Cost effective Asset Management by transforming your operations using the ISO 55001 Asset Management standard and digital technologies

Agenda

- Definitions
- Benefits
- Standard Clauses of ISO55000
- How do they translate in the real world
- Asset Management Processes
- Asset Management Information and Data Structure
- Asset Tagging / Inventory
- Technology and Asset Management
- Road Map towards ISO55000 certification

Asset Management and Digital Transformation Definitions [3]

- An asset is defined in ISO55000 as
  - "item, thing or entity that has potential or actual value to an organization",
  - Building, MEP equipment, Biomedical, IT, Vehicle
- Asset management is the combination of processes and data required to manage, monitor and maintain an organization's Assets lifecycle from procurement to disposal, in the most cost-effective manner
  - "coordinated activity of an organization to realize value from assets"
- Digital transformation is about transforming your business processes to be aligned or take advantage of the digital technologies of today for providing a more effective and efficient management of Assets

IS055000 Asset Management System

- ISO55000
  - Overview, Principles and terminology
- ISO550001
  - Specifies the requirements for those aspects that can be captured and documented in a management system
- ISO 550002
  - Management systems — Guidelines for the Application of 55001

Benefits of ISO55000

- Financial Implication (Reduction of Cost)
  - 2nd cost after Human Resources
- Responsibility
- Continuous improvement of Quality Management
- Enhances Company reputation
- Improves the quality of supplier products and services
- Provides Business Continuity and Consistency
- Addresses Organization structure a
- Improves Productivity
- Extending the life of our facilities and assets
- Consistency in operations and maintenance
- Better Customer Satisfaction
- Evaluation and Continuous Quality improvement
- Digital Transformation

Clauses of ISO55001:2014

1. Scope
2. Normative References
3. Terms and Definitions
4. Organization
5. Leadership
6. Planning
7. Support
8. Operation
9. Performance Evaluation
10. Improvement

4. ORGANIZATION

- **Understanding the organizations internal context**
  - **Policies Objectives and Strategies**
  - **Culture and Values**
  - **Structure, roles, accountability and authorities**
  - **Size and Complexity**
  - **Information Systems**
  - **Standards, guidelines and models**
  - **Contractual Relationships**
  - **Risk Management**
  - **Asset Management Practices, plans, processes and procedures**
  - **Integrity and Performance**
  - **Feedback and Investigation of previous asset failures, incidents, accidents and emergencies and any statics / KPIs**

5. LEADERSHIP

- Leadership and commitment from the management
- Ensuring that Asset Management objectives are in line with the organization objectives
- Ensuring that resources for the AM are available
- Establish an Asset Management Policy
- Organization Roles, Responsibilities and Authorities
- Communication throughout the organization

6.PLANNING

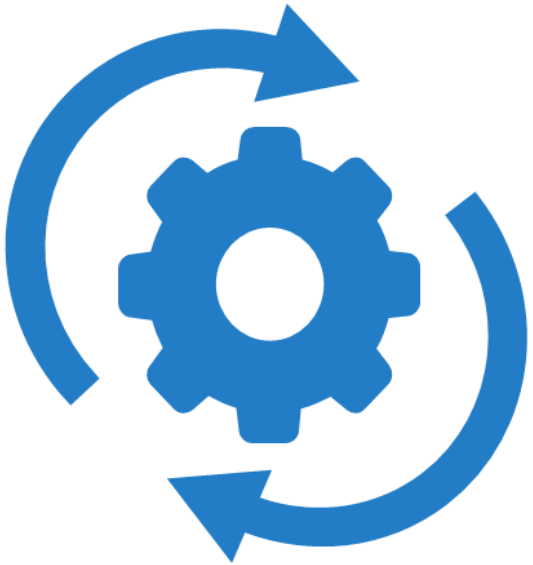
- Actions to address risks and Opportunities
- Asset Management Objectives and planning to achievement
  - Method and Criteria for decision making
  - Processes and methods to be employed in managing the assets life cycle
  - What resources will be required
  - Who will be responsible
  - Financial and non-financial implecations

7. SUPPORT

- Resources
- Competence
- Awareness
- Communication
- Documented information
  - Creating and updating information
  - Control of documented information
  - AM Information and data requirements
- Organizational Knowledge

8.OPERATIONS

Processes



Data / Asset Information


Strategy and Obectives
Planning
Policy
Capital Investment
Procurement & SCM
Operations & Maintenance
Costing & Valuation
Lifecycle Value Realization
Performance Monitoring
Shutdown & Outage
Risk Management
Creation & Acquisition
Organization Structure
Systems Engineering
Data Management
Configuration Management
Asset Information
Maintenance Reliability
Decomposition & Disposal
Fault & Incidents Reports
ISO 55001
Asset Management
Operation
Processes

Asset Management
ISO55000

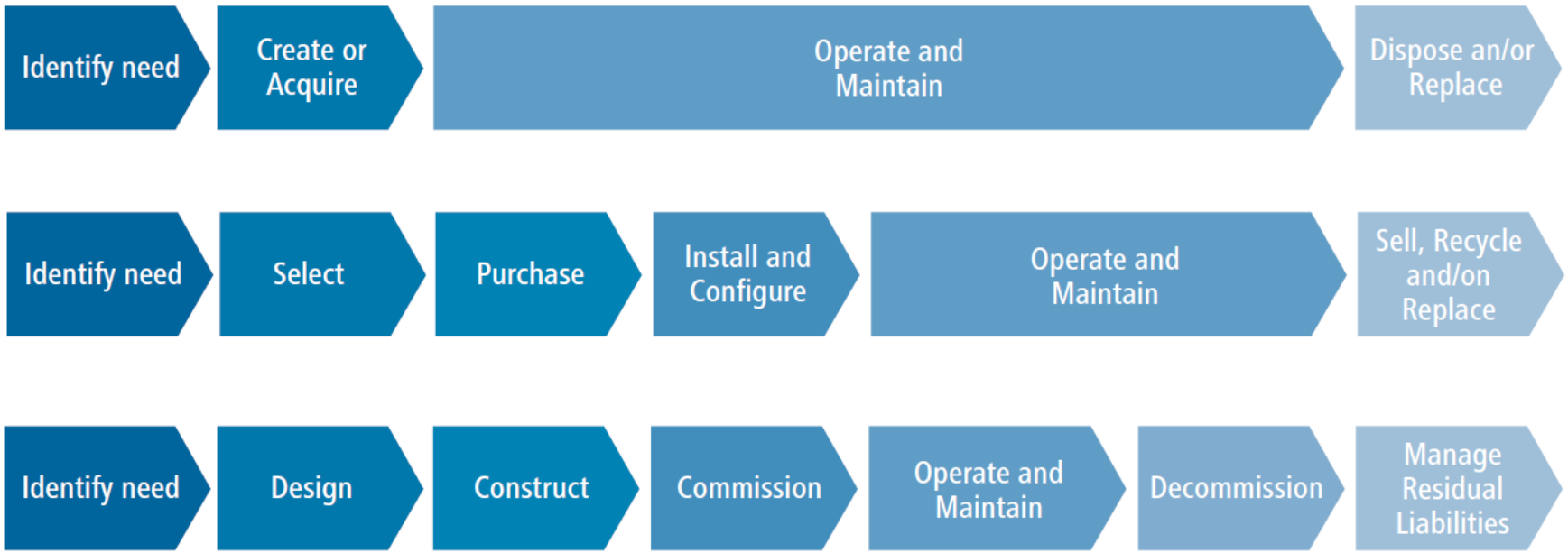
Facility Management
ISO 41001


Procedures
Space Management
Customer Service
HSE
Human Resources
Facilities / Customers
Emergency Procedures
Operation / Planning
Technology
Maintenance Contracts
Coding
Asset Management
Warehouse / Procurement
Financial Management
Monitoring, Evaluation and Control
Communication
Quality Management
Facilities Management
It is the integration of processes within an organisation to maintain and develop the agreed services which support and improve the effectiveness of its primary activities

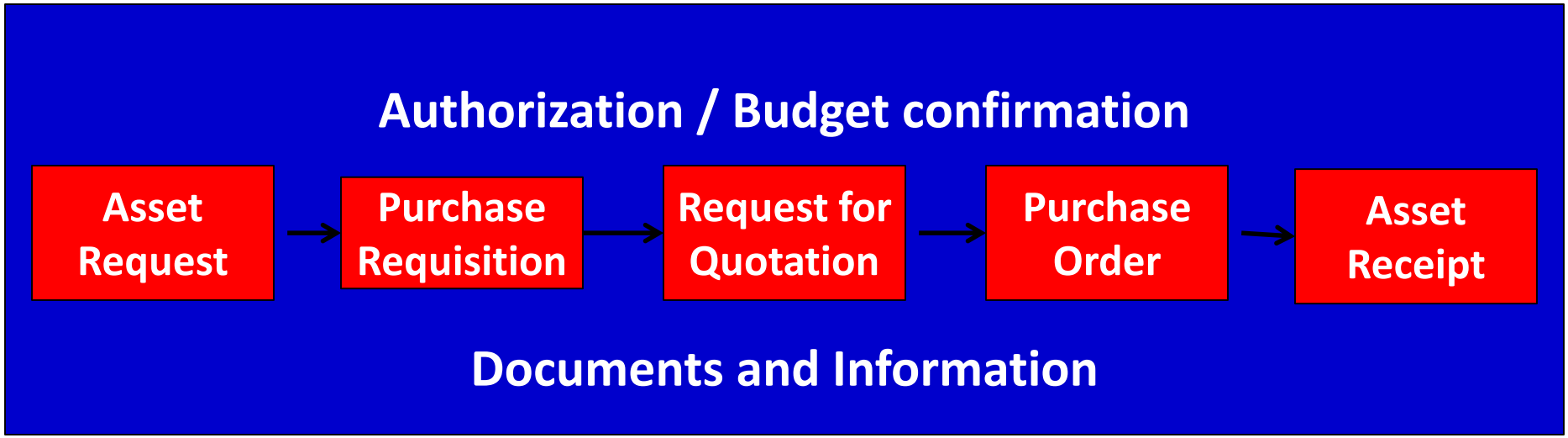
Stakeholders Involvement

- Internal
  - Employees of the organization
  - Groups of people (engineering, finance, maintenance, operations, purchasing, logistics, IT)
  - Management
  - Shareholders, Owners
- External
  - Customers, Users
  - Suppliers, service providers and contractors
  - Government Organizations
  - Local Communities
  - Auditors

Asset Life Cycle Stages



Procurement & Supply Chain Management



Asset Management
Information / Data Perspective

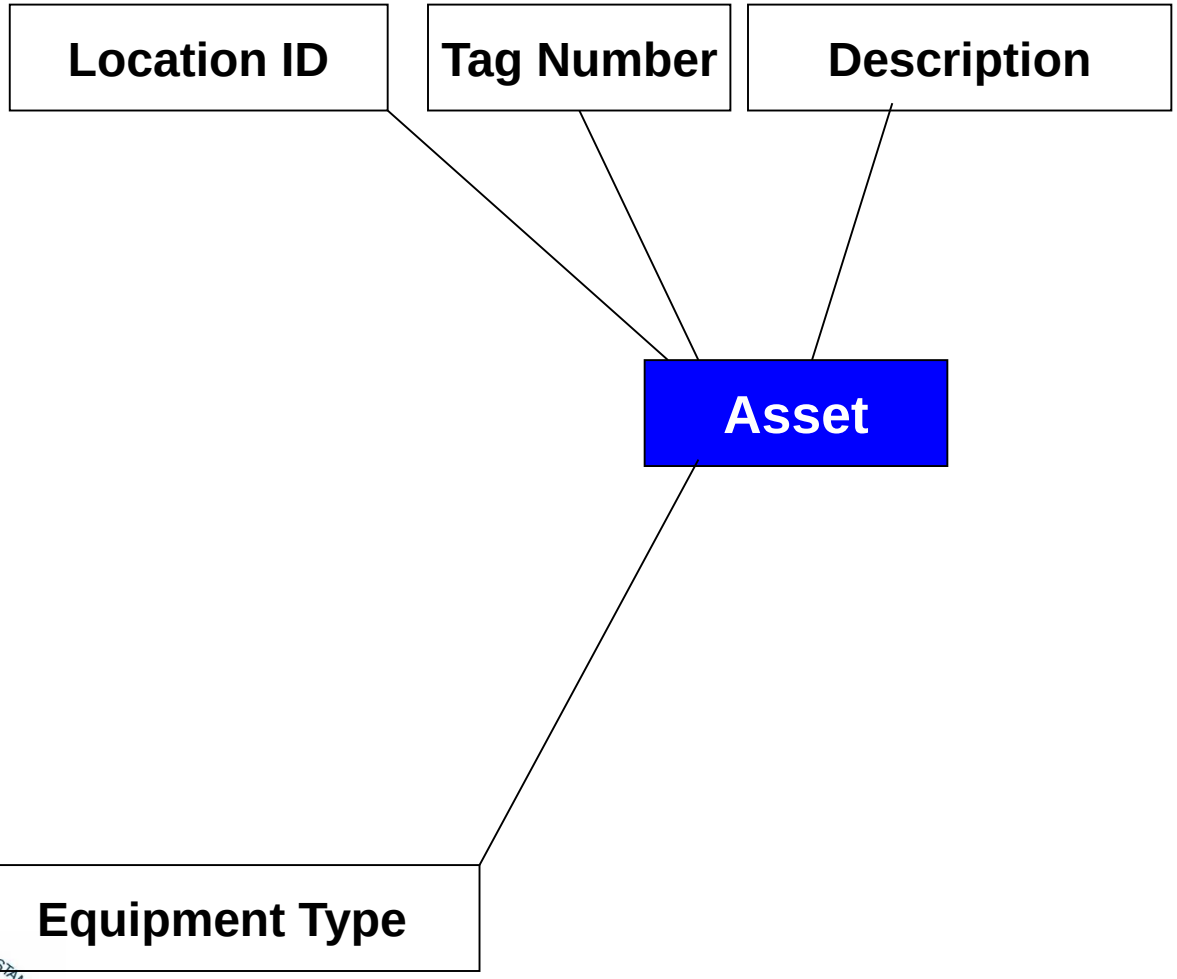
Asset Management Information

- What
- When
- Where
- How many
- Cost
- Lifespan / History
- Connectivity

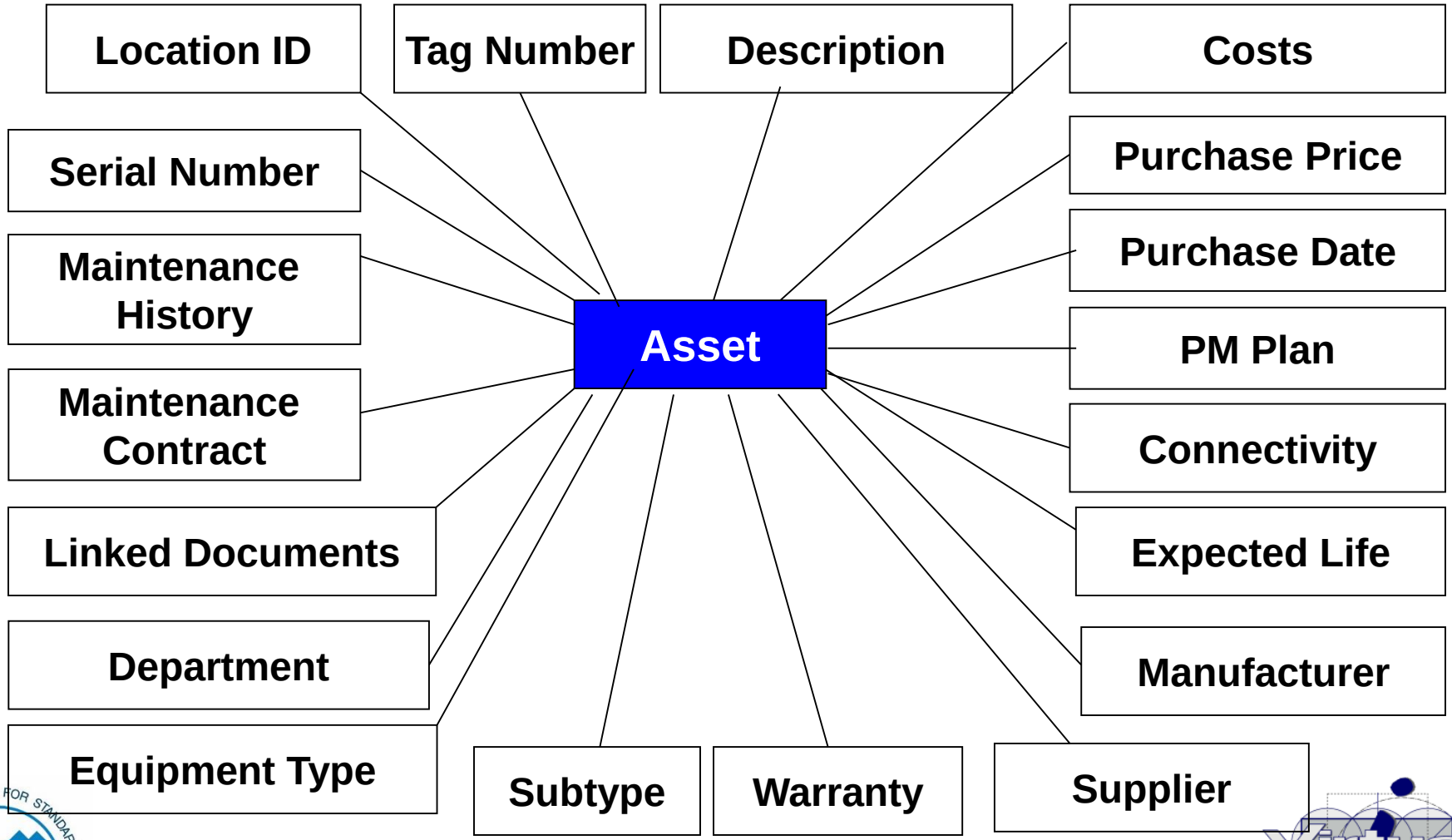
Asset Management Data

- Coding / Bar-coding
- Detail Asset information
- Asset Type and Subtype
- System / Connectivity
- Total view / location
- Purchase and Disposal Cost
- Depreciation Calculation
- Leasing info
- Maintenance Costs
- Allocation Cost to Departments
- Ownership and Usage costs
- Evaluation of Asset performance according to specifications
- Maintenance Contract
- Input of Invoice with Work Orders
- Integration to Finance System
- Document Attachments
- Capital Planning
- Transfer History
- Down time cost analysis
- Procurement Management
  - Requisition
  - Quotation
  - Purchase Order
  - Receipt
- Budget

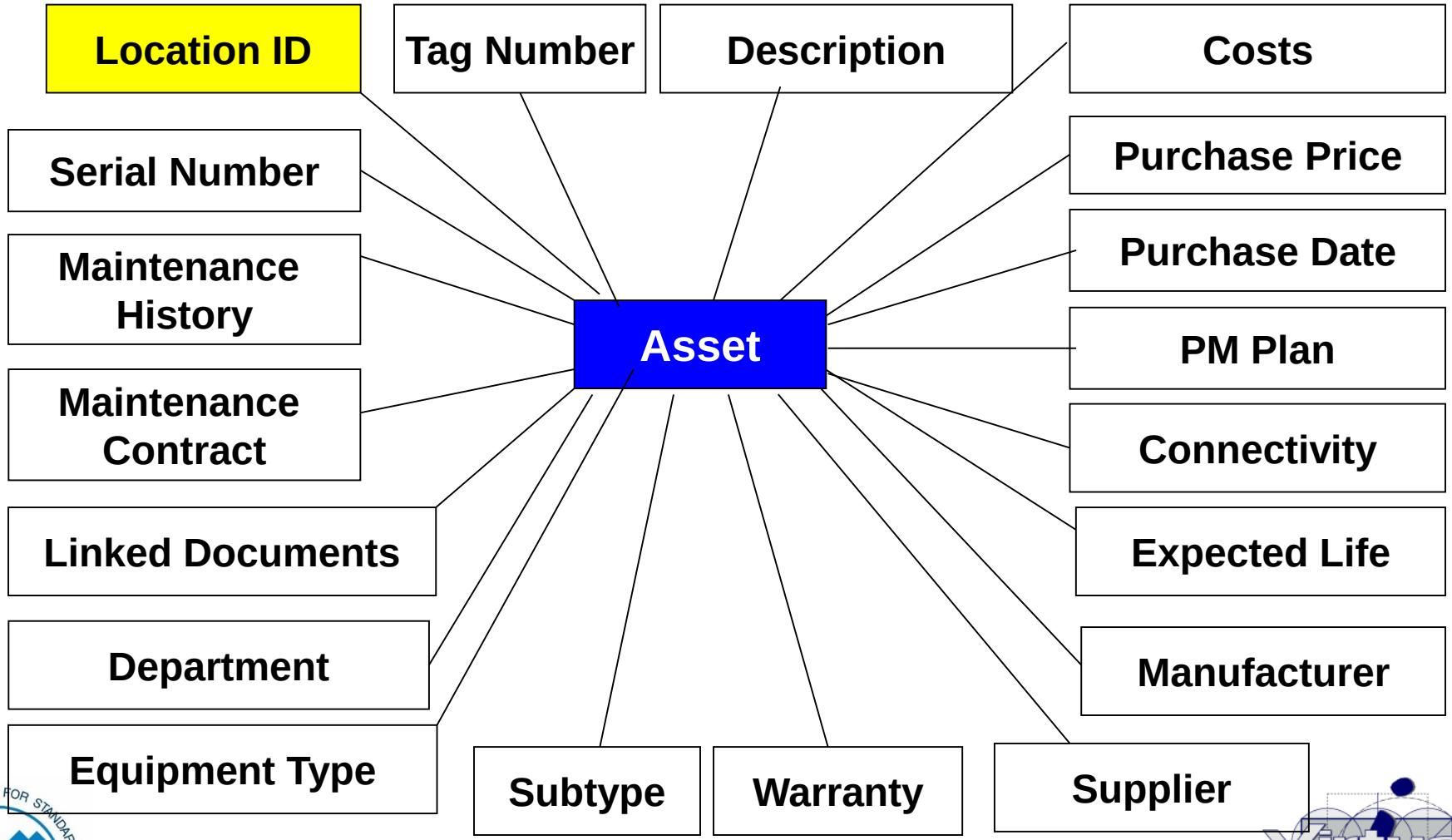
Asset Management Minimum information



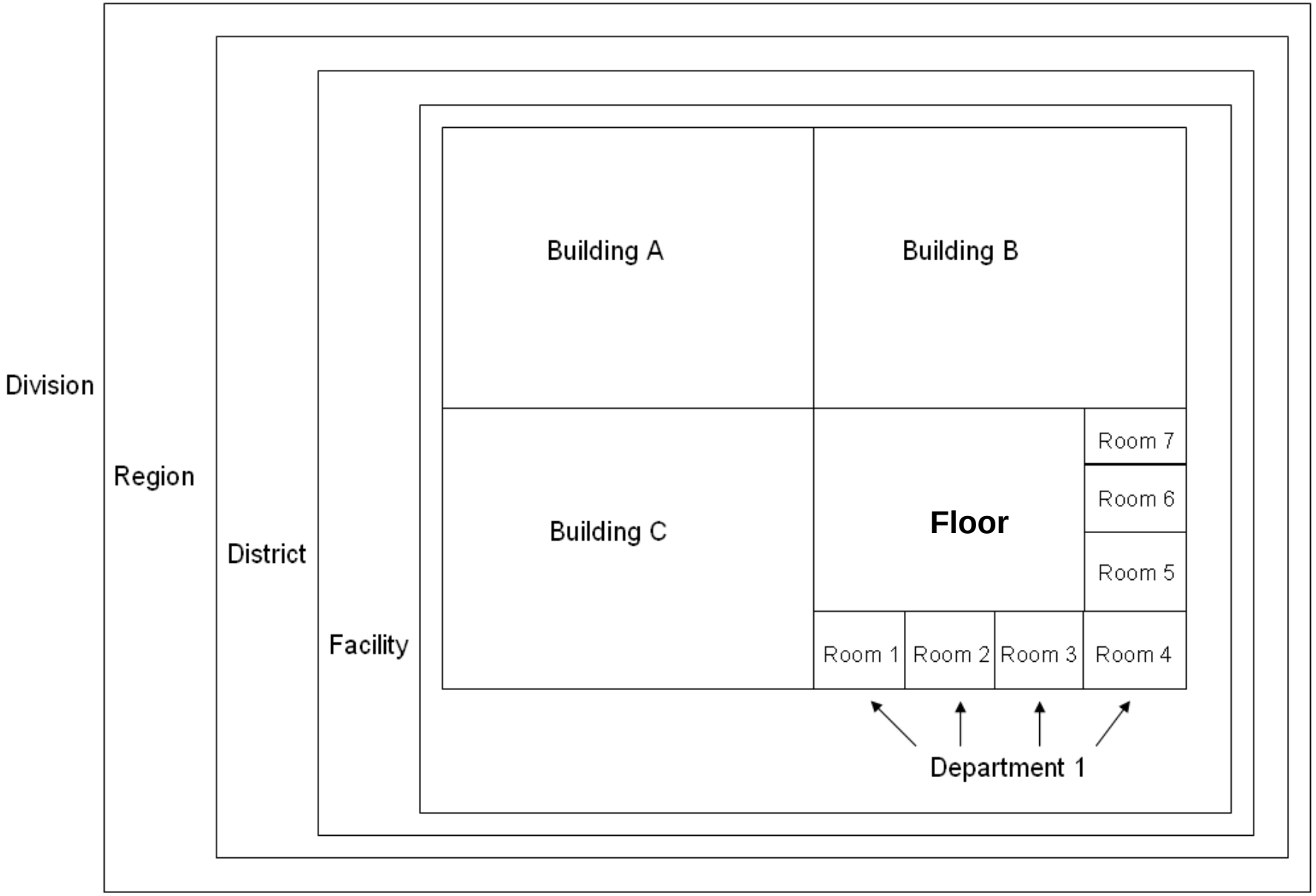
Asset Management Ideal information



Asset Management Ideal information



TAXONOMY


Division
Region
District
Facility
Building A
Building B
Building C
Floor
Room 7
Room 6
Room 5
Room 1
Room 2
Room 3
Room 4
Department 1

Coding

- There is no right or wrong in setting up coding
- It just needs to make sense and be documented
- Setup a mask / guidelines so people can easily setup and read
- Use a mask that can be remembered
- Use Alphanumeric
- Must be unique

Suggested Coding for Facilities

- Keep it short (3 – 6 Alphanumeric Characters)
- Try not to include other layers
- Example 3 CHAR
  - If description is one word then we use the first 3 char
  - If description is two words then we use the first 2 char from the first word and first character from the second word
  - If description is three or more words we use the first character of the first three words
  - Central Tower
    - CET

6 CHAR alphanumeric

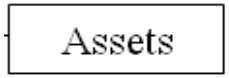
- If description is one word then we use the first 6 char
- If description is two words then we use the first 3 char from the first word and first 3 character from the second word
- If description is three words we use the first 2 character of each word
- If description is four words we use the first 2 characters of the first two words and then the first char of the 3rd and 4th words
- If description is five words we use the first 2 characters of the first word and the first character of the 2nd to the 5th words
- If description is six words we use the first 1 character for each word
- Example
  - AYIOS ANDREAS Tower
  - AYANTO

Suggested Coding mask for Assets

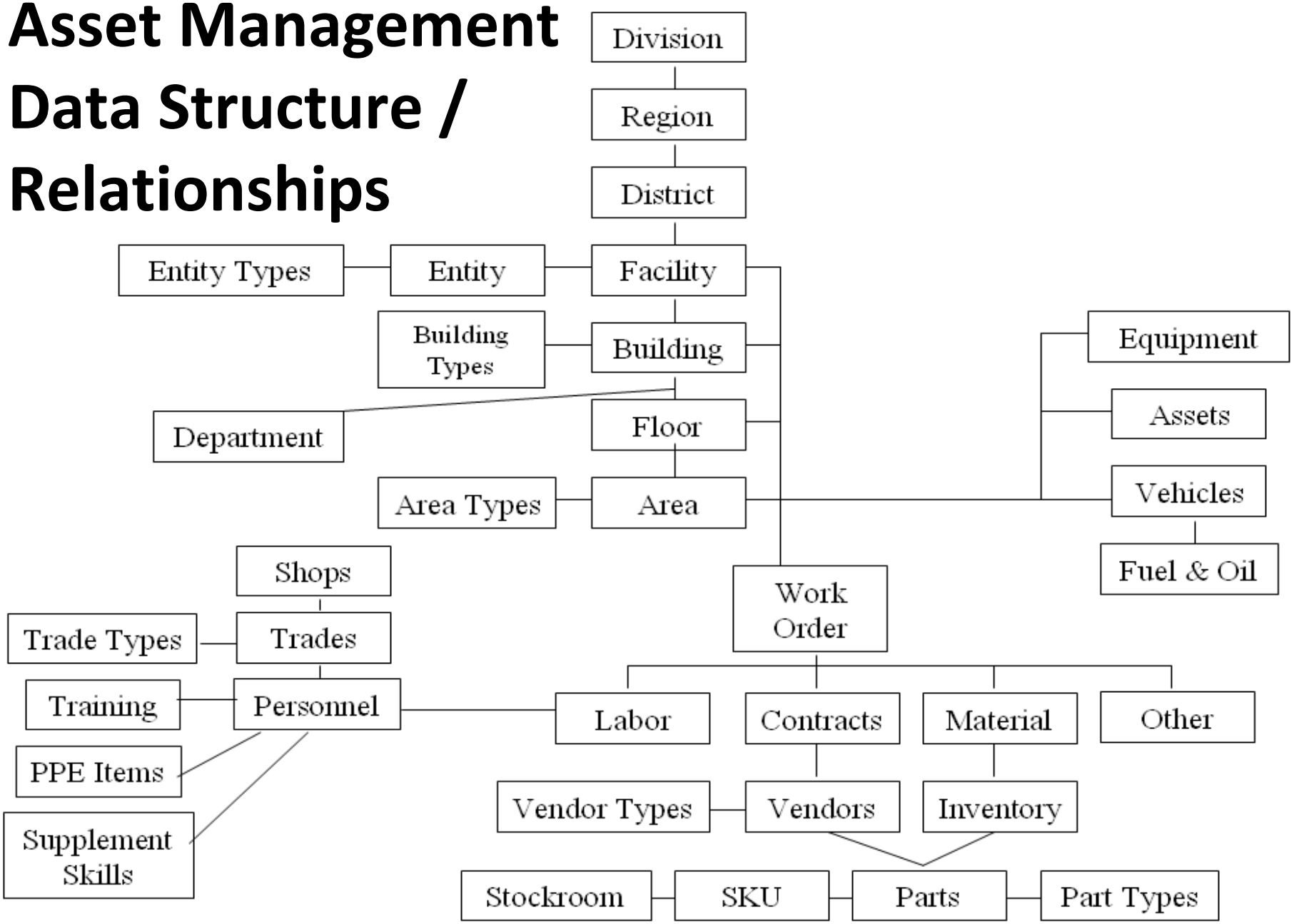
- 8-12 CHAR
- Here we can use mask like

Building		Equipment Type		Sequence Number
XXX	-	XXX	-	9999

Asset Management Data Structure / Relationships



Asset Management Data Structure / Relationships



Asset Tagging

- Define the minimum information you can collect possible
- Setup Coding and coding masks
- Consolidate Current available equipment information
  - Hierarchy
  - Inspection Reports (Fire protection equipment, contractor maintenance reports)
  - Walk Through
  - Financial Systems
  - CAD drawings
- Asset validation and data collection
- Asset condition assessment
- Upload the information to a CAFM / Asset Management System
- Print and inspect to evaluate information uploaded
- Upload tasks, processes and PM schedules by equipment type
- Take Asset Register live
- Confirm information during Corrective and Preventive Work
- Put in place a process so that any new Equipment is registered before use

9 PERFORMANCE EVALUATION

- Monitoring, Measurement, analysts and evaluation
- Internal Audit
- Management Review

Matrix for maintenance KPIs

Classification	Indicator Groups		
	Economical	Technical	Organizational
Requests / Complaints			Total pending complaints within a period
Work Orders	Cost of total work order for specific service	Failure analysis	Total pending work orders within a period
Contract	Budgeted vs Actual cost of contract		SLAs
Equipment	Total value of equipment	Asset performance	Inactive equipment per location
Material	Total material spent for specific service	Material failure	Unavailability of materials

10. IMPROVEMENT

- Nonconformity and corrective action
- Continual improvement
- Preventive Actions

Asset Management
Digital Technologies

Asset Management System (AMS)
Computerized Maintenance Management Systems (CMMS)
Computer Aided Facilities Management Systems (CAFM)

Home | Logout | Add | Edit | Copy | Delete | First | Prev | Next | Last | Search | Print | Help | Save

Currency Code: AED

Action Menu

- *Linked Documents*
- Create WO
- Last Modified
- Post Down Time
- Transfer History
- Transfer Equipment
- Groups
- Keys
- Tracking
- View Events

Favorites

Transactions

Material

Identity | Motor | Connection | Sub Assemblies | Contractor | Repair Centers | Meter | PMs | Depreciation

Tag #:	DU-OFF-CHL-001
Description:	Chiller Units
Make:	Daikin
Model #:	VRV-22936
Serial #:	251729201
Location ID:	
Facility Name:	Residential Sites
Building Name:	Main Building Tower A
Floor Code:	DZ-ROOF
Area #:	
Department:	Administration
Regulatory Category:	ISO 9001

Building Asset	☑	Active	☑
Leased	☐	Out of Service	☐
Service Contract	☑	BMP	☐

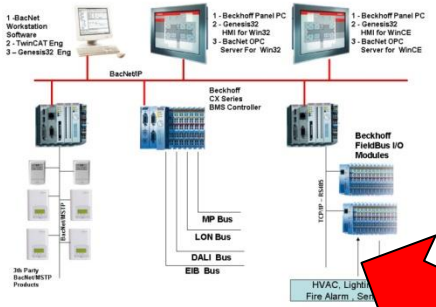
Risk Level:	0
Type Desc:	Chillers
Subtype Desc:	
Vendor Name:	Hydrothermiki Ltd
Manufacturer:	Hydrothermiki Ltd
Account #:	400700
System:	CHILLER PLANT SYSTEM
Subsystem:	
SOP:	

Owner's Department:	Administration
Parent Tag #:	ABJAR-DC-420-PROJECT-03
Alternate Tag #:	2000
Device #:	2376152
Attached to Vehicle:	
Longitude:	
Prevent Archival	☐

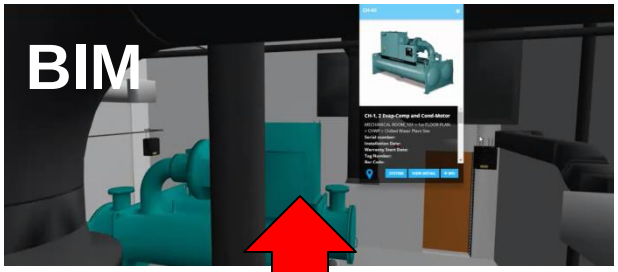
Details | Dates | Energy | Popup Message

Asset Management – Data Integration

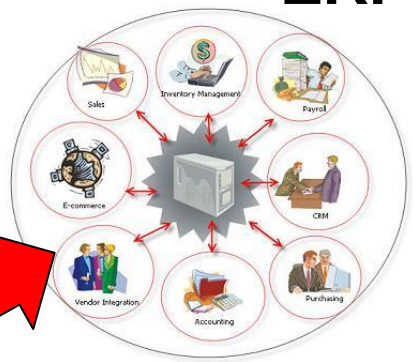
BMS IoT devices

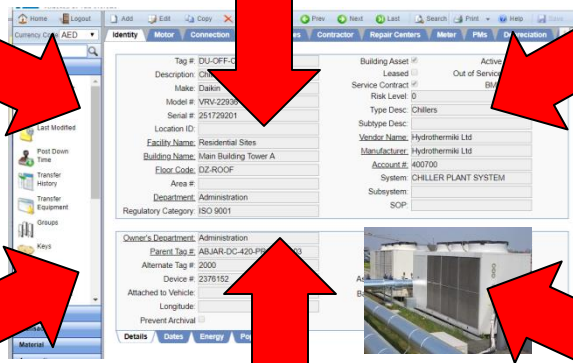


BIM

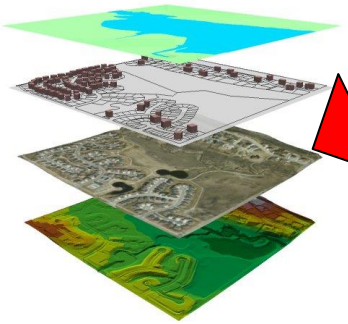


ERP



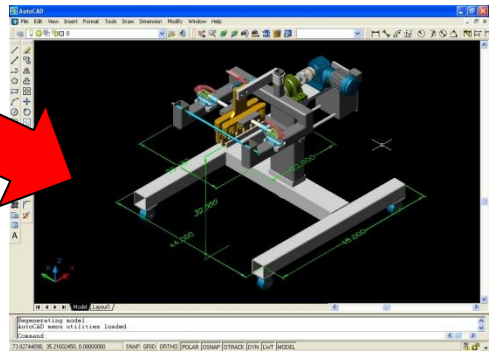


GIS

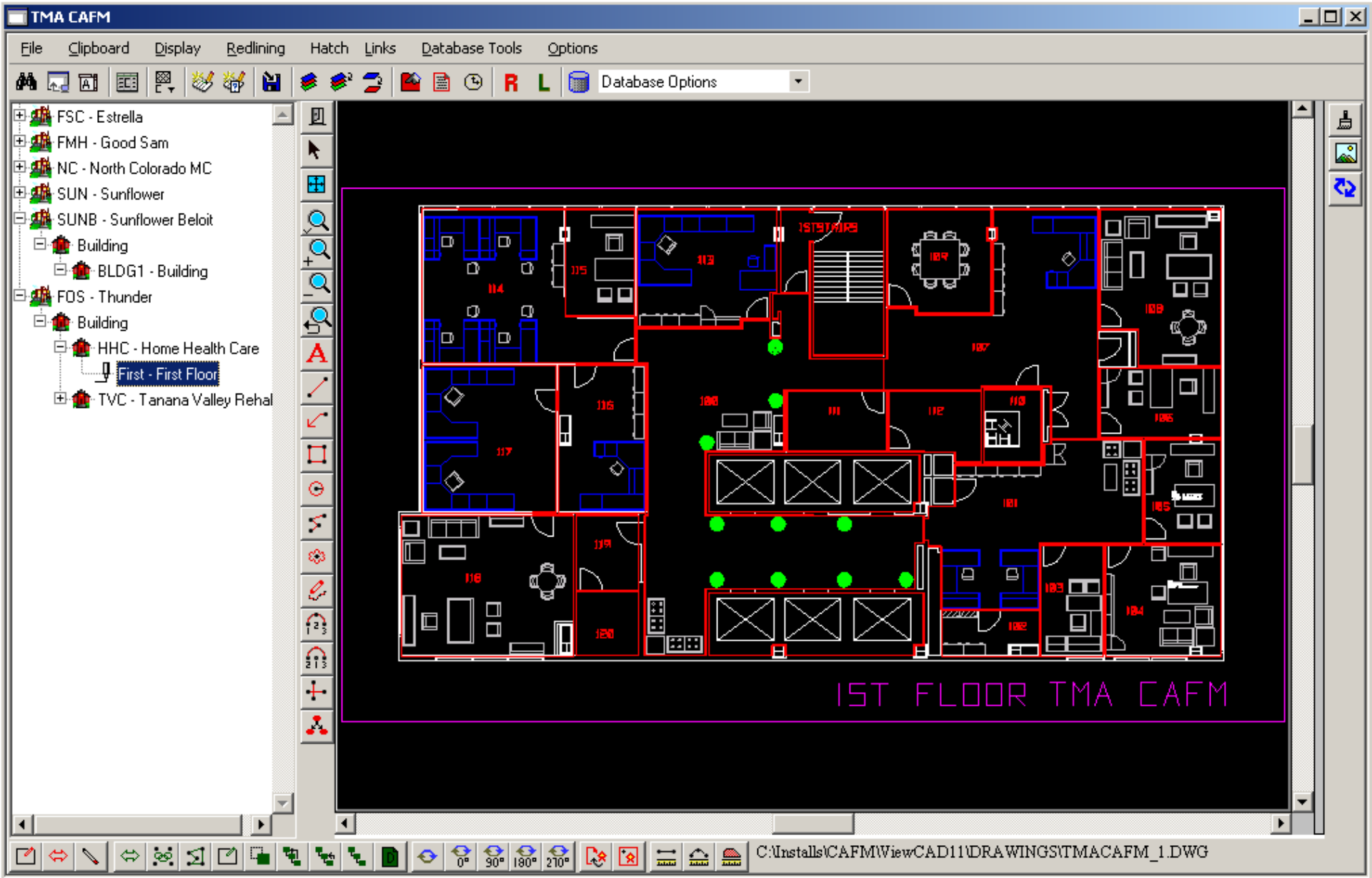


Mobile / Pad

AutoCAD



AutoCAD Integration



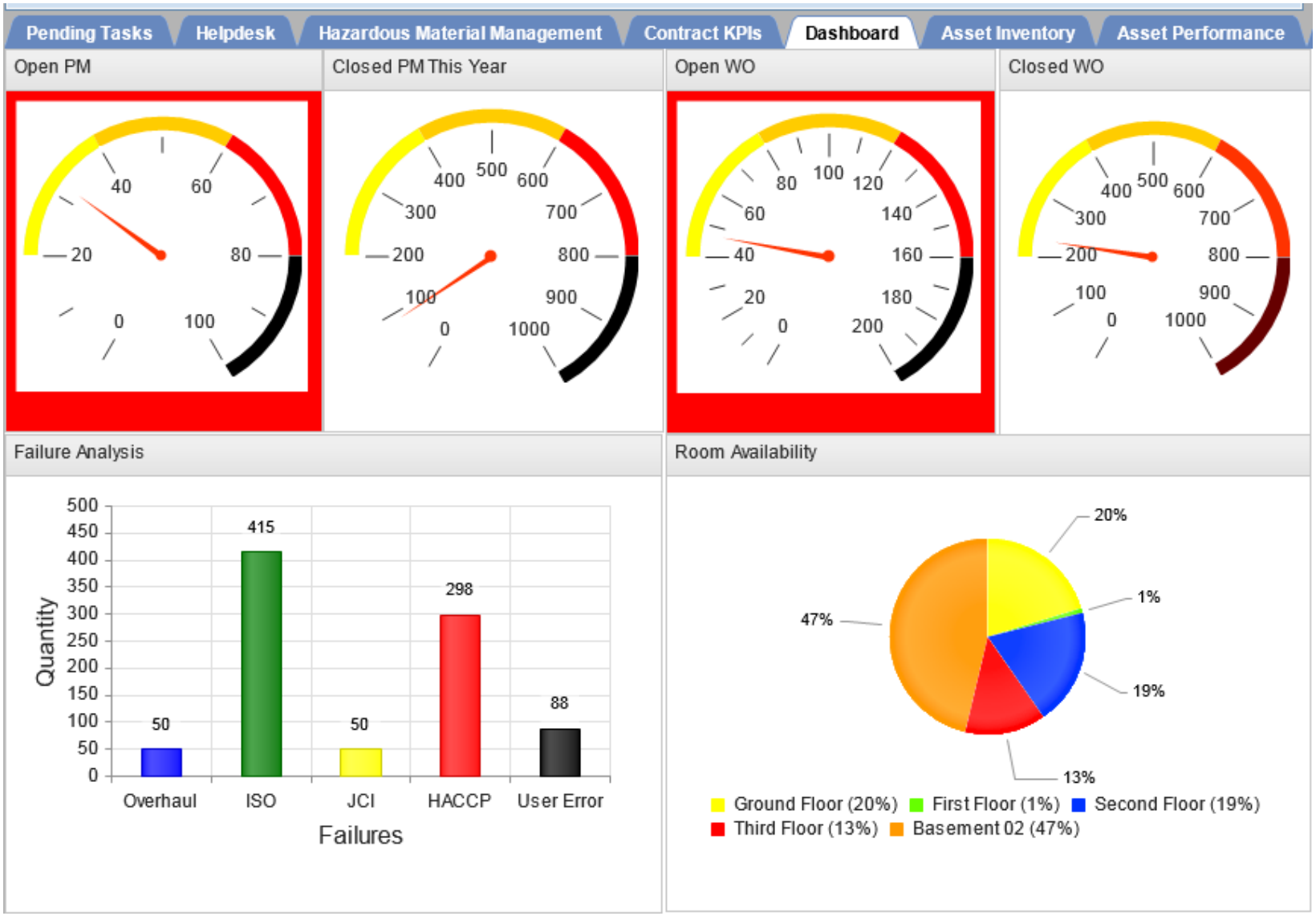
Building Information Modelling (BIM)

DEMO

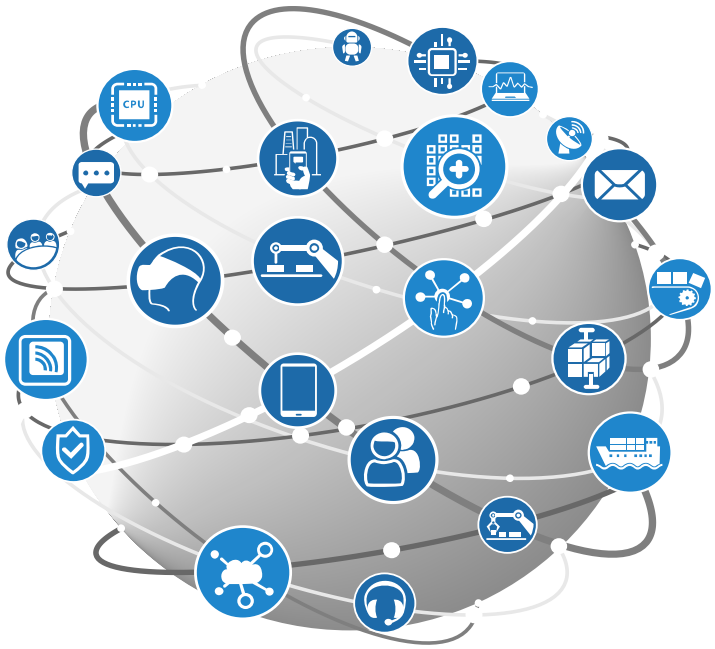
Key Performance Indicators (KPIs)

Classification	Indicator Groups		
	Economical	Technical	Organizational
Requests / Complaints			Total pending complaints within a period
Work Orders	Cost of total work order for specific service	Failure analysis	Total pending work orders within a period
Contract	Budgeted vs Actual cost of contract		SLAs
Equipment	Total value of equipment	Asset performance	Inactive equipment per location
Material	Total material spent for specific service	Material failure	Unavailability of materials

Performance Benchmarking



INTERNET OF THINGS (IoT) CONNECTED DEVICES



What is IoT

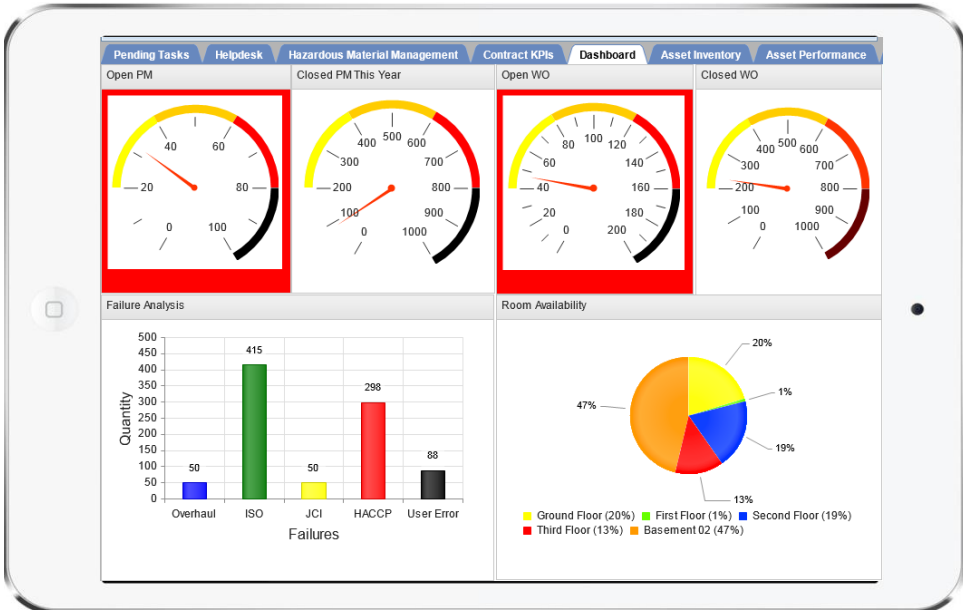
Is a system of interrelated computing devices, mechanical and digital machines that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

Example of IoT

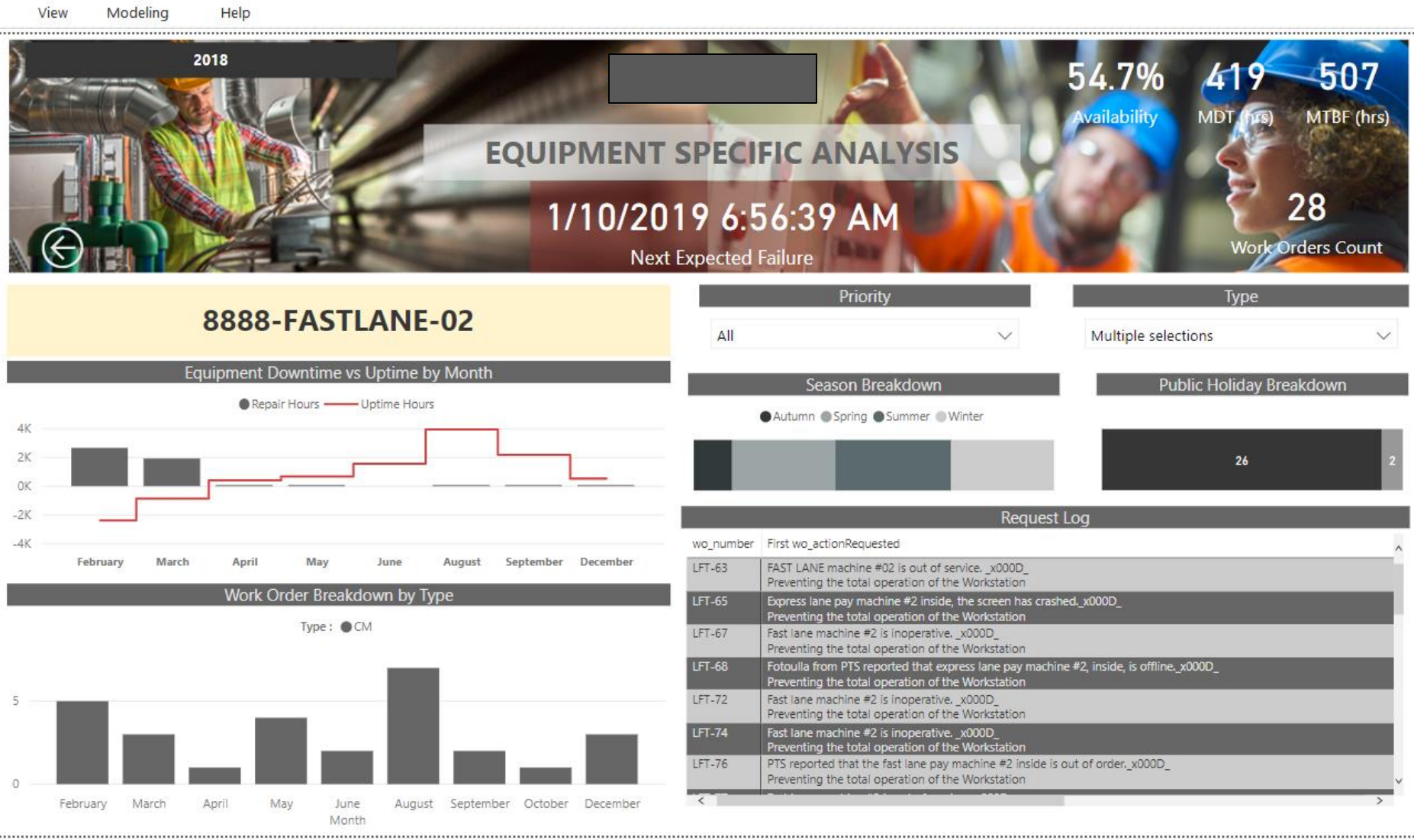
- **Temperature**
- **Energy**
- **Motion Detection**
- **Water Detect**
- **Light Meter and Detection**
- **HVAC Monitoring**

Mobility


Current Tariff
0.20 AED
Current Cost
600 AED
610
Kwh
Real time energy Consumption
40
KG
Real time Estimated Emission
LOCATION WISE DATA

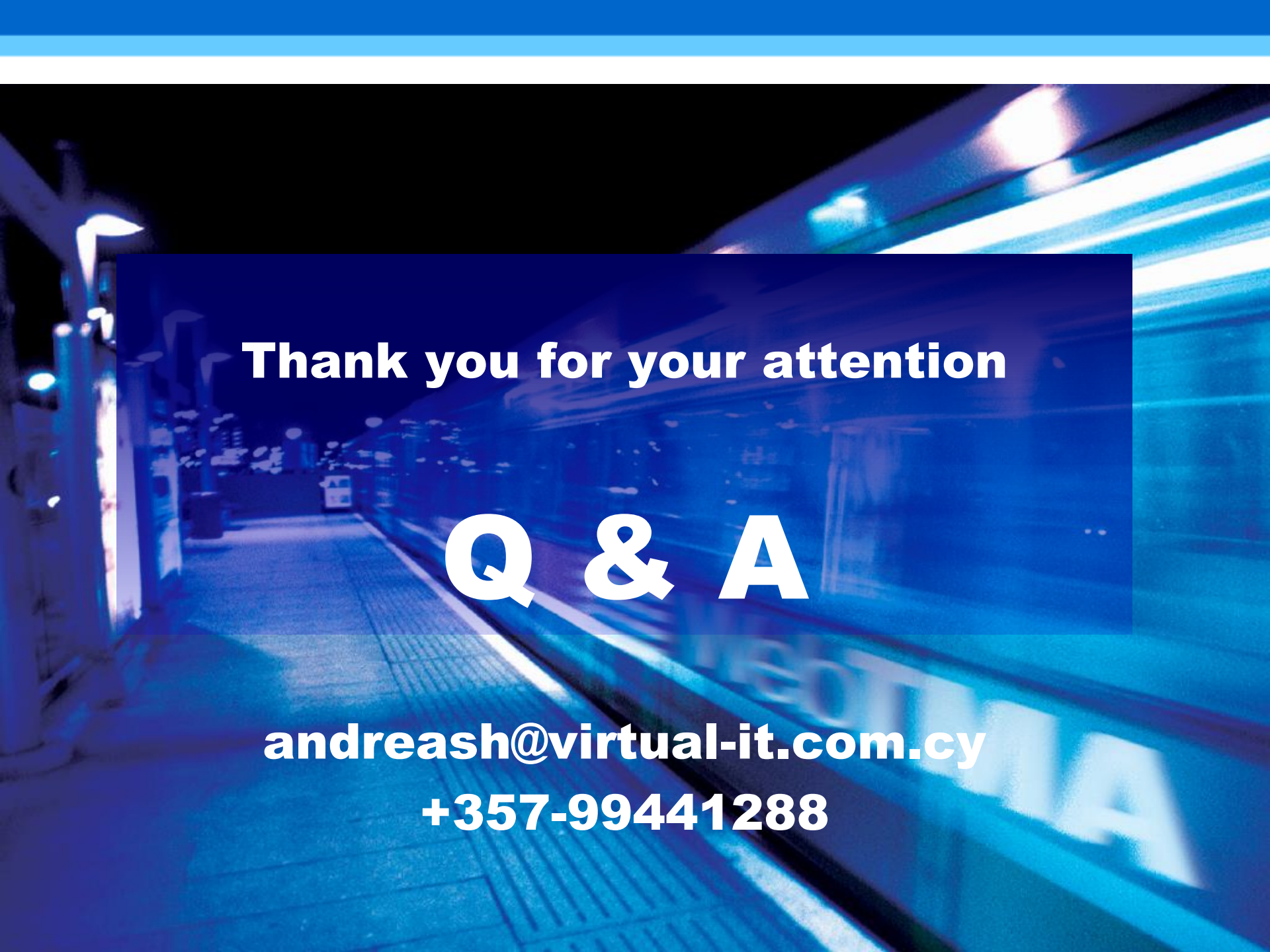

Pending Tasks
Helpdesk
Hazardous Material Management
Contract KPIs
Dashboard
Asset Inventory
Asset Performance
Open PM
Closed PM This Year
Open WO
Closed WO
Failure Analysis
Quantity
Overhaul
ISO
JCI
HACCP
User Error
Failures
Room Availability
20%
1%
19%
13%
47%
Ground Floor (20%)
First Floor (1%)
Second Floor (19%)
Third Floor (13%)
Basement 02 (47%)

BI / AI / Predictive Analysis Tools



ROAD MAP towards ISO 55000 certification

- Phase I – Project Initiation and Organization
- Phase II – Awareness Training
- Phase III – Gap Analysis with Current Processes and Data
- Phase IV – ISO Asset and Facility Management Systems
- Phase V – Data Requirements Coding and Reference Tables
- Phase VI – Redefine AM and FM processes based on Gap
- Phase VII – Mapping data and processes to Digital Technologies
- Phase VIII – Formulate Implementation plan
- Phase IX – Implementation – Monitoring - Rectification
- Phase X – ISO55000 Audit


Thank you for your attention
Q & A
andreash@virtual-it.com.cy
+357-99441288