WIFI Academy for Facility Management

Grant Agreement: 2014-1-BG01-KA200-001685
KEY ACTION 2: COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES
STRATEGIC PARTNERSHIPS IN THE FIELD OF EDUCATION, TRAINING AND YOUTH
Federal Secondary College of Engineering - mechatronics

University of applied sciences (FH Burgenland):
• Energy and environmental management
  – building technologies
• Building management

• Bauer & Co (Installer) - technician

• University of applied sciences – scientific worker

• Research Burgenland –
  scientific worker/Facility manager

• Supporting WIFI Austria
DI Erhard Flucher

Federal Secondary College of Engineering for mechanical engineering & business administration
TU Graz / Process- and Environment Technology
1995 - 2000

Saubermacher AG / ARG and head of R&D
Pichler Werke / Facility Management
since 2001

- founding of Flucher Facility
- Consulting & Techn. Bureau
- Expert for Facility Management (legalized by justice)
- Trainer at the FH Joanneum, FH Pinkafeld / WIFI Graz/ ÖIK

WIFI Academy for Facility Management
# Table of contents

<table>
<thead>
<tr>
<th>Module 1</th>
<th>Facility Management Fundamentals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Facility Management European Standards CEN EN 15221</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Module 2</th>
<th>FM as Manager</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Module 3</th>
<th>Facility Services / Outsourcing, Operator Responsibility &amp; Infrastructural Facility Management</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Module 4</th>
<th>Project management, security management, environmental management</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Module 5</th>
<th>Facility Management in Construction of New Buildings, Reconstruction and Renovation &amp; Energy Management</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Module 6</th>
<th>Business Administration, Tenancy Law, Budgeting and Financing in Facility Management</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Module 7</th>
<th>EDP-supported Facility Management</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Module 8</th>
<th>Facility Management Strategies &amp; Best Practices</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Module 9</th>
<th>FM Strategies and Best Practices</th>
</tr>
</thead>
</table>

WIFI Academy for Facility Management
CO-FUNDED BY THE EUROPEAN UNION
What content in which module?

- **Planning**
  - Module 1
  - Module 2
  - Module 4
  - Module 7
  - Module 8
  - Module 9

- **Building**
  - Module 5

- **Use**

- **Demolition**

**Building management**

- **Technical**
  - Module 5

- **Commercial**
  - Module 6

- **Infra-Structural**
  - Module 3

FM in the phase of occupancy = Building management
Exercise A

Introduction
Who are you? What is your connection to Facility Management? And do have special questions or fields that you want us to talk about in this course?
Facility Management Fundamentals. Facility Management European Standards CEN EN 15221.

Training Module 1
Historical Development of Facility Management

- **50s** Creation of Office Landscape in order to enhance Productivity and Quality
- **1978** Hermann Miller Conference „Facilities Impact on Productivity“
- **1982** International Facility Management Association IFMA (People-Place-Process)
- **80s** Facility Management Associations in Europe (UK, Germany, Netherlands)
- **90s** European Associations Growth
- **2000s** Central and Eastern Europe FM Associations
- **2006** European Facility Management Standard EN 15 221
Definitions of Facility Management

European Committee for Standardization, Euro FM
- FM is the integration of processes within an organization to provide and develop the agreed services, which serve to support and improve the effectiveness of the primary processes of the organization.

International Facility Management Association
- FM is a profession which encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology.

Austrian Standards Institute
- FM is the holistic Management of the Organization’s Real Estates and its material/immaterial Infrastructure with the aim of improving the Productivity of the Core Business.

German Facility Management Association (GEFMA)
- FM is a Management Discipline effecting the support of the core business and the increasing of the Return on Capital.
Primary Processes
Airport

• Attendance of passengers and goods
• Safe loading and unloading of airplanes
• Air traffic control

Secondary Processes
Airport

• Property Management
• Heating, Electricity
• Cleaning
• Catering
• IT, Communications
• Information systems
• Security Management
• Waste Management etc.
WIFI Academy for Facility Management

The Building Blocks of Facility Management

Facility Management

Holistic

Transparency

Life Cycle

WIFI Academy for Facility Management
• 25 - 50% of the assets balanced are Real Estate related

• 10-18% of the costs within the operating statement are estate related

• The costs of a property within the whole Life Cycle are 5 – 7 times as high as the investment costs.

• 75 – 85% of the operating costs can be identified by FM strategic planning
### Life Cycle Consideration

<table>
<thead>
<tr>
<th>Estate Type</th>
<th>Operating Costs as % of Construction Costs</th>
<th>Operating Costs in % of Construction Costs</th>
<th>Exceeding Construction Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>26 %</td>
<td>4 years</td>
<td></td>
</tr>
<tr>
<td>Indoor Swimming Pools</td>
<td>21 %</td>
<td>4-5 years</td>
<td></td>
</tr>
<tr>
<td>Sports Halls</td>
<td>17 %</td>
<td>5-6 years</td>
<td></td>
</tr>
<tr>
<td>Schools, Kindergartens</td>
<td>16 %</td>
<td>5-6 years</td>
<td></td>
</tr>
<tr>
<td>Open Air Pools</td>
<td>15 %</td>
<td>6-7 years</td>
<td></td>
</tr>
<tr>
<td>Administration Buildings</td>
<td>8,5 %</td>
<td>11-12 years</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Year</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>EN 15 221 1</td>
<td>Terms &amp; Definitions</td>
<td>2006</td>
<td></td>
</tr>
<tr>
<td>EN 15 221 2</td>
<td>Agreements</td>
<td>2006</td>
<td></td>
</tr>
<tr>
<td>EN 15 221 3</td>
<td>Quality Management</td>
<td>2010</td>
<td></td>
</tr>
<tr>
<td>EN 15 221 4</td>
<td>Taxonomy</td>
<td>2010</td>
<td></td>
</tr>
<tr>
<td>EN 15 221 5</td>
<td>Processes</td>
<td>2010</td>
<td></td>
</tr>
<tr>
<td>EN 15 221 6</td>
<td>Space Management</td>
<td>2010</td>
<td></td>
</tr>
<tr>
<td>EN 15 221 7</td>
<td>Benchmarking</td>
<td>2012</td>
<td></td>
</tr>
</tbody>
</table>
### People & Organization

**Hospitality**
- secretarial and reception services;
- help desk services;
- catering and vending;
- organisation of conferences, meetings and special events;
- personal services;
- provision of work wear etc.

**Health, safety and security**
- occupational health services;
- security management;
- access control, I.D./smart cards, locks and key holding;
- disaster planning and recovery;
- fire safety and protection etc.

**ICT**
- data and telephone network operations;
- data centre, server hosting and operations;
- personal computer support;
- IT security and protection;
- computer and telephone connections and moves etc.

**Logistics**
- internal mail and courier services;
- document management and archiving;
- reprographic systems, copying and printing;
- office supplies;
- freight forwarding, storage systems;
- people transport and travel services;
- car park and vehicle fleet management etc.

**Other support services**
- accounting, auditing and financial reporting;
- human resource management;
- marketing and advertising, photographic services;
- procurement, contract management and legal advice services;
- project management;
- quality management etc.

### Space & Infrastructure

**Accommodation**
- strategic space planning and management;
- programming and briefing;
- design and construction;
- lease and occupancy management;
- building operations and maintenance;
- renovation and/or refurbishment etc.

**Technical Infrastructure**
- energy/utilities management;
- environmental sustainability management;
- technical infrastructure operations and maintenance;
- building management systems operations and maintenance;
- lighting maintenance;
- management of waste (hazardous) disposal etc.

**Other space & infrastructure**
- hiring of special measuring equipment;
- fitting out with machinery and equipment;
- retail unit space management etc.

**Workplace**
- workplace design and ergonomics;
- selection of furniture, machinery and equipment;
- move management;
- internal equipment and external environment;
- signage, decorations, partitions and furniture replacement etc.

**Cleaning**
- hygiene services;
- workplace cleaning, machinery cleaning;
- building fabric and glass cleaning;
- cleaning equipment provision & maintenance;
- outdoor space cleaning and winter services etc.
§ Provides guidance for preparation of FM agreements; terms and definitions

§ The Standard is applicable both for private and public sectors; for Facility Management Service Provider agreement and for Services Level Agreements

§ Presents a template of FM agreement, including:
  ❖ Content and structure
  ❖ Key Performance Indicators (KPI); Service Level Agreements (SLA) standards
  ❖ General and SLA Specific Clauses

§ Agreement model is applicable for:
  ❖ tendering, contracting or outsourcing
  ❖ also for internal purposes to agree on services to be delivered by in-house service providers
**Price and rate mechanisms**

- **Lump sum**: FM service provider is fully responsible for a defined performance and quality at an agreed total amount for the agreed facility services.

- **Unit rate**: FM service provider is fully responsible for a defined performance and quality at an agreed unit rate for the agreed facility service quantities within an agreed range.

- **Cost plus**: FM service provider is fully responsible for a defined performance and quality at actual costs plus the 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.
Definition of Quality: Quality is the degree in which a set of characteristics fulfils requirements.

EN 15221-3 provides indicators of these characteristics.

Quality Characteristics are:

- **Objective (hard) characteristics**
  - Physical - mechanical, electrical
  - Temporal - punctuality, reliability, availability
  - Functional - availability of technical equipment
  - Financial - cost, price

- **Subjective (soft) characteristics**
  - Sensory - related to smell, touch, taste, sight, hearing
  - Behavioural - courtesy, honesty, veracity
  - Ergonomic - physiological characteristics or related to human safety
Elements and Influences on Quality in FM

Need or Expectation

Hard Characteristics
- physical
- temporal
- functional
- financial

Hard and Soft

Soft Characteristics
- ergonomic
- sensory
- behavioural

Output

Measurement and calculation
Client / Provider measuring

Degree of fulfilment of the requirements

Sensation

Perception / Expectation

Survey
Client asking Consumer/ End user
### Facility Management Taxonomy EN 15221-4

#### Activities/Facilities matrix:
Classification of standardized facility product

<table>
<thead>
<tr>
<th>Activities/Sub processes</th>
<th>Facilities</th>
<th>Space &amp; Infrastructure</th>
<th>People &amp; Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Space</td>
<td>Outdoors</td>
</tr>
<tr>
<td>Integration on strategic level (PDCA)</td>
<td></td>
<td><img src="image" alt="Integration on strategic level" /></td>
<td></td>
</tr>
<tr>
<td>Integration on tactical level (PDCA)</td>
<td><img src="image" alt="Integration on tactical level" /></td>
<td><img src="image" alt="Integration on tactical level" /></td>
<td><img src="image" alt="Integration on tactical level" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operational level</th>
<th>Plan</th>
<th>Do</th>
<th>Check</th>
<th>Act</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plan, design activities</td>
<td>Administrative activities</td>
<td>Accounting activities</td>
<td>Quality, Documenting activities</td>
</tr>
<tr>
<td></td>
<td>Acquisition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Activities like (examples): Buy; Rent; Lease; Construct; Real Estate Development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plan, design activities</td>
<td>Administrative activities</td>
<td>Accounting activities</td>
<td>Quality, Documenting activities</td>
</tr>
<tr>
<td></td>
<td>Acquisition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Activities like (examples): Buy; Rent; Lease; Construct; Real Estate Development</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Space &amp; Infrastructure</th>
<th>People &amp; Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space</td>
<td><img src="image" alt="Space" /></td>
<td><img src="image" alt="Space" /></td>
</tr>
<tr>
<td>Outdoors</td>
<td><img src="image" alt="Outdoors" /></td>
<td><img src="image" alt="Outdoors" /></td>
</tr>
<tr>
<td>Cleaning</td>
<td><img src="image" alt="Cleaning" /></td>
<td><img src="image" alt="Cleaning" /></td>
</tr>
<tr>
<td>Workplace</td>
<td><img src="image" alt="Workplace" /></td>
<td><img src="image" alt="Workplace" /></td>
</tr>
<tr>
<td>Primary activity</td>
<td><img src="image" alt="Primary activity" /></td>
<td><img src="image" alt="Primary activity" /></td>
</tr>
<tr>
<td>Specific</td>
<td><img src="image" alt="Specific" /></td>
<td><img src="image" alt="Specific" /></td>
</tr>
<tr>
<td>HSS &amp; E</td>
<td><img src="image" alt="HSS &amp; E" /></td>
<td><img src="image" alt="HSS &amp; E" /></td>
</tr>
<tr>
<td>Hospitality</td>
<td><img src="image" alt="Hospitality" /></td>
<td><img src="image" alt="Hospitality" /></td>
</tr>
<tr>
<td>ICT</td>
<td><img src="image" alt="ICT" /></td>
<td><img src="image" alt="ICT" /></td>
</tr>
<tr>
<td>Logistic</td>
<td><img src="image" alt="Logistic" /></td>
<td><img src="image" alt="Logistic" /></td>
</tr>
<tr>
<td>Business support</td>
<td><img src="image" alt="Business support" /></td>
<td><img src="image" alt="Business support" /></td>
</tr>
<tr>
<td>Organization specific</td>
<td><img src="image" alt="Organization specific" /></td>
<td><img src="image" alt="Organization specific" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Space &amp; Infrastructure</th>
<th>People &amp; Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space</td>
<td><img src="image" alt="Space" /></td>
<td><img src="image" alt="Space" /></td>
</tr>
<tr>
<td>Outdoors</td>
<td><img src="image" alt="Outdoors" /></td>
<td><img src="image" alt="Outdoors" /></td>
</tr>
<tr>
<td>Cleaning</td>
<td><img src="image" alt="Cleaning" /></td>
<td><img src="image" alt="Cleaning" /></td>
</tr>
<tr>
<td>Workplace</td>
<td><img src="image" alt="Workplace" /></td>
<td><img src="image" alt="Workplace" /></td>
</tr>
<tr>
<td>Primary activity</td>
<td><img src="image" alt="Primary activity" /></td>
<td><img src="image" alt="Primary activity" /></td>
</tr>
<tr>
<td>Specific</td>
<td><img src="image" alt="Specific" /></td>
<td><img src="image" alt="Specific" /></td>
</tr>
<tr>
<td>HSS &amp; E</td>
<td><img src="image" alt="HSS &amp; E" /></td>
<td><img src="image" alt="HSS &amp; E" /></td>
</tr>
<tr>
<td>Hospitality</td>
<td><img src="image" alt="Hospitality" /></td>
<td><img src="image" alt="Hospitality" /></td>
</tr>
<tr>
<td>ICT</td>
<td><img src="image" alt="ICT" /></td>
<td><img src="image" alt="ICT" /></td>
</tr>
<tr>
<td>Logistic</td>
<td><img src="image" alt="Logistic" /></td>
<td><img src="image" alt="Logistic" /></td>
</tr>
<tr>
<td>Business support</td>
<td><img src="image" alt="Business support" /></td>
<td><img src="image" alt="Business support" /></td>
</tr>
<tr>
<td>Organization specific</td>
<td><img src="image" alt="Organization specific" /></td>
<td><img src="image" alt="Organization specific" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Space &amp; Infrastructure</th>
<th>People &amp; Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space</td>
<td><img src="image" alt="Space" /></td>
<td><img src="image" alt="Space" /></td>
</tr>
<tr>
<td>Outdoors</td>
<td><img src="image" alt="Outdoors" /></td>
<td><img src="image" alt="Outdoors" /></td>
</tr>
<tr>
<td>Cleaning</td>
<td><img src="image" alt="Cleaning" /></td>
<td><img src="image" alt="Cleaning" /></td>
</tr>
<tr>
<td>Workplace</td>
<td><img src="image" alt="Workplace" /></td>
<td><img src="image" alt="Workplace" /></td>
</tr>
<tr>
<td>Primary activity</td>
<td><img src="image" alt="Primary activity" /></td>
<td><img src="image" alt="Primary activity" /></td>
</tr>
<tr>
<td>Specific</td>
<td><img src="image" alt="Specific" /></td>
<td><img src="image" alt="Specific" /></td>
</tr>
<tr>
<td>HSS &amp; E</td>
<td><img src="image" alt="HSS &amp; E" /></td>
<td><img src="image" alt="HSS &amp; E" /></td>
</tr>
<tr>
<td>Hospitality</td>
<td><img src="image" alt="Hospitality" /></td>
<td><img src="image" alt="Hospitality" /></td>
</tr>
<tr>
<td>ICT</td>
<td><img src="image" alt="ICT" /></td>
<td><img src="image" alt="ICT" /></td>
</tr>
<tr>
<td>Logistic</td>
<td><img src="image" alt="Logistic" /></td>
<td><img src="image" alt="Logistic" /></td>
</tr>
<tr>
<td>Business support</td>
<td><img src="image" alt="Business support" /></td>
<td><img src="image" alt="Business support" /></td>
</tr>
<tr>
<td>Organization specific</td>
<td><img src="image" alt="Organization specific" /></td>
<td><img src="image" alt="Organization specific" /></td>
</tr>
</tbody>
</table>

### Operational level

- **Plan**
  - Plan, design activities
  - Acquisition
  - Activities like (examples): Buy; Rent; Lease; Construct; Real Estate Development

- **Do**
  - Administrative activities
  - Operation activities
  - Maintenance activities

- **Check**
  - Accounting activities
  - Controlling activities

- **Act**
  - Quality, Documenting activities
  - Execute improvement activities
FM Organizational Model - Example

- **Board**
  - CEO

**Strategic Level**
- COO
- CFO

**Tactical Level**
- Purchasing
- Production
- Marketing
- Sales
- R&D

**Operational Level**
- Real estate & Business Support Services

- **Facility Management**

- **Primary processes**
  
**Service provision**
- Internal
- External

**CEOs**
- CEO - Chief Executive Officer
- CFO - Chief Financial Officer
- COO - Chief Operation Officer
- (C)FM(O) - (Chief) Facility Management (Officer)
- **Effectiveness of a process**
  Ability to achieve desired results. Effectiveness is doing the right things.

- **Efficiency of a process**
  Results achieved vs. resources used. Efficiency is doing the things right.
The individual steps of a process in FM

Inputs

Process Workflow

Planning
Preparation
Implementation
Evaluation
Assessment
Reporting

Sub-processes (Process Activities)

Starting point

Outputs

Ending point
Hierarchy of floor areas in the building

- **Total Level Area (TLA)**
- **Non-functional Level Area (NLA)**
- **Gross Floor Area (GFA)**
- **External Construction Area (ECA)**
- **Internal Floor Area (IFA)**
- **Net Floor Area (NFA)**
- **Net Room Area (NRA)**
- **Partition Wall Area (PWA)**
  - **Technical Area (TA)**
  - **Circulation Area (CA)**
  - **Amenity Area (AA)**
  - **Primary Area (PA)**
  - **Restricted TA**
  - **Unrestricted TA**
  - **Restricted CA**
  - **Unrestricted CA**
  - **Restricted AA**
  - **Unrestricted AA**
  - **Restricted PA**
  - **Unrestricted PA**

Rentable Floor Area (RFA) = NFA
Net Floor Area (NFA) is the calculated by subtracting Interior Construction Area (ICA) from Internal Floor Area (IFA).

\[ \text{IFA} - \text{ICA} = \text{NFA} \]
# Percentage Variance in Leased Area, RICS

## Net Internal Area (NIA)

<table>
<thead>
<tr>
<th>Country</th>
<th>Leased Area – variance in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK - RICS</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Austria</td>
<td>3.3 %</td>
</tr>
<tr>
<td>Finland</td>
<td>3.3 %</td>
</tr>
<tr>
<td>Hungary</td>
<td>8.3 %</td>
</tr>
<tr>
<td>Greece</td>
<td>10.3 %</td>
</tr>
<tr>
<td>Germany</td>
<td>12.2 %</td>
</tr>
<tr>
<td>Romania</td>
<td>12.2 %</td>
</tr>
<tr>
<td>Poland</td>
<td>12.2 %</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>13.3 %</td>
</tr>
<tr>
<td>Portugal</td>
<td>13.3 %</td>
</tr>
<tr>
<td>Italy</td>
<td>17.0 %</td>
</tr>
<tr>
<td>Spain</td>
<td>17.6 %</td>
</tr>
<tr>
<td>Belgium</td>
<td>21.2 %</td>
</tr>
<tr>
<td>Denmark</td>
<td>21.2 %</td>
</tr>
<tr>
<td>Turkey</td>
<td>24.1 %</td>
</tr>
</tbody>
</table>

### Methodology

For conversion from NIA to another Country:

\[
\text{Country: NIA} \times (1 + \text{Country \%}) = \text{Area in Country}
\]

For conversion from another Country to NIA:

\[
\frac{\text{Area in Country}}{1 + (\text{Country \%/100})} = \text{NIA}
\]

### Example A:

On an NIA basis leased space required is 100 sq m; in Belgium for the same amount of people at the same occupancy ratio, leased space would be \[100 \text{ sq m} \times (1 + 21.6\%)\] = 121.2 sq m.

### Example B:

Leased space of 121.2 sq m in Belgium would equate to \[\frac{121.2 \text{ sq m}}{1 + (21.6\% /100)}\] = 100 sq m on an NIA basis.
Terms and Definition of Benchmarking:

Measurement of the quality of an organization's policies, products, programs, strategies, etc., and their comparison with standard measurements, or similar measurements of its peers.

Establishes 6 types of benchmarks:

- Financial
- Spatial
- Environmental
- Service Quality
- Satisfaction
- Productivity
EUROPEAN FM BENCHMARKS

Pan Europe

€7581
17 m²
€449

Note: FM Costs include Annual Rent
The tasks of a facility manager are becoming increasingly complex and challenging.

Professional management of an organization’s infrastructure encourages and motivates the primary business and contributes significantly to the corporate success.