Facility Management Fundamentals

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Agenda

- Introduction to Facility Management
- Operations and Maintenance
- Project Management
- Finance and Business Essentials
- Sustainability
- Leadership and Strategy

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Section

Introduction to Facility Management "FM"

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Topic

What is Facility Management?

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FM Industry

FM industry is a discipline by itself and should not be mixed with Real estate and Construction industries. It is an interdisciplinary industry aimed to coordinate the demand and supply of facilities and services within public and private organizations. The term "Facility or Facilities" means something that is built, installed or established to serve a purpose,[1] which, in general, is every "tangible asset that supports an organization".[2]

1. International Facility Management Association (IFMA), 1998
2. EN-15221-1, 2016

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Facility Management - Definition

"Organizational function which integrates people, place, and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business"[1].

1. ISO 41011: 2017- Facility Management Vocabulary

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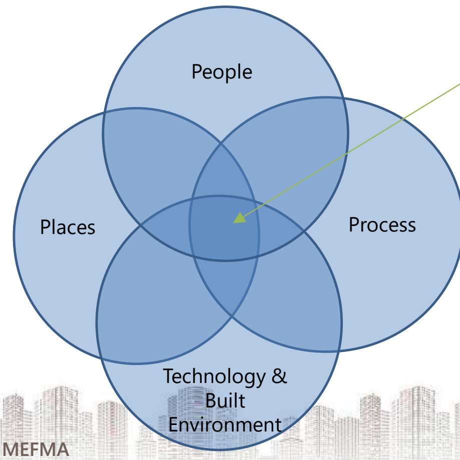
Intersective Responsibilities



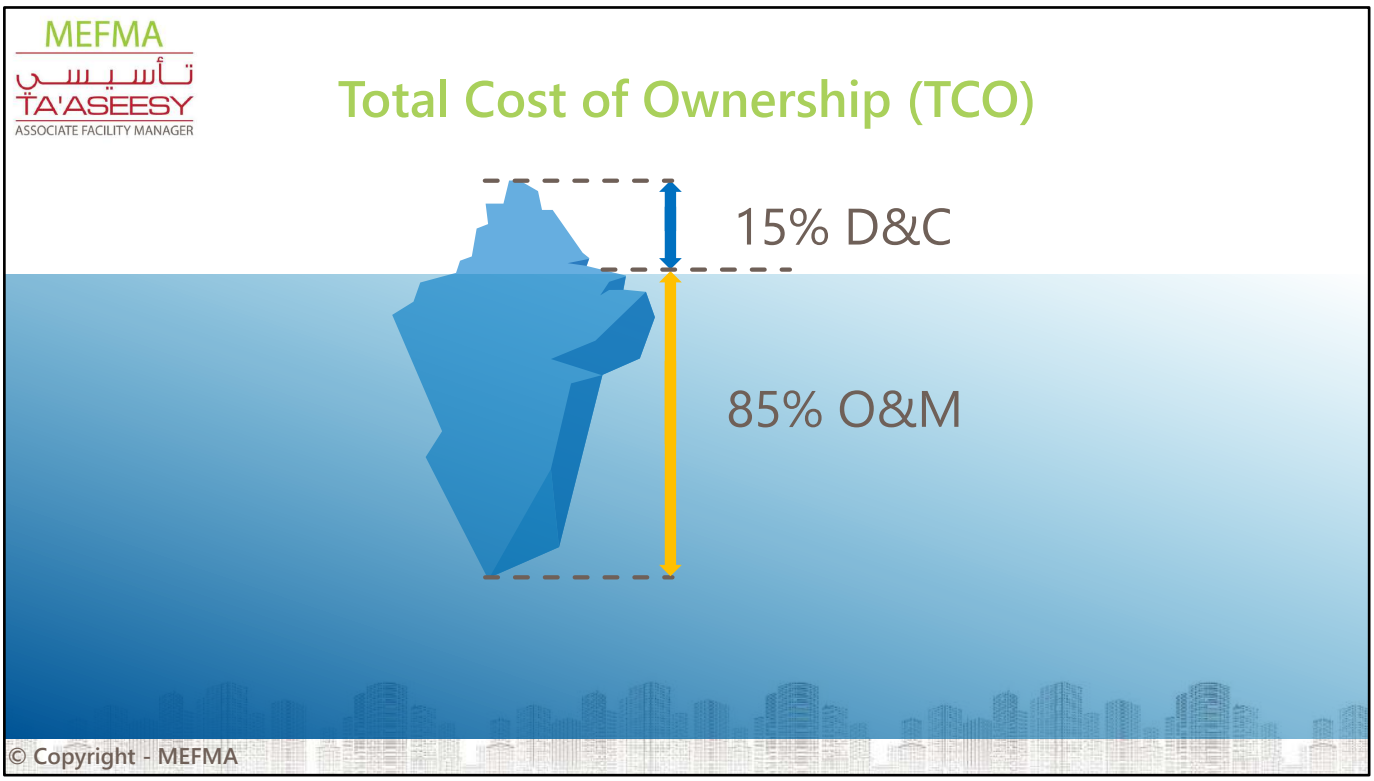
Facility Management is at the center of:

- Occupant's needs
- Business & Communication Processes
- Technologies Workflow
- Building Infrastructure

Why is Facility Management Important?

- Helps organizations to focus on their core business by transferring non-core activities to FM
- Optimizes the operating cost while extending the life cycle of the Assets and preserving their value
- Ensures the Facility is suitable for use at its optimum performance
- Takes the maximum care of the facility occupants and users, especially their health and safety
- FM is the only effective resource in managing facility-related emergencies

The instructor should explain the difference between optimization and cost reduction as part of this slide.



Most of the cost of owning a facility is in the operational phase which Facility Managers are responsible for.

The design and construction cost actually has a much smaller impact

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Quiz Time

What are the 3 elements that FM integrates within the built environment?	
A	Process , Panels and People
B	Place, Process and the built environment
C	People, Place and Process
D	Economy, People and Place

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Topic

Facility Management Trends

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From Maintenance to Facility Management

Facility management has become more sophisticated as it concentrates on managing responsibilities, not just technical maintenance

- Technical complexity
- Legislative complexity
- Business complexity
- Human Factors

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In the beginning…



General discussion on the evolution of FM

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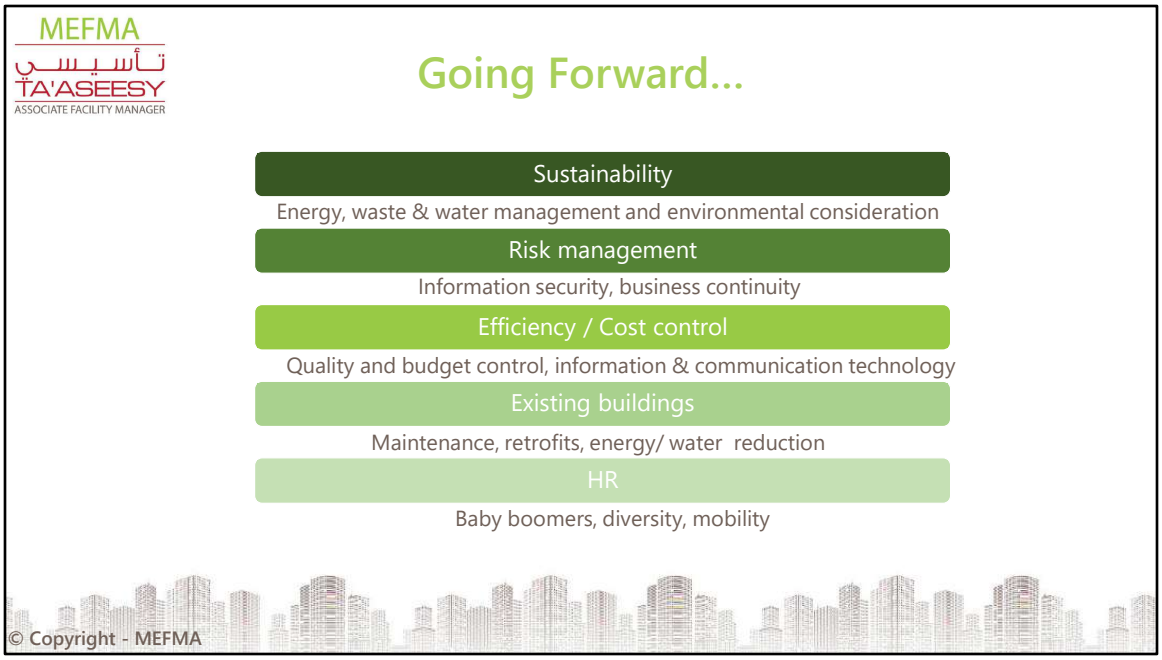
And now...



General discussion on the evolution of FM – how far we have come in terms of buildings, technology, tools etc.



Trends that we must consider:

Sustainability and the triple bottom line

Risk management including information management security systems

Efficiency & cost control – delivering high quality within budget – harness the power of technology, particularly ICT

Existing buildings – bring existing facilities up to date – more efficient use of natural resources, minimal environmental impact

Human resources – The baby boomer generation is at retirement age. Training is necessary to ensure we retain skills. The workforce, particularly throughout the Middle East is culturally diverse and much more mobile than in the past.

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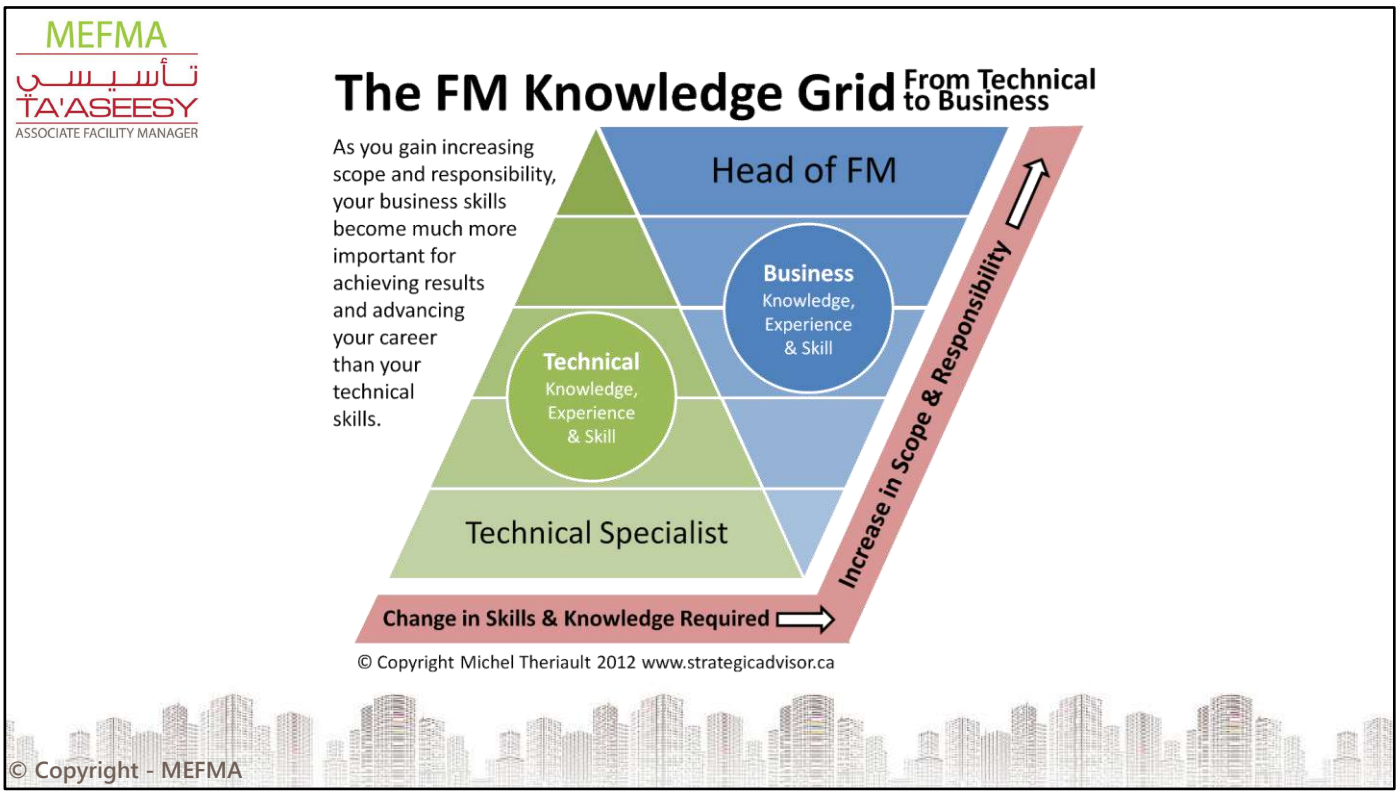

Facility Managers need to become Business oriented, not just Technical to be successful

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Facility Management Professionalism & Globalization

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International Perspective

- Associations
  - Global FM
  - MEFMA (Middle East)
  - IFMA
  - IWFM (UK)
- Others
  - National bodies
  - Research bodies
  - Academia
- Designations
- Professions
  - Continuous Professional Development

There are several FM professional bodies in various countries:

- Global FM – An umbrella organization for FM bodies – i.e. MEFMA is a member in Global FM
- MEFMA – Middle East Facility Management Association
- IFMA –International Facility Management Association
- IWFM – Institute of Workplace and Facilities Management
- FMA – Facility Management Association of Australia
- National Bodies – There are many more national FM related bodies
- Research bodies / Academia – Universities work closely with the industry to educate students and develop best practices.

It is important for facility managers to stay abreast of current issues in FM. Continuing Professional Development (CPD) is usually a requirement of membership of professional bodies.

Membership of these bodies signals your professionalism and dedication to delivering the very best in facility management.

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Middle East Facility Management Association (MEFMA)

- **The Middle East Facility Management Association MEFMA is a professional non-profit body** aimed at unifying the facility management industry in the Middle East
- MEFMA operates under DUBAI ASSOCIATION CENTRE as a not-for-profit professional association
- MEFMA is a registered member of GlobalFM™

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MEFMA Mission

Promoting the strategic value, progress and best practice of the Facility Management profession in the Middle East by engaging and leveraging the association members' strengths, knowledge and experience

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MEFMA Vision

Be the voice of the Middle East Facility Management industry, by enhancing awareness and recognition of the Facility Management Industry in the Middle East

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Section

Operations & Maintenance

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Discussion Time

Operations & Maintenance

What is the difference between Operations and Maintenance?

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Operations – Definition

Day to day service delivery including running of the building systems and overseeing services such as cleaning, landscaping, and security

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Maintenance – Definition

Maintenance of the physical systems, including fix/repair through preventive maintenance and demand or corrective maintenance

We need to perform all maintenance tasks to ensure that the asset's value, use and lifecycle are maintained

We also have to ensure the safety of occupants and visitors.

If we do not carry out maintenance it can have a serious impact on the client's business, e.g. tenants may move out, realized rentals may be lower than forecast etc.

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Asset Management

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Asset Management – Definition

"Systematic and coordinated systems and practices through which an organization optimally and sustainably manages its assets and asset systems, their associated performance, risks and expenditures over their life-cycles for the purpose of achieving its organizational strategic plan"

Source: PAS 55-1:2008, Specification for the optimized management of physical assets, British Standards Institution

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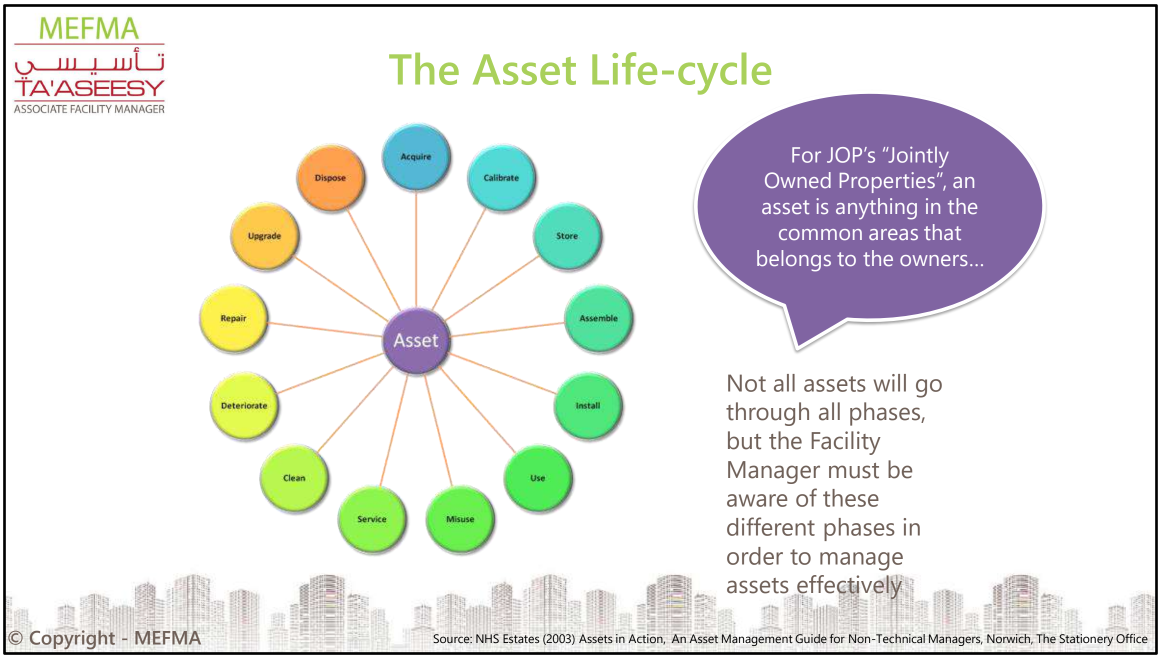
Integrated Asset Management

Source: PAS 55-1:2008, Specification for the optimized management of physical assets, British Standards Institution



Instructor:

There is an Asset Management standard ISO 55002:2018 Asset management — Management systems — Guidelines for the Application of ISO 55001

This slide shows the phases of the asset life-cycle

It is important that life-cycle costs are considered when managing assets

If an asset needs major repair or upgrade, the Facility Manager must be able to justify the expense

It might be more cost effective to replace an asset earlier than planned rather than upgrading it

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Facility Assessment

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Why is Facility Assessment Important?

- It provides a snapshot of the facility condition
- It helps us identify maintenance, renovation, and replacement requirements
- It helps us identify if the assets still support the building use and reliability needs
- It is a valuable tool to help switch from reactive to planned/preventive maintenance

Source: Piper, James E. (2004) Handbook of Facility Assessment, Lilburn, The Fairmont Press

Conducting a facility assessment provides the facility manager with a snapshot of the facility condition

The facility assessment will help us identify and prioritize any outstanding maintenance, renovation and replacement issues.

Although facility assessment requires time and allocation of resources, its output enables us to establish a realistic maintenance budget requirement to return the facility to an acceptable condition or to maintain it in that condition.

Facility assessment is a valuable tool that can be used to switch from reactive maintenance to a planned, preventative maintenance program.

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Facility Assessment Components

- The building site
- The building envelope
- The building interior
- MEP systems (Mechanical, Electrical & Plumbing)
- Vertical transportation "Elevators& Escalators"
- Outdoor recreational facilities

Source: Piper, James E. (2004) Handbook of Facility Assessment, Lilburn, The Fairmont Press

There are several distinct components that we can use together for our facility assessment

These components may also be used in isolation if needed

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What should we look for?

- Hazards
- Deterioration
- Energy or environmental issues
- Leaks, noise, etc.
- Measurements that are beyond specifications
- Cracks, splits, rust, potholes

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How should we use the information?

Consider the Solution	
Corrective Maintenance	• Take action immediately
Preventive Maintenance	• Add, increase or change tasks or frequencies
Lifecycle Replacement	• Add to list of capital needs • Use as evidence / Justification of needs

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Discussion Time

What is your experience with Facility Assessment?

1. How do you assess the asset's condition?
2. What benefit does it bring for you?

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Quiz Time

What is the main reason for doing Facility Assessment?	
A	Maintain Usage
B	Contractor assessment
C	Sustainability
D	Viability

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Quiz Time

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Maintenance Management

There are four areas of tasks for facilities managers:

Preventive maintenance task: A planned and scheduled work program

Corrective / Demand task: The client calls in with a work request, reactive and emergency events

Predictive Maintenance task: testing and readings that indicate the condition

Project task: Office relocations, space reallocation, equipment or facility upgrades etc.

In this section, we will discuss only preventive, corrective, and predictive maintenance tasks. Project task is covered under a separate section.

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Preventive Maintenance (PM)

- Planned maintenance or inspection tasks
- Scheduled based on industry, manufacturer, or local conditions
- Designed to maintain the condition and reduce risk of failure

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Corrective Maintenance (CM)

- Unplanned maintenance
- Also called reactive, demand, repair, etc.
- Identified to you from various sources
- Designed to bring the condition and performance back to standard

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Discussion Time

Corrective Process

Discuss the process you follow when receiving corrective requests and acting on them

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Predictive Maintenance

- Planned Tasks (often within PM Schedule)
- Tests and measurements that identify whether current performance is poor or likely to fail
- Designed to avoid failure or lack of performance

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PM Schedule

	20 Mar 2011				17 Apr 2011				15 May 2011		
	12	13	14	15	16	17	18	19	20	21	22
AA/01/ELC/DECO/004, Halogen 50W 12V											
AA/01/ELC/DIPA/004, Distribution Panel											6M
AA/01/ELC/EMER/004, Emergency Light											
AA/01/ELC/EMLP/002, Emergency Light Panel											
AA/01/ELC/EXIT/001, Exit Light											
AA/01/ELC/INLI/001, All Internal Lights of the Building				W	W	W	W	W	W	W	W
AA/01/FAS/CBS/002, Central Battery System					3M						
AA/02/ELC/DECO/005, Halogen 50W 12V											
AA/02/ELC/DIPA/005, Distribution Panel											6M

Instructor to explain this table

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Discussion Time

Predictive Maintenance
1. How will you change your Preventive Maintenance to Predictive? 2. What Challenges do you expect along the way?

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Facility Management Software

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Software Solutions

- **CAFM** – Computer Aided Facility Management
- **CMMS** – Computerized Maintenance Management Systems
- **IWMS** – Integrated Workplace Management System usually including CAFM and CMMS and other software solutions
- **BAS/BMS** – Building Automation Systems or Building Management Systems
- **BIM** – Building Information Modeling

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Discussion Time

How do you use Software Solutions

1. What FM Software do you currently have?
2. What is your experience with it?

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CMMS System

CMMS allows the Facility Manager to:

- Track and document all assets
- Create Planned Preventative Maintenance (PPM) schedules
- Track work requests (corrective work or project work)
- Collect information
- Do analysis

Source: Teicholz, E. (2001) Facility Design and Management Handbook, New York, McGraw-Hill Professional

CMMS system helps the FM team to track all FM work and manage its performance.

A facility may have thousands of items to be maintained, and each item may need maintenance tasks to be performed several times per year.

All related asset data, such as manufacturer, model, serial number etc. should be recorded for each asset.

As we consider each asset and its related asset information, it becomes clear that we need a computerized application to support our objectives.

By automating the maintenance program, the CMMS helps the FM team to maintain required customer service levels.

The CMMS can also be used to generate comprehensive reports on both asset condition and service provider performance.

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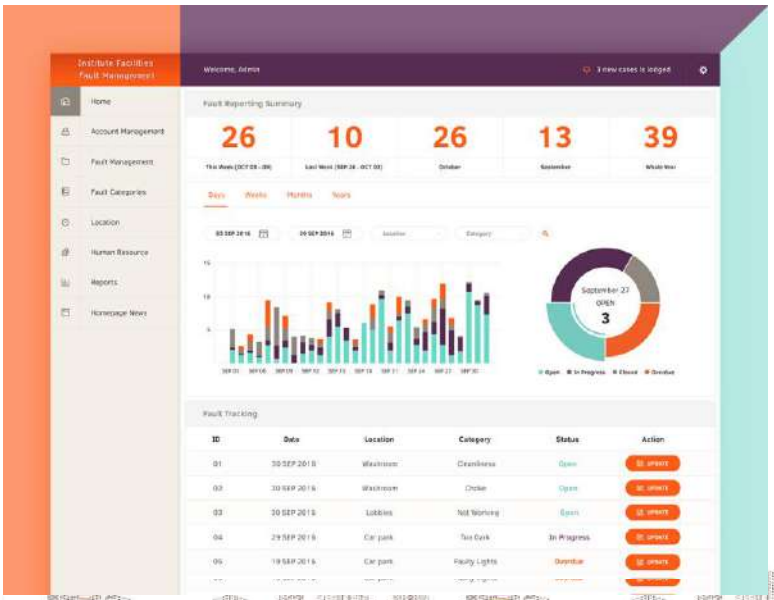
CAFM Dashboard



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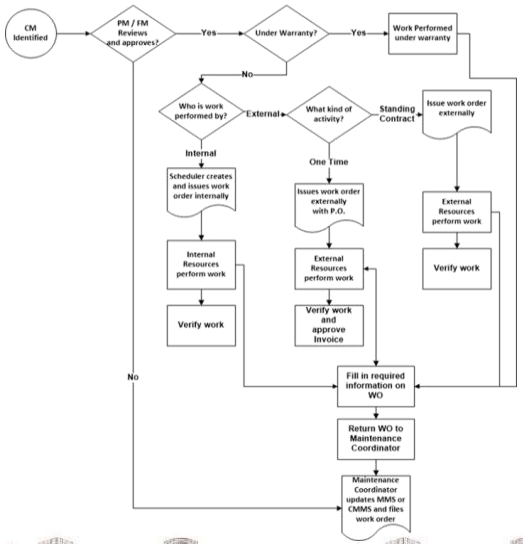
Corrective Maintenance Process Sample



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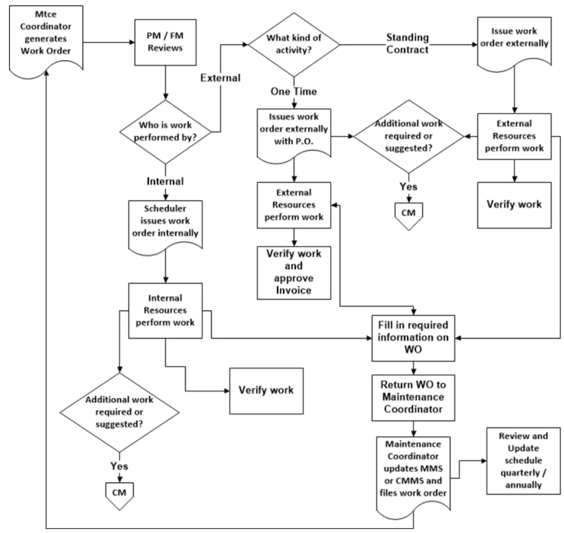
Preventive Maintenance Process Sample



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What Does CMMS Do for the FM Team?

- Provides electronic work order management process
- Systematic work receipts, approvals, and tracking
- Detailed reporting and analysis of issues, trends, etc.
- Can be integrated with inventory, cost recovery, tracking, invoices, etc.

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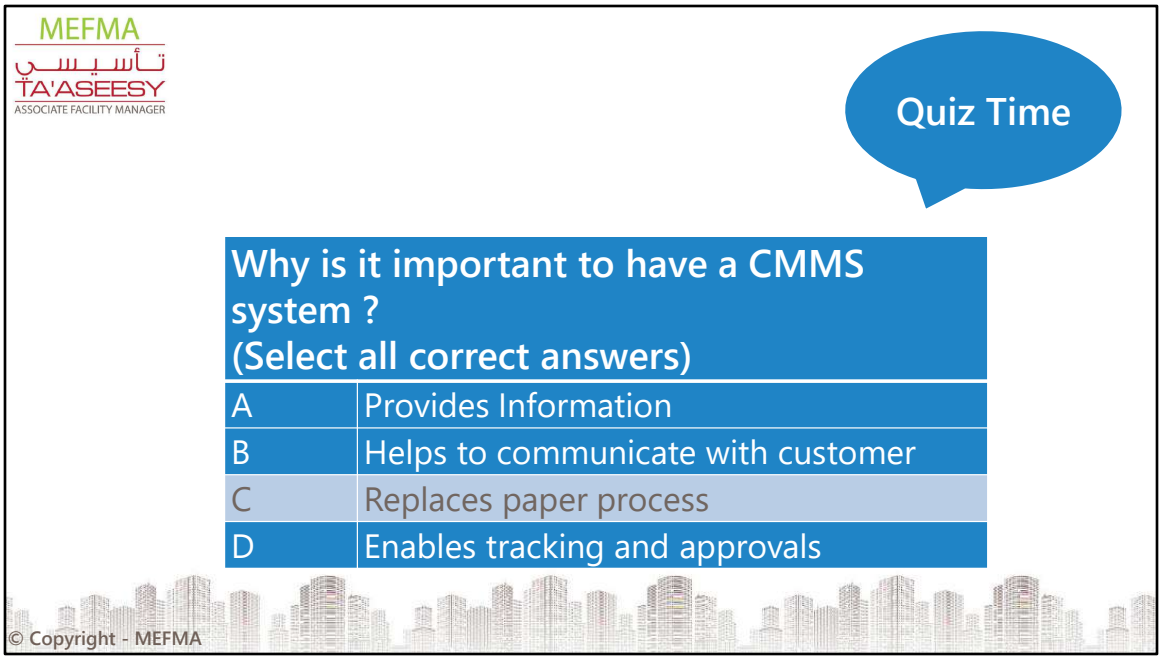
Quiz Time

Why is it important to have a CMMS system ? (Select all correct answers)	
A	Provides Information
B	Helps to communicate with customer
C	Replaces paper process
D	Enables tracking and approvals



While the system does replace a paper process, it is **not** the most important purpose of CMMS and if replacing a paper process is done without using other features and benefits, then it does not provide value.

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Service Management

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Types of Services

- **Building Services** (not Maintenance)
  - Services required to ensure the common areas within the buildings are in good condition to be used by the occupants, such as landscaping and common area cleaning
- **Occupant Services**
  - Services provided for occupants' specific spaces such as cleaning within their space "leased/owned area", concierge services or projects

To manage the services that need to be delivered, we should first identify what those services are.

To do this, we need to analyze requirements.

When we have determined which services we have to deliver, we then need to make some decisions on how we deliver them.

Once the client has agreed on the services that needs to be delivered and the manner in which we deliver them, we will need a process of change control for future modifications to services.

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Service Delivery Methods

- **Customer Interface**
  - Request Methods (email, web, phone)
  - Touch Points (feedback)
- **Direct Service (you and your team)**
  - Your Staff
  - Your Procedures
- **Indirect Service Delivery (your service providers)**
  - Contractor Staff
  - Contractor Procedures

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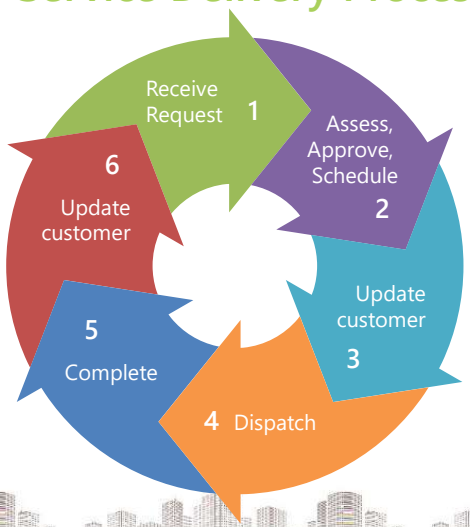
Service Delivery Process



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FM Service Delivery
In-House vs Outsourcing

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Outsourcing Benefits

- Accelerate re-engineering benefits
- Give access to world-class capabilities
- Cash Infusion
- Provide free resources for other purposes
- Facilitate the functions that are difficult to manage
- Improve company's focus
- Make capital funds available
- Reduce operational costs
- Reduce risk
- Needed when resources are not available internally

A cash or capital infusion is a sudden, impacting cash distribution to an organization from stakeholders that are affected by the organization's activities**.**

A primary example is when a start-up company or someone struggling to grow, receives a cash infusion from an investor hoping to profit from the business' success.

Owners of a new company may also infuse some of their own cash into a business to help it grow.

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Discussion Time

Service Delivery

1. What do your customers/occupants care about the most in the service delivery?
2. How do you meet that need?

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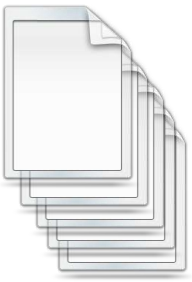
How are Services specified?

- Contract Terms & Conditions
- Scope of work
- Specifications
- Service Level Agreements
- Performance Management



All these parts
Work together

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Contract Terms & Conditions

- Legal requirements
- Payment Terms
- Invoicing requirements
- May require customizations or additions to reflect FM requirements

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Scope of Work

- Outlines the services and work to be performed
- Describes the limitations & exclusions of the work
- Does not define how the work is done

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Specifications

- Provide detailed requirements needed to deliver the scope
- Include technical and management requirements
- May be prescriptive, outcome-based or both

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Service Level Agreement "SLA"

- Defines expected service requirements and outcomes (i.e., response times)
- May provide measurements and reporting
- May identify how performance is managed

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SERVICE LEVEL AGREEMENT

Why do we need to define SLA?

- Get the client's agreement on the proposed and offered type of SLA
- Enable the client to assess the suitability, costs, and benefits of the services offered (quality vs. price trade-off)
- Measure the asset performance
- Measure the service performance
- Develop business strategies/operations to deliver the required SLA.

SLA "Service Level Agreement" is a document used to understand the client's expectation as there is no specification for a service (car spec) i.e. FM needs the service provider to attend to a complaint within 3 hours

Importance of SLA should be definied, implemented and measured

This results in a high client satisfaction

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Main Service Level Agreement Criteria

- Quality
- Quantity
- Reliability
- Responsiveness
- Cost
- Environmental / Safety
- Satisfaction
- Utilization
- Access / Availability
- Flexibility/change

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SLA Process

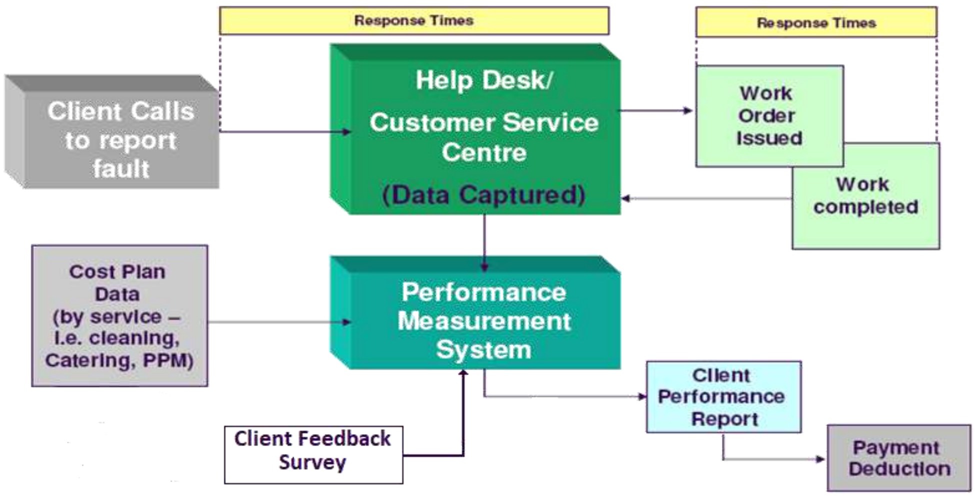
- Assess the current SLAs that already exist
- Review the overall objectives
- Understand the client's drivers
- Define key criteria and minimum levels of performance from the client's perspective
- Establish service level review with stakeholders
- Monitor, report, and audit performance of service delivery versus specifications

Instructor:

It is important to explain and define the term **Stakeholder** as this is the first time it gets mentioned in the material.

Stakeholder: a person or a group of people who has concern or relation in any form with the subject FM service, such as an employee, client, customer, or citizen who is involved with an organization, society, government entity, etc. and therefore, has responsibilities towards or gets affected by the subject FM service and has an interest in its success

SLA Measurement Process (Example)



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Performance Measurement

- May be part of the Service Level Agreement
- Details what is measured and how to be measured, tracked, and reported
- Provides targets to be met
- Defines the impact of meeting or not meeting the targets
- Provides details of how performance is managed

SLA Exercise Example

Activity	Performance Standard	Key Performance Indicator	Conditions
Provide cleaning service to the client's offices that reflect the client's required standard	The facility is clean. Free of dirt, debris, pests, and reflects a high standard of care	Critical KPI – Cleaning operating procedures developed and issued to the client	Routine cleaning operations to be performed during quiet hours, and should be agreed with the client

We can now develop a Service Level Agreement for internal cleaning.

The slide provides an example of a required activity, target standards, key performance indicator and service conditions.

Working in groups, choose one of the headings provided and develop some activities, possible standards and KPI's for that topic.

Add any service conditions that might apply.

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Pick a service for the exercise

- Routine cleaning
- Reactive cleaning
- Waste removal
- Hygiene services
- Janitorial supplies
- Training & development
- Periodic / Special cleaning
- Office equipment cleaning
- Janitorial services
- Cleaning materials
- Protective Preventive Equipment ”PPE”
- Labour management

We can now develop a Service Level Agreement for internal cleaning.

The slide provides an example of a required activity, target standards, key performance indicator and service conditions.

Working in groups, choose one of the headings provided and develop some activities, possible standards and KPI’s for that topic.

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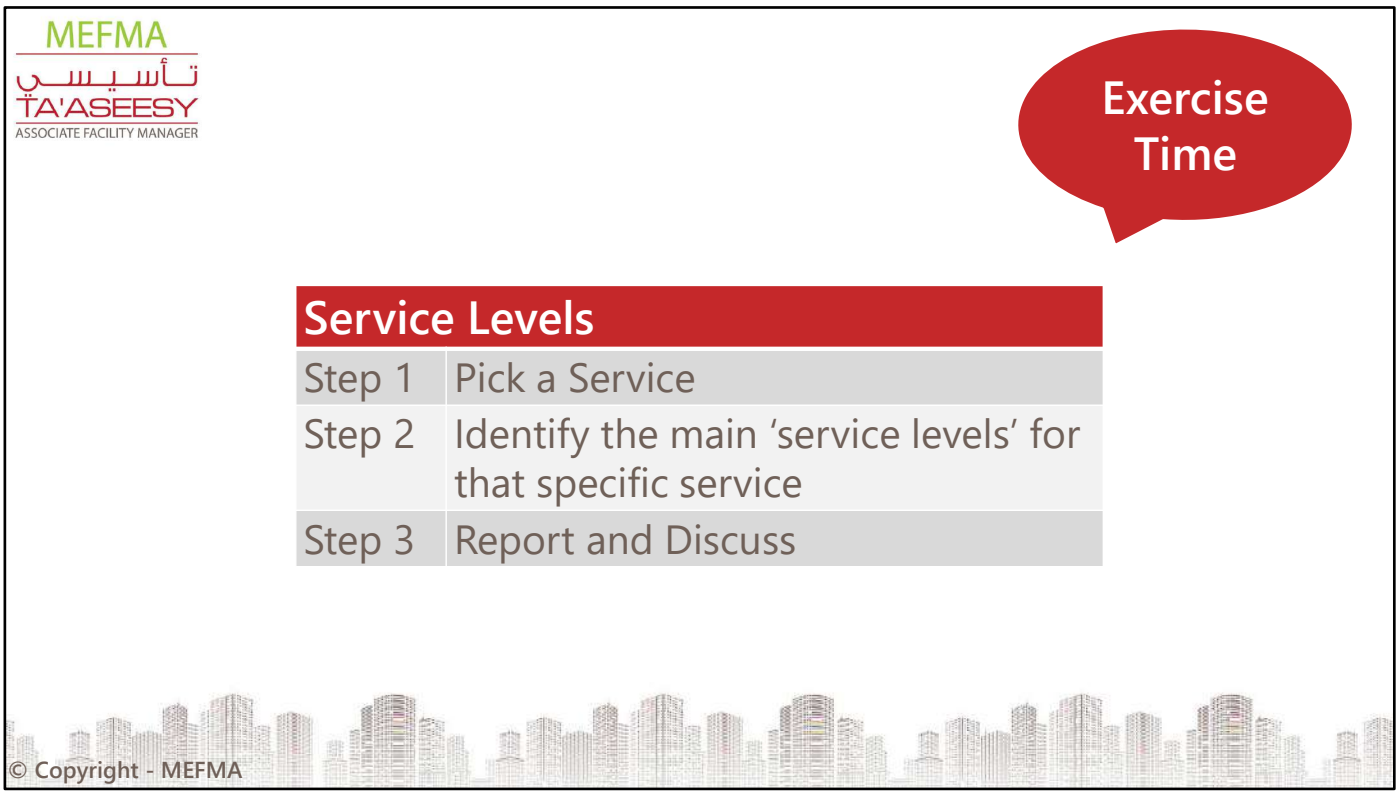

Exercise Guidance

This is a Group Exercise

- Split class into groups
- Participants are asked to chose a spokesperson who will pad board the results and present to the entire class

Timing:

- Work for 10 Minutes
- Present in 10 Minutes (or less)

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Section

Project Management

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What is Project Management?

- **Planning what work needs to be done,** when and who's going to do it
- **Looking at the risks** involved and managing these risks
- **Making sure the work is done** to the right standard
- **Motivating the team** of people involved in the project
- **Co-ordinating work** done by different people
- **Making sure the project is running** on time and to budget
- **Dealing with changes to** the project as and when necessary
- **Making sure the project delivers** the expected outcomes and benefits

(source – Association for PM – apm.org.uk)

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How do you define a Project?

A specific activity with the following Main characteristics:

- Specific Goal or Objective
- Unique, non-recurring
- Specific End Date

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Quiz Time

Which of the following is a Project? Select 2 Answers)	
A	Cleaning
B	Procurement of Standby Deasil Generator
C	Replacing a chiller
D	Replacing fan belts

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Quiz Time

Which of the following is a Project? Select 2 Answers)	
A	Cleaning
B	Procurement of Standby Deasil Generator
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D	Replacing fan belts

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Topic

Project Management Types & Activities

The Facility Manager will probably have to manage these tasks frequently.

Knowing how to manage the delivery of the projects so that they are delivered on time, within budget and to the desired quality is a key FM skill.

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Project Activities

Manage:

- Stakeholders
- Scope
- Time
- Cost
- Resources
- Quality
- Communication
- Risk
- Procurement

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What are the Project Management Objectives?

- Time
- Budget
- Quality

You need to identify obstacles to success

The role of the **Project Manager** is to deliver a project on time, to the desired quality and within budget.

Achieving all three of these goals is not easy. Projects are often delivered late and over budget. Many projects fail to achieve the required level of quality.

A project manager will use all his skills to avoid cost overruns, program slippage and poor quality.

The **Project Manager** will often need to set targets, perform risk analysis, plan, control, monitor and manage projects.
The **Project Manager** is expected to be competent to deliver the project and will therefore need to be aware of his / her personal limitations.

The **Project Manager** will meet with stakeholders to identify and agree requirements.
With this information the **Project Manager** will then be able to assess the resources needed to deliver the project.

OBSTACLES

- Not recognizing responsibilities of the role
- Not distinguishing between project leadership and project management
- Ignoring the people side of project management

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Topic

Project Management Phases

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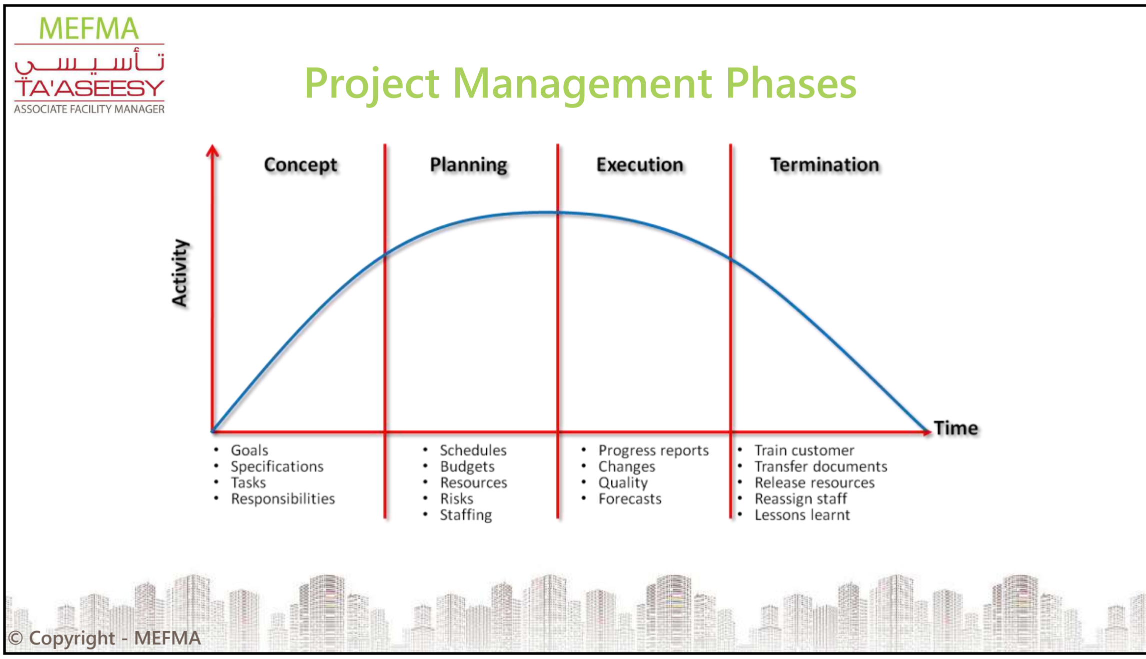
Project Management Process (4 Phases)

- **Project Process**

The sequence of activities from the beginning of a project to its completion is essentially the same, whether we are talking about a small two-day project or a large project that will span several months

- **Project Phases**

Are a major set of activities that must be performed within the project management process



- Initiation = Concept
- Planning = Planning
- Execution = Execution
- Controlling = within Execution
- Closing = Termination

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Concept Phase Output

- Selected Project
- Project Charter
- Project Specification
- Project Brief or Statement of Work (SOW)

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Planning Phase Output

- A project plan document
- A complete plan for how the project will be executed
- Approval from the sponsor and other key shareholders should all approve this document

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Execution Phase Output

- Project delivered
  - On time
  - On Budget
  - On Quality

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Termination Phase Output

- Acceptance
- Handover
- Payments
- Lessons Learned

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Should a Facility Manager Take a Project Manager Role?

Yes, subject to the following Factors:

- Size of Project
- Complexity
- Duration of Project
- Workload
- Skills & Experience
- Backup / Resources

The Facility Manager will play a critical role in supporting the Project Manager within the facility

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Discussion Time

What Projects do you work on?

Give an example of projects you have been involved in and mention your role

Finance & Business Essentials

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Finance Vs. Accounting Vs. Budget

- **Finance**

  The management of income, expenses, assets and liabilities within an entity to maintain profitability and financial health of the entity

- **Accounting**

  The structured tracking, recording and tabulation of money and related financial transactions for the entity

- **Budget**

  A financial plan with an allocation of money you can spend to achieve your objectives

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Discussion Time

Finance & Business Knowledge

Why is a knowledge of finance & business important to facility managers?

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Topic

Financial Statement

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Financial Statements

- **Balance Sheet**

  Provides a snapshot of the financial position of a business at a point in time

- **Income Statement**

  Also referred to as the Profit & Loss (P&L) statement, this provides a summary of the income generated and expenses incurred by a business over a set reporting period

- **Cash Flow statement**

  This summarizes the different sources and uses of cash within a business. It is a useful indicator of the liquidity of a business

All three of the above statements, when taken together, provide a picture of the finances of a business.

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[Company Name] **Balance Sheet**

Date:

Assets	2022	2023
Current Assets		
Cash	11,874	
Accounts receivable		
Inventory		
Prepaid expenses		
Short-term investments		
Total current assets	$ 11,874	$ -
Fixed (Long-Term) Assets		
Long-term investments	1,208	
Property, plant, and equipment	15,340	
(Less accumulated depreciation)	(2,200)	
Intangible assets		
Total fixed assets	$ 14,348	$ -
Other Assets		
Deferred income tax		
Other		
Total Other Assets	$ -	$ -
Total Assets	**$ 26,222**	**$ -**

Liabilities and Owner's Equity		
Current Liabilities		
Accounts payable	8,060	
Short-term loans		
Income taxes payable	3,145	
Accrued salaries and wages		
Unearned revenue		
Current portion of long-term debt		
Total current liabilities	$ 11,205	$ -
Long-Term Liabilities		
Long-term debt	3,450	
Deferred income tax		
Other		
Total long-term liabilities	$ 3,450	$ -
Owner's Equity		
Owner's investment	7,178	
Retained earnings	4,389	
Other		
Total owner's equity	$ 11,567	$ -
Total Liabilities and Owner's Equity	**$ 26,222**	**$ -**

Source: https://www.vertex42.com

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[Company Name]

Income Statement

Revenue	2022	2023
Sales revenue	110,000	95,000
(Less sales returns and allowances)		
Service revenue	70,000	62,000
Interest revenue		
Other revenue		
Total Revenues	**180,000**	**157,000**

Expenses	2022	2023
Advertising	1,000	1,000
Bad debt		
Commissions		
Cost of goods sold	65,000	63,000
Depreciation		
Employee benefits		
Furniture and equipment		8,000
Insurance		
Interest expense	4,200	5,200
Maintenance and repairs		
Office supplies		
Payroll taxes		
Rent		
Research and development		
Salaries and wages	55,000	55,000
Software		
Travel		
Utilities		
Web hosting and domains		
Other	17,460	
Total Expenses	**142,660**	**132,200**
Net Income Before Taxes	37,340	24,800
Income tax expense	14,936	9,920
Income from Continuing Operations	**22,404**	**14,880**

Source: https://www.vertex42.com

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Cash Flow Statement

[Company Name]

For the Year Ending	12/31/2019
Cash at Beginning of Year	15,700
Operations	
Cash receipts from	
Customers	693,200
Other Operations	
Cash paid for	
Inventory purchases	(264,000)
General operating and administrative expenses	(112,000)
Wage expenses	(123,000)
Interest	(13,500)
Income taxes	(32,800)
Net Cash Flow from Operations	147,900
Investing Activities	
Cash receipts from	
Sale of property and equipment	33,600
Collection of principal on loans	
Sale of investment securities	
Cash paid for	
Purchase of property and equipment	(75,000)
Making loans to other entities	
Purchase of investment securities	
Net Cash Flow from Investing Activities	(41,400)
Financing Activities	
Cash receipts from	
Issuance of stock	
Borrowing	
Cash paid for	
Repurchase of stock (treasury stock)	
Repayment of loans	(34,000)
Dividends	(53,000)
Net Cash Flow from Financing Activities	(87,000)
Net Increase in Cash	**19,500**
Cash at End of Year	35,200

Source : https://www.vertex42.com

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Topic

Costs & Budgets

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What is Cost?

- **Costs**

  These are related to business assets (including buildings, vehicles, etc.)

- **Expenses**

  These are related to business expenditures (including the purchase of an Asset)

Understanding the costs is essential for the facility manager.

A lack of understanding of either costs or cost control represents a considerable threat to the success of your business.

But what is cost?

Is it the total amount spent in bringing your FM service into operation?

No…

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Cost summary

Direct cost	Indirect cost	Fixed cost	Variable cost
A charge that can be fully allocated to a specific product or service	A charge that is allocated across several costs	A charge that is unaffected by the level of business activity	A charge that varies with business activity

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Quiz Time

Variable of Fixed?	
V or F	Payroll
V or F	Insurance
V or F	Rent
V or F	Consumables
V or F	Utilities

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Quiz Time

Variable of Fixed?	
Both	Payroll (salaries are fixed, wages may vary by work activity)
F	Insurance
F	Rent
V	Consumables
V	Utilities

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Budget Types

Expense (OPEX)

- For things that don't last (1 year or less)
- Any value
- For day-to-day, ongoing functioning of business

Capital (CAPEX)

- For things that last into the future (> 1 year)
- Above a minimum Value
- Generally, an investment

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Topic

Procurement

Strategic Procurement

- Having a consolidated plan for procurement
- Reviewing costs and assessing opportunities
- Developing the best approach to get value

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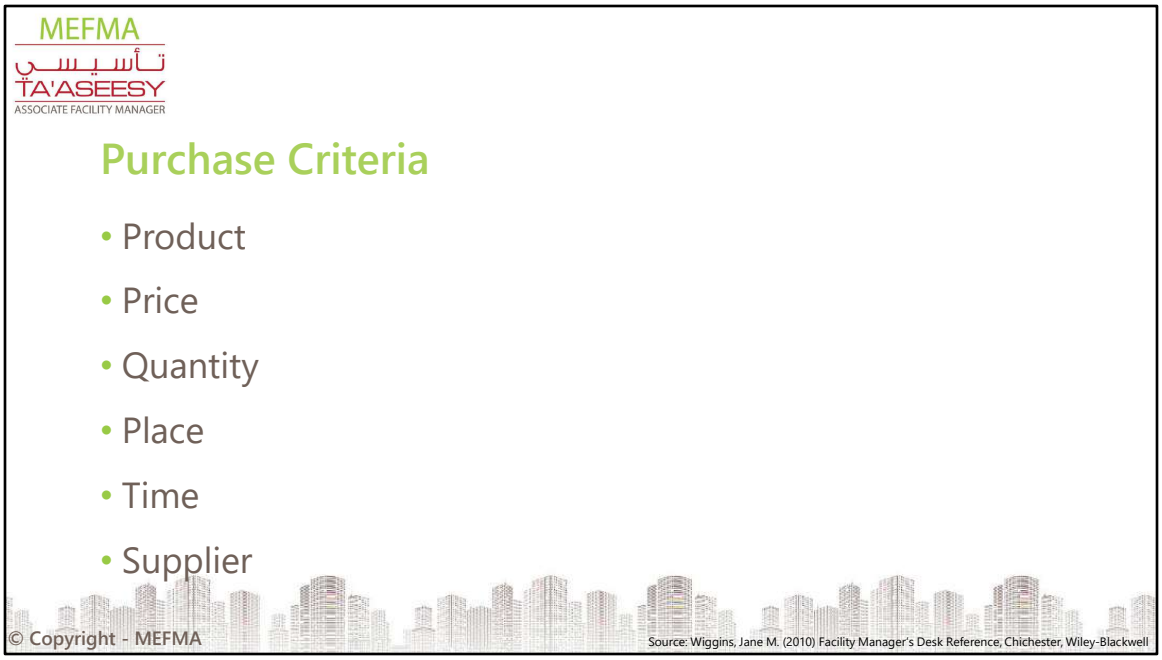
Terms Used in Procurement

- RFI - Request for Information / Interest
- ITT - Invitation To Tender
- RFP - Request for Proposal
- RFQ - Request for Quote
- Standing Offer
- Sole Source

Linked Requirements

When one requirement changes, one of the others will also change



These are key criteria in purchasing and procurement:

- Product - The right product or service
- Price – The right price
- Quantity – The correct quantity is available
- Place – Delivered to the right place
- Time – At the right time
- Supplier – By a reliable supplier

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Exercise Time

List direct and indirect costs	
Step 1	Consider a work order to install additional water tank to increase the storage capacity
Step 2	List the costs involved in completing the work required in two lists, Direct and Indirect
Step 3	Report your Findings

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Topic

Contracts

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Contract Models

- **Service provision** – where the contractor provides a service under set terms
- **Management of service** – such as by a managing agent or managing contractor
- **Contracting** – directly to supply a service
- **Sub-contracting** – provision of services through another contractor

Source: Wiggins, Jane M. (2010) Facility Manager's Desk Reference, Chichester, Wiley-Blackwell

Financial Models

- Fixed Price
    - Needs high level of baseline information
    - Risk moved to service provider
    - Less Flexibility

- Management Contract (fee for management, costs are flow through or time & materials)
    - Moderate/low level of information needed
    - Some risk retained by Client
    - Moderate flexibility

- Flow Through/Transaction Based (fee is all time & materials)
    - Low level of baseline information needed
    - All risk retained by Client
    - Very flexible

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Discussion Time

Managing Contracts

1. Who manages FM contracts in your entity?
2. What are the issues faced?

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Topic

Business Cases

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Why do Business Cases Matter

- Your job is to recommend improvements
- You can only get things done with resources
- You have to convince Senior Management to get resources
- You are competing with other Departments for resources
- Your business case has to be excellent

These are the main steps in developing a business case:

1. Identify the business problem – make sure you are going to solve the right problem with your business. Do not fall into the trap of creating a great solution to the wrong problem!
2. Background
3. Identify alternate solutions – Consider different ways of solving the business problem
4. Select the solution that is best suited to meet your business goals
5. Define the implementation – plan how you will implement your solution to get the business benefits.

Remember the phases of project management:

- Concept
- Planning
- Execution
- Termination

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Discussion Time

Challenges

Are you involved in writing Business Cases?
If yes, what are your biggest challenges when writing the business cases?

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Topic

Business Continuity

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Your Responsibilities

- Facility managers must plan for the unexpected
- That involves Disaster Planning / Emergency Management

Source: Wiggins, Jane M. (2010) Facility Manager's Desk Reference, Chichester, Wiley-Blackwell

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Why Should You Have Business Continuity Plan?

- Many companies with no business continuity plan fail within 2 years of a major disruption
- A company may face a major disruptive event every 4 years

Source: Wiggins, Jane M. (2010) Facility Manager's Desk Reference, Chichester, Wiley-Blackwell

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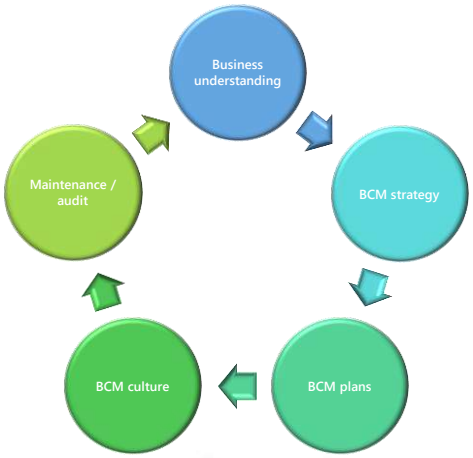
Business Continuity Lifecycle



Source: BSI (2003), PAS 56 Guide to Business Continuity Management, British Standards Institute

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Section

Sustainability

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The Facility Manger's Role

- **Facilities have a large environmental impact**
  - New Facilities – site selection, construction, waste, building efficiency through design, etc.
  - Existing Facilities – waste, water, energy efficiency, chemicals, etc.
- **Facility Managers are responsible for facilities, so they can make a difference**
- **Facility Managers need to be leaders in environmental initiatives**

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What is Sustainability?

- Reducing waste
- Reducing usage
- Reducing impact on the environment

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The Triple Bottom Line

Environment
(Planet)

Economy
(Profit)

Social
(People)

We need to consider environmental, social, and economic aspects when sustainability is our goal.

These three aspects are commonly referred to as **the Triple Bottom Line**

Failure to consider any of the three aspects will hinder the achievement of sustainability

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Available Systems

- ISO 14000
- LEED
- BREEAM
- Estidama

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Sustainable Sites: Key Points

- Transportation
- Site Selection
- Site Design and Management
- Stormwater Management

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Quiz Time

What is the Triple Bottom Line	
A	Profit, Productivity, Community
B	Social, Environmental, Economic
C	Community, Economic, Environmental
D	Sustainability, Economic, Social

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Quiz Time

What is the Triple Bottom Line	
A	Profit, Productivity, Community
B	Social, Environmental, Economic
C	Community, Economic, Environmental
D	Sustainability, Economic, Social

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Topic

Water Efficiency

We will relate the key water efficiency points to the triple bottom line…

Water is used indoors for drinking, cooking, washing, flushing toilets etc.

Outdoors we use water for landscape maintenance such as irrigation networks

The term “process water” is used to describe the water used for laundry, dishwashers, cooling towers, chillers and boilers etc.

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Indoor water conservation strategies

- Use efficient fixtures – low flow taps, showerheads, toilets, etc.
- Older toilets use 4 to 8 gallons/flush
- New toilets should not use more than 1.6 gallons/flush - Energy Policy Act 1992 (EPAct)*

Image courtesy of 'Caroma' – Rajay International LLC, Dubai
*Energy Policy Act – "EPAct" - establishes the baseline case for indoor water use in the US.

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Indoor water conservation strategies

- Some new dual-flush toilets use 4.5 / 3 liters per flush (1.19 / 0.79 us gallons per flush)
- An estimated 1.6 billion gallons of water are wasted annually in the U.S because of inefficient toilets

Image courtesy of 'Caroma' – Rajay International LLC, Dubai

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Outdoor water conservation strategies

- Select locally adapted plants – they have adapted to local water availability and need less than non-native plants
- Select efficient irrigation technologies – sprinklers are inefficient
- Use non-potable water – rainwater capture and usage
- Install submeters - use readings to identify problems and increase awareness of consumption
- Xeriscaping – Landscaping focused is on minimizing water consumption

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Process water conservation strategies

- Use non-potable water – use closed-loop systems if possible (Municipally supplied reclaimed water is considered non-potable)
- Install submeters – identify leaks promptly
- Use reclaimed water – e.g., for cooling towers
- Use efficient fixtures and fittings – e.g., high-efficiency washing machines

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Discussion Time

Water Conservation

What could you think of as measures for water conservation?

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Topic

Energy Conservation

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Energy Demand Strategies

- Establish design & energy goals
- Size the building appropriately – do not build more than needed
- Use free energy – natural ventilation
- Insulate – reduce energy consumption
- Monitor consumption – use meters

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Energy Efficiency Strategies

- Use passive design features such as daylighting and reflective roofing
- Select appropriate materials for the building envelope
- Install high-efficiency mechanical systems
- Specify high-efficiency appliances
- Use high-efficiency infrastructure (e.g., streetlights)
- Use Thermal Energy Storage (TES)
- Consider district cooling/heating

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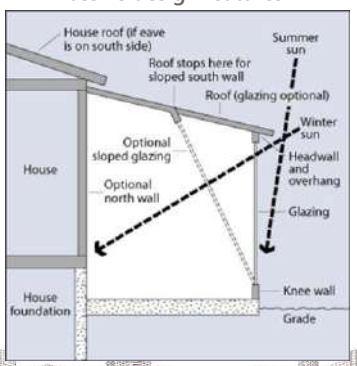
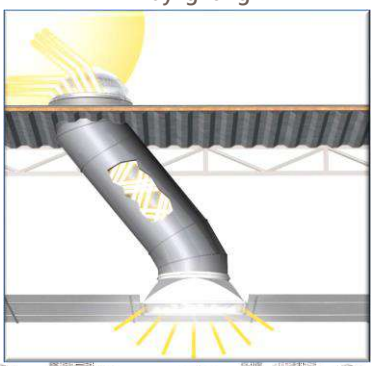
Lighting Strategies

Passive design features



Daylighting



Solatube® image courtesy of Integrators Control Systems LLC – Abu Dhabi

Daylighting provides a way to light a room without using electrical power when there is sufficient sunlight.

When outside light levels fall, a light sensor in the room will turn on an energy efficient electric light to provide adequate illumination, keeping energy consumption to a minimum.

This technology is in use at Dubai International Airport's freight terminal.

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Lighting Options

- **Incandescent**
  - Inefficient, 11 Lumens/Watt
  - Generates heat within buildings
  - Very short life
- **Fluorescent (CFL's)**
  - Much more efficient, 50 lumens/Watt
  - Less heat generated
  - Short live
- **LED**
  - Much more efficient, 56 lumens/watt
  - Less heat generated
  - Long life

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Off-site Renewable Energy


30kW PV Installation


Biomass – Corn Feedstock


Residential Wind Turbine

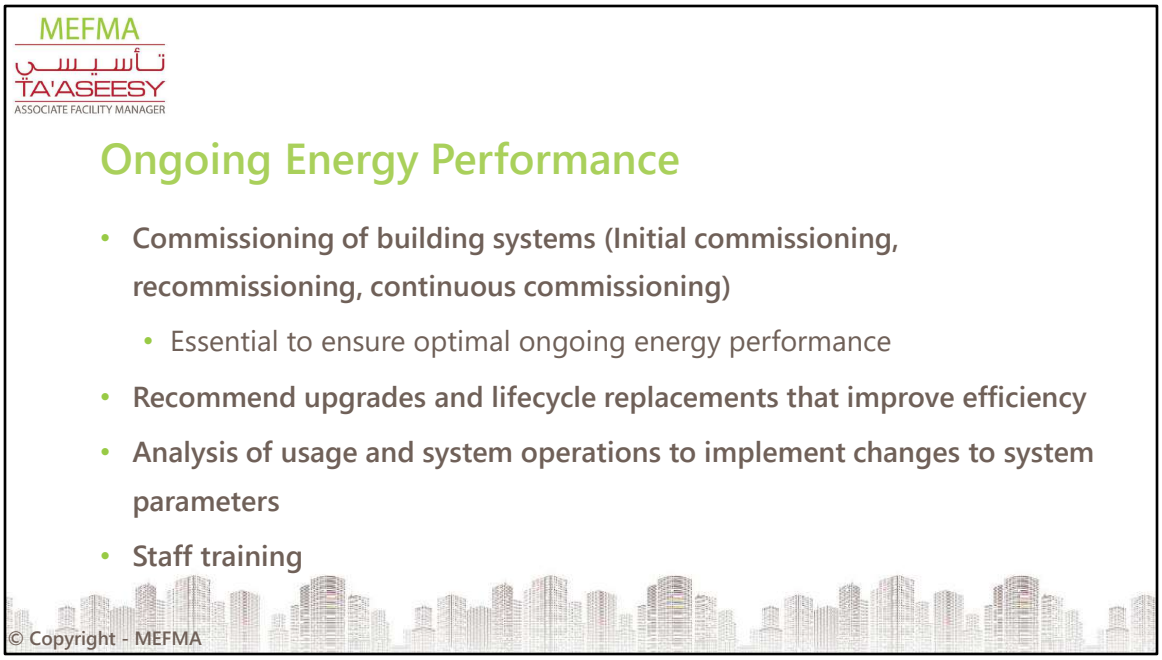

Hydro – running water

Low-impact hydro only for LEED


Wave Power

Images courtesy: U.S. DOE / NREL

This slide shows different options that may be considered as means of renewable energy



Comprehensive commissioning of building systems is essential if we are to ensure optimal ongoing energy performance.

Commissioning is often performed poorly.

As facility managers we are well placed to advise our clients and also to supervise commissioning activities.

The facility should be commissioned in line with the design parameters and operational staff should be trained to operate all systems competently.

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Discussion Time

Energy Conservation

What could you think of as Energy conservation measures for your organization?

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Why do we address Energy Management in FM?

Some of the reasons:

1. 60% of energy produced is consumed in Buildings and Facilities
2. FM teams are responsible for operating and maintaining the Facilities
3. Many energy conservation initiatives can be achieved by changing behaviors of end users, which dose not require any funding
4. **Can you think of more reasons?**

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Energy Management Policies

An Energy Management Policy focuses everyone on the Community/Organization towards a goal and acts as a catalyst for action. By formalizing the energy management process, it enhances the programs' chance of success

Policy Consists of Two Parts:

1. A Policy Statement which expresses the overall energy management goals of the organization
2. A Strategy where the organization sets out how it will implement the energy management program

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Energy Management Policies:

6 Good reasons to have an Energy Management Policy

1. To give your organization a simple-minded sense of purpose
2. To guide a systematic energy management program
3. To demonstrate your organization commitment to energy management
4. To act as a catalyst for changes in people behavior
5. To ensure enough resources are allocated to energy management
6. To build ongoing energy awareness into your organization

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Topic

Material Management

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Material Management

- Sustainable Materials (origins of the material)
- Lifecycle Impacts (eventual waste stream)

Inconsiderate use of our planet's resources leads to loss of those resources.

When we over-exploit the resources we risk damaging the environment beyond repair.

We need to move away from making profit while destroying the environment and use a more sustainable approach.

Over-exploitation of resources can create risks to human life.

Where possible we should specify the use of "green" materials. These materials can be used with minimal environmental damage.

Resources that can replenish quickly are the best to use Bamboo, for instance, is a rapidly renewable material as it can grow to maturity within 10 years.

We can implement sustainable purchasing policies, buying materials that cause minimal environmental impact. We might only deal with suppliers who operate in an environmentally considerate manner.

We can specify electronic equipment that the manufacturers have established an environmentally considerate disposal process for.

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Topic

Waste Management

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Waste Management Principles

- Refuse
- Reduce
- Reuse
- Repurpose
- Recycle

Our waste management options are:

- We should aim to reduce the waste we generate. We can do this by implementing a green purchasing policy that reduces packaging. We can improve efficiencies to reduce waste.
- We can reuse items rather than dispose of them.
- We can recycle items and prevent the raw materials going to landfill.

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Waste Management Strategies

- Size the building correctly
- Reuse buildings or parts of them
- Reuse materials where possible
- Develop a construction waste management policy
- Consider new technology, design and construction decisions
- Compost
- Encourage recycling

This slide introduces some waste management strategies that we might find useful as facility managers.

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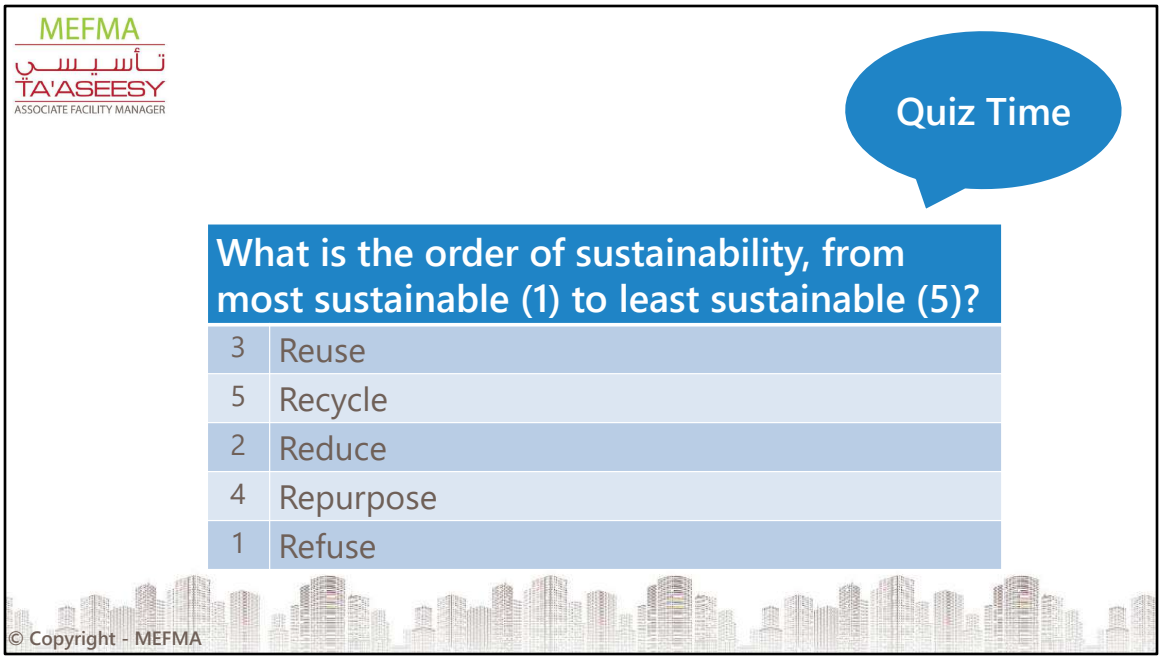
Quiz Time

What is the order of sustainability, from most sustainable (1) to least sustainable (5)?

	Reuse
	Recycle
	Reduce
	Repurpose
	Refuse



Order of best environmental benefit is:

1. Refuse (refuse waste, no packaging, don't use disposable items, etc.)
2. Reduce (reduce packaging, usage)
3. Reuse (re-use something after it is initially used. Possibly refurbish and put back in service)
4. Repurpose (use it for something else)
5. Recycle (melt it down for metal to use in other parts)

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Topic

Indoor Environmental Quality

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Indoor Environmental Quality (IEQ)

- **IEQ includes IAQ and other characteristics**
  - Indoor Air Quality (IAQ)
  - Thermal Comfort
  - Lighting
  - Acoustics

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IAQ Strategies

- Prohibiting smoking
- Adequate ventilation
- Carbon dioxide ($CO2$) monitors
- High-efficiency air filters
- Specifying low-emitting materials
- Integrated pest management
- Protecting air quality during construction
- Conducting a flush-out
- Green cleaning program

Prohibiting smoking is a good way to make a positive impact on the indoor environment.

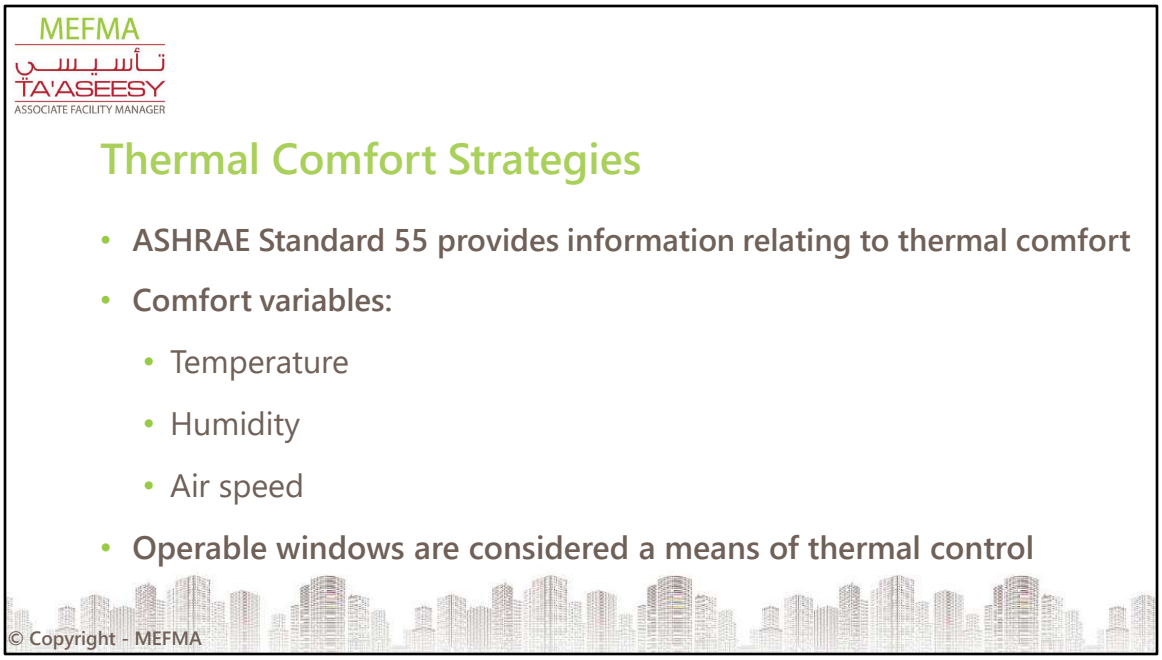
Adequate ventilation is also important. Ventilation can be controlled by carbon dioxide sensors to ensure we do not waste energy cooling outside air unnecessarily.

We should select materials that are low in volatile organic compounds (VOC's) to minimize emissions.

Good pest control also helps to maintain a healthy indoor life.

For new facilities, the contractor should protect the indoor environment during construction and perform a flush-out to minimize contaminants.

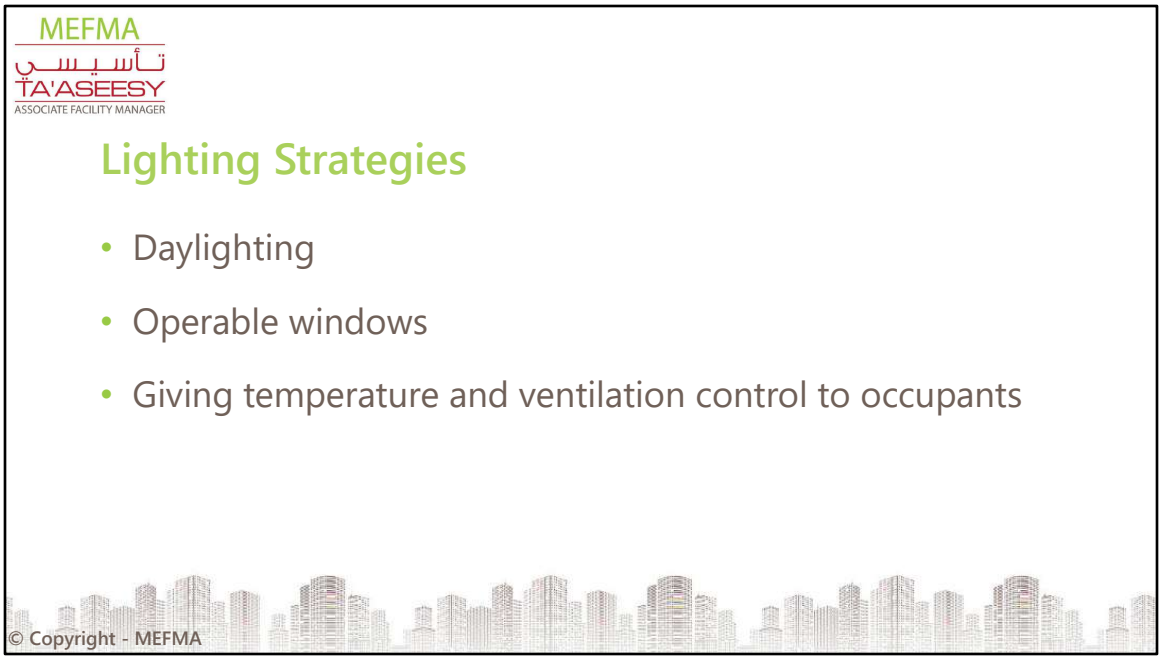
A green cleaning program, where we select only consumables that are compatible with our IEQ strategy, will also support the quality of our indoor environment.



Personal comfort depends on temperature, humidity and air speed.

ASHRAE Standard 55 is a useful reference that provides valuable information relating to comfort.

Operable windows also provide a way for occupants to control their own environment and comfort.



Daylighting is better than artificial lighting for occupants.

When they have daylight and can also open windows when they want to, they tend to be more comfortable as they are in control of their own environment.

If the occupants are able to control the room temperature and ventilation in their area, they should be comfortable.

Have you ever worked in an office and been too cold or too hot?

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Acoustic Strategies

- White Noise generators
- Interior finishes, partitions that deaden sound
- Silent building ventilation equipment

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Section

Leadership Strategy

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Topic

Leadership

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Leadership – Definition

- To set objectives and to influence and motivate others to achieve those objectives
- Everyone should apply leadership; it is not limited to senior management or executives

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Management – Definition

- To plan, organize and use resources to accomplish objectives
- Everyone should use Management; it doesn't apply just to people who have "manager" in their title

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What is the difference between Leadership & Management?

	Leadership	Management
Definition	• Influence, motivate, and enable others to achieve results to support their organization	• Direct and control people, resources and processes to achieve Definition results or goals
Orientation	• People first	• Tasks first
Approach	• Set Direction • Assess current and potential problems to develop creative solutions and directions • Use style and charisma to motivate and excite others to follow their direction	• Follow Direction • Establish methods, processes and resources to achieve pre-Definition solutions and direction • Use position power and knowledge to help others achieve efficiently and effectively
Power	• Charisma & Personal Influence	• Authority & Position Influence
Results	• Followers	• Subordinates

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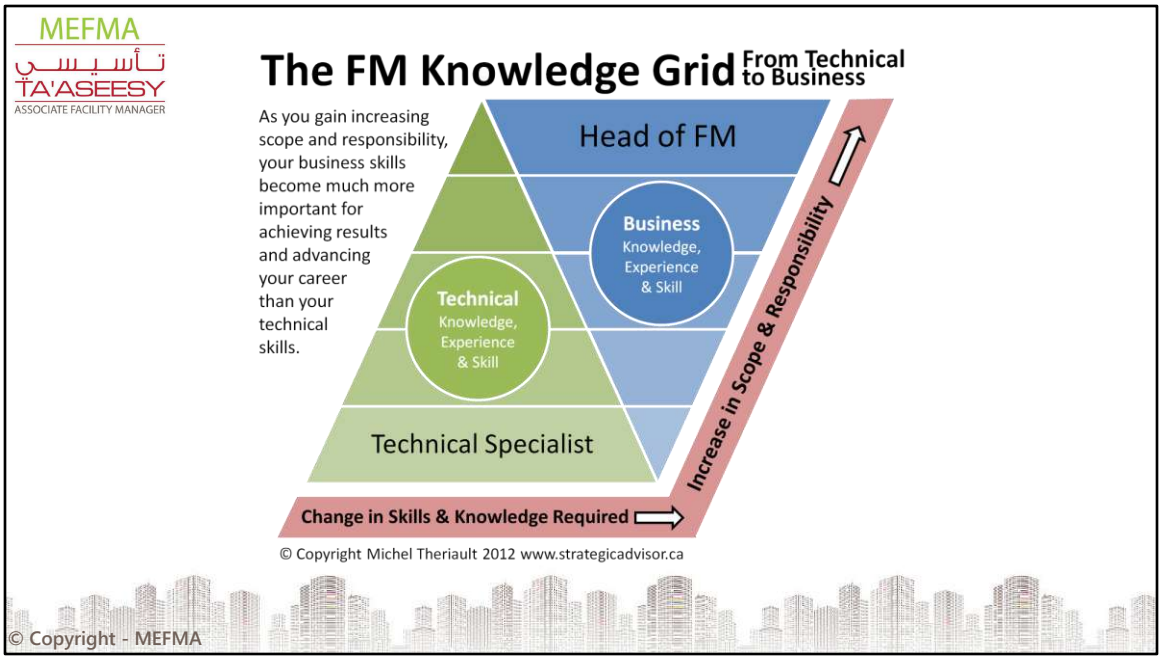
Discussion Time

Leadership

Can anyone at any level use and apply leadership skills?



The Facility Managers needs to have more business skills (leadership, strategy, finance, etc.) as they move up in the entity and become head of FM.

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Leadership in FM

- Combines business, technical, social and interpersonal skills
- Operates at a strategic and operational level
- Has power and influence
- Has imagination
- Is a team leader
- Is flexible and visionary
- Embraces change
- Is an informed communicator

Discuss examples of good leaders in FM and why? No names, just examples!

As an FM leader, you exercise leadership in 360 degrees. With your bosses, executives, and colleagues in other departments and with your staff/suppliers.

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Topic

Strategy

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Strategy – Definition

- To determine what goals and objectives should be achieved
- To also develop a plan to achieve those goals and objectives
- Everyone should use Strategy; it can apply to the entire company or to a specific work activity

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Why do we need a Strategy?

"To proactively making changes that improve results and reduce costs through an organized, planned approach that is goal driven."

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Strategy For Facility Management

- Beyond Day-To-Day operations
- Forward looking to the future
- Considers the Big Picture
- Supports your responsibilities
- Improves Service / results
- Best Value Solutions

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The Strategy Pyramid

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Where are You?

Everyone should consider where they are in the spectrum of tactics and strategy.
Many are not being strategic

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Stakeholder Analysis

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Exercise Time

Stakeholder Analysis	
Step 1	List possible stakeholders for the FM industry
Step 2	Discuss their impact on the profession
Step 3	Report your Findings

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Topic

Outsourcing

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What is Outsourcing?

- **Turning responsibility for multiple work process and results to an outside entity**
- **Procurement of services for significant / complex portions of current operation**
- **Relationship based vs. commodity based**
- **Other Industry examples are:**
    - Engineering and Design
    - Project Management
    - Information Technology
    - HR & Administrative services (reprographics, mail, etc.)

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Why Outsource?

- Improve your companies focus on core business
  - Free resources for other purposes
  - Switch focus from tactical to strategic
- Access world-class capabilities and best practices
  - Increased pool of resources, skills, experience
- Improve efficiency / Service
  - Cost Savings
  - Customer Satisfaction improvements
- Culture Change
  - Accelerated re-engineering benefits
- Performance
  - Contracts are results oriented

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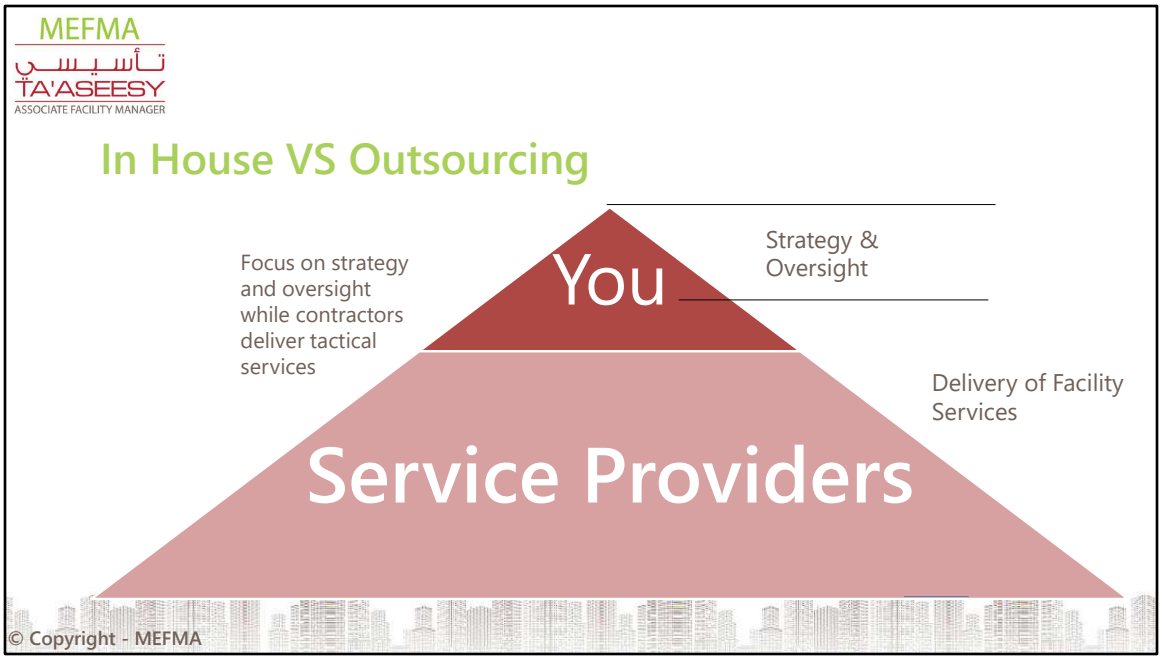
Discussion Time

Outsourcing

What are the challenges when outsourcing vs. in-house service delivery?



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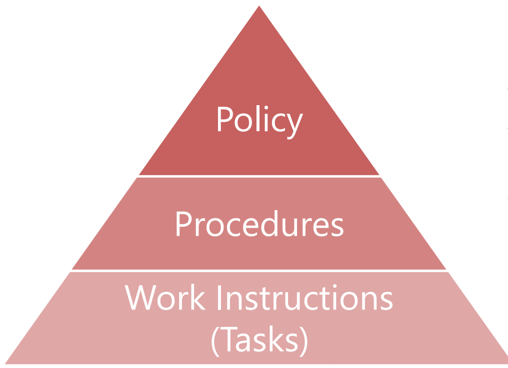
Policy Vs. Procedure

- **Policy**
  - The policy sets the overall approach. It sets rules and guidelines
- **Procedures**
  - The procedures provide steps or activities to achieve the policy
- **Work Instructions / Tasks**
  - The work instructions, if necessary, provide much more detail on specific tasks

Policy Vs Procedure



There is a Hierarchy with increasing details as you go from Policy to Procedures to Work Instructions

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Exercise Time

Procedures	
Step 1	Create a list of procedures you think you should have for FM
Step 2	Indicate which ones you already have
Step 3	Report your Findings

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Topic

Quality Management

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Quality Management

- FM is about managing quality, value and risk
- FM requires a system of processes to support delivery and continuous improvement
- Customer satisfaction is the key result

FM and Quality Management are intertwined. FM is about Quality, so FM managers need to understand the basic concept of QM.

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Quality Standards and Tools

- ISO 9001 (Quality), 14000 (Environment) , 41000 (FM), 45000 (Health & Safety)
- European Foundation for Quality Management – Business Excellence Model
- Balanced Scorecard – Kaplan and Norton
- Six Sigma
- TQM – Total Quality Management (Kaizen)

EFQM – The enabler criteria:

Leadership: its required best practice in communication, empowerment, and the way in which change and improvement really work in the organization.
People: how the organization energises the full potential of people to improve their own skills and improve the business.
Strategy: how organisational values, vision and goals are set.
Partnerships and Resources: how all resources are effectively managed and dealing with partners work to contribute to the achievement of business goals.
Processes, products and services: how the key processes of supply are turned into products and services that are delivered to the customer.

Results criteria that the enablers deliver:

People Results: people's perceptions of the organization and how their needs and expectations are met.
Customer Results: customers' perceptions of the organisation and how their needs and expectations are met.
Society Results: how the image and position of the organisation are viewed in the community and what the organisation does to try and improve this view.
Key Results: how enablers and results feed into financial results, and how targets are met and reviewed.

EFQM HAS 32 sub-criteria!

Six Sigma – statistical measurement of quality improvement

KAIZEN – Continuous improvement – Toyota - TQM

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Two Parts to Managing Quality

Quality Assurance

- Making sure you are doing the right things
- Processes to ensure quality
- Overall lifecycle of service delivery
- Preventive

Quality Control

- Checking to ensure things are done well
- Tasks to test quality
- Specific parts of service delivery
- Reactive

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Topic

Ethics & Behavior

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Business Ethics for FM

- Adhering to your entity's ethics policies
- Being a good role model
- Promoting Ethics
- Doing the right things for your entity and your customer

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TA'ASEESY EXAM

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TA'ASEESY Exam

The exam will be: **40** multiple choice questions

Passing score is: **75%** which means **30** questions must be answered correctly

Exam duration: 2 hours

Once the exam answers are submitted: the candidate will see the result immediately

Upon passing the exam: the candidate will receive a soft copy of the certification

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Exam Platform Examplify

TWO BUSINESS DAYS BEFORE THE EXAM:

1. You will receive an email from noreply@examsoft.com to activate your account

2. You will also receive an email from **MEFMA team** with all detailed instructions

3. You will need to install the exam application onto your device (laptop/PC)

4. You will need to download the exam in your installed **Examplify** application

ON THE DAY OF THE EXAM:

5. You will receive an email from **MEFMA team** with the exam password

6. As the exam is monitored, the application will take your picture before starting the exam

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