do not incorporate metric values like m² or kWh. Cost allocation in Facility Management requires more detailed information than is handled in standard accounting systems. This results in the implementation and usage of specific management and cost allocations systems supplementary to the accounting system.

As an alternative, Facility Products can also be attributed directly to the primary activities products. A direct allocation of FM costs to the primary products should only be performed in accordance with the primary activities cost centre (e.g. allocation of telephone costs to users) to avoid an unclear situation between demand (customer) and supply (provider).

There are several methods of allocating indirect costs to a product. Due to the nature of the support services, the majority of facility products are indirect costs (exception e.g. electrical energy charged directly to a production process). Possible methods are: operational accounting, activity based costing (ABC), process costing or product costing.

Examples of specific management and cost allocation systems used for Facility Management are:

- asset management system (allocation of capital and running cost to assets);
- rent management system (charging space and services cost to rentees/rental contracts);
- maintenance management system (planning and controlling maintenance activities and its costs);
- energy management system (allocating energy consumption to space or production processes);

- e) cleaning management system (allocating cleaning cost to space or direct customers);
- f) cabling and network management system (allocating ICT network cost to customers/users).

Accounting systems often consist of the following three modules (Figure E.3):

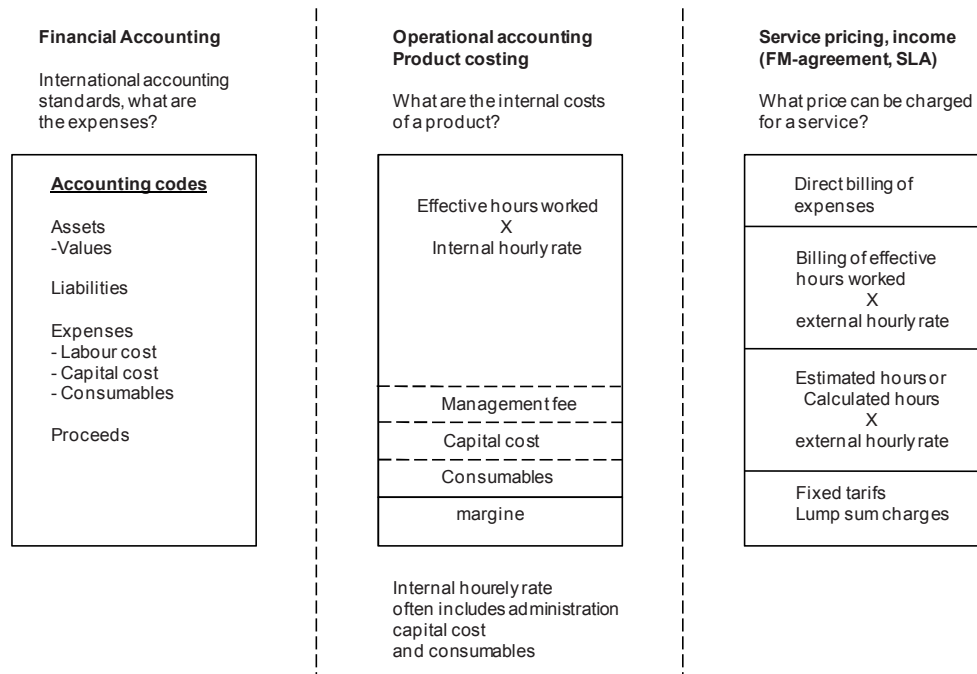


Figure E.3 — Modules of an accounting system

The first one is the financial accounting system showing the assets, liabilities and the proceeds. The financial accounting system within an organisation identifies the real costs or expenses over a period. A financial accounting is often mandatory. The applicable cost codes are defined in national and international accounting standards.

The second module is the operational accounting system, showing the costs of one or several products. Unlike in the primary processes where usually real costs are used and allocated, Facility Management often uses calculated costs like tariffs, hourly rates or internal interest rates.

The third module is used to calculate the price of a product. Theoretically, the price is determined by the real costs plus a margin. In reality and especially in Facility Management, the price is determined by market factors and agreed before the actual production costs are known (e.g. fixed lump sum). The margin is produced by deducting the calculated costs from the second module.

The calculated costs are usually not equal to the expenses. This is shown by the following examples: For the cost of personnel not the effective salaries are counted but internal rates per hour worked. For capital costs, there is usually a fixed internal (average) interest rate and not the effective rate paid on the market. Rent (space) is charged on an average per m² basis and not on a cost or expense basis. The hourly rate may include capital costs of space and equipment and costs of consumables. But these items may also be charged with separate rates or in a mixed calculation based on effective costs or expenses.

Besides expenses and allocating costs to facility products, the price of the product has to be determined (pricing). The price is often based on market considerations and not on costs only. According to EN 15221-2 there are three main methods and their combinations that can be considered:

1. Lump sum: the Facility Management service provider is fully responsible for defined performance and quality at an agreed total amount for the agreed facility services.

2. Unit rate: the Facility Management service provider is fully responsible for defined performance and quality at an agreed unit rate for the agreed facility service quantities within an agreed range.
3. Cost plus: the Facility Management service provider is fully responsible for defined performance and quality at actual costs plus agreed fee for the agreed facility services. In this case, the actual costs for the agreed facility services have to be made available to the client.

These prices may be fixed (fixed price) over the period of time, may be capped at a guaranteed maximum price or adjusted based agreed criteria (variable price).

For all the above pricing mechanisms an open-book clause can be used. In this case the details of all relevant financial transactions are available to the client.

Financial accountability should be agreed in accordance with the chosen type of price mechanism and stating precisely what financial documentation or information is available for the client.

The direct billing of expenses (cost plus) is a rather rare case. Usually, a lump sum is billed in the period where the expenses occur and in the next period, the difference is charged on the basis of the effective expenses. One case of direct billing of costs is electrical power which is easily measured and supplied by an external utility. The direct billing of costs is mainly used in the consulting business with high hourly rates or unique, small projects. Very often a lump sum will be agreed for a certain service level (SLA). The product costing is used to calculate the profitability of the service at the end of a period. There is no direct connection between expenses, costs and billing.

The revenue side is to be determined in the FM agreement, SLA or work order.

All these different forms of cost allocation and price calculation are bringing a certain complexity into FM. This standard provides the theoretical background and definitions to create structures and systems to understand and cope with this complexity. The way to achieve this is to define facility products which can be described in a SLA, the quality measured and costs compared on the market.

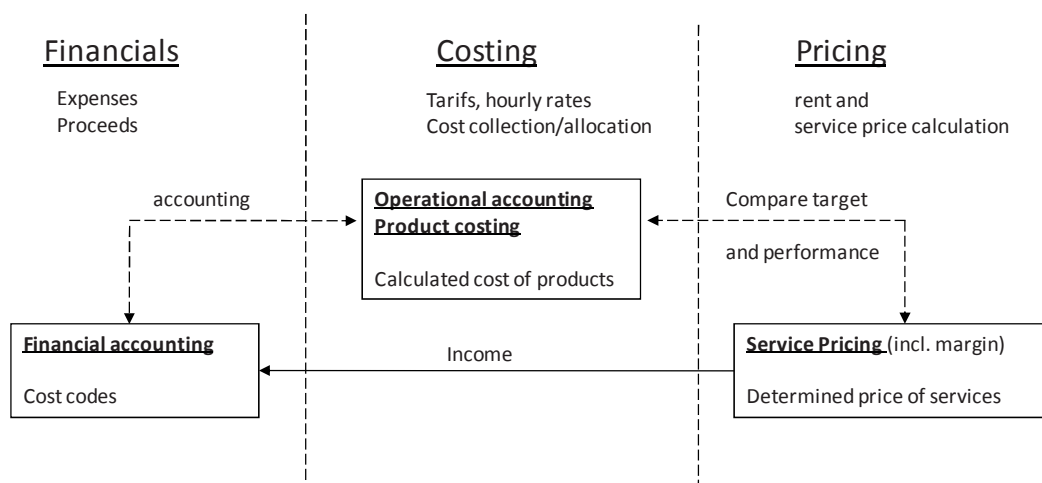


Figure E.4 — Relations between financial accounting (expenses), operational accounting/product costing and service pricing

E.4 From standardised facility products to 'individual' facility services

Standardised facility products defined in this standard can be combined to "individual" facility services provided to the customers.

For example the facility product "Building initial performance" within "Space" represents the initial cost (rent) of the investment in providing the space. It does contain all space including the service rooms. According to this

definition, the facility product 'Cleaning' does not include the costs of the necessary service rooms for the cleaners.

In Figure E.5 the service room is used to show the principle solution if another view or cost allocation scheme (cleaning costs including the service rooms) is required. The different facility products are exchanging and allocating costs between themselves in order to calculate the effective cost of the "individual" facility service "Cleaning including service rooms".

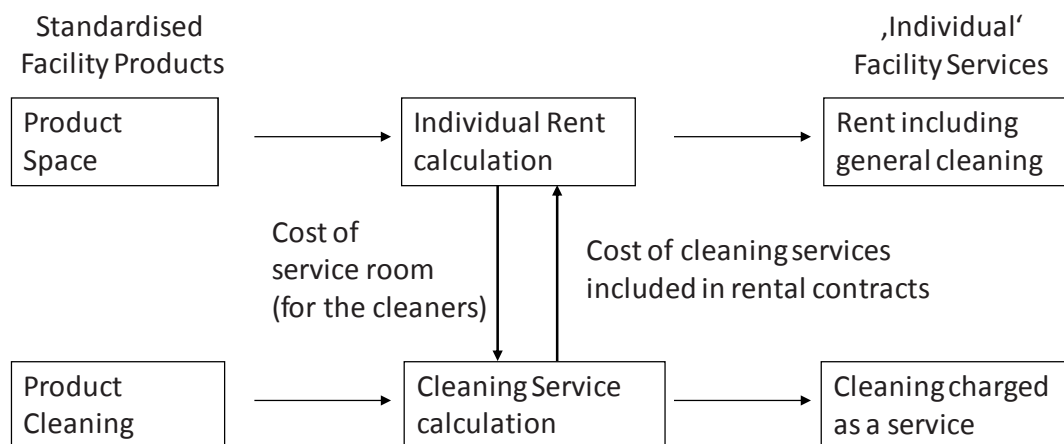


Figure E.5 — Example of cost allocation in order to calculate the costs of individual facility services (Rent and Cleaning services)

According to the definition of the facility products all space costs are reported together while the cleaning costs are reported without any space cost for service rooms. Space costs are then allocated to rental agreements and not rentable space like service rooms or are separately charged as part of an individual facility service.

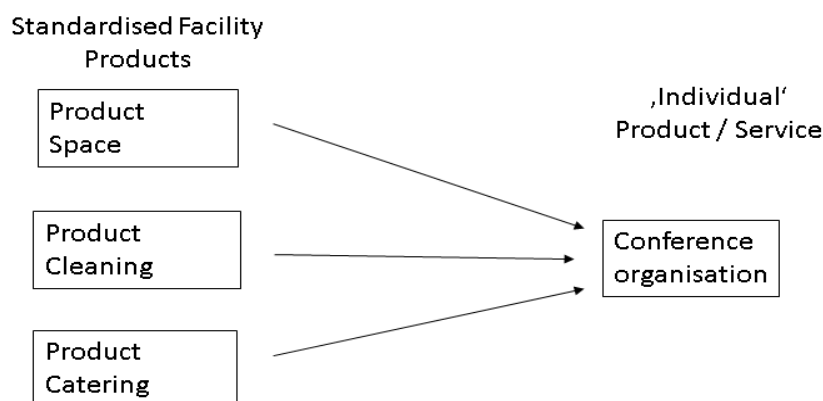


Figure E.6 — Example of an individual facility service made up from different facility products

As shown in Figure E.4 the individual facility services often include parts of different facility products. Another example of an individual facility service is Conference organisation. This service is made up of facility products like Space, Cleaning and Catering.

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- [2] EN 15221-3, *Facility Management — Part 3: Guidance on quality in Facility Management*
- [3] EN 15221-5, *Facility Management — Part 5: Guidance on Facility Management processes*
- [4] EN 15221-6, *Facility Management — Part 6: Area and Space Measurement in Facility Management*
- [5] EN ISO 9000, *Quality management systems — Fundamentals and vocabulary (ISO 9000:2005)*
- [6] ISO 14001, *Environmental management systems — Requirements with guidance for use*
- [7] ISO 15392, *Sustainability in building construction — General principles*
- [8] ISO 15686-5, *Buildings and constructed assets — Service-life planning — Part 5: Life cycle costing*
- [9] NS 3454, *Life cycle costs for building and civil engineering work — Principles and classification*

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