

### Data i FM

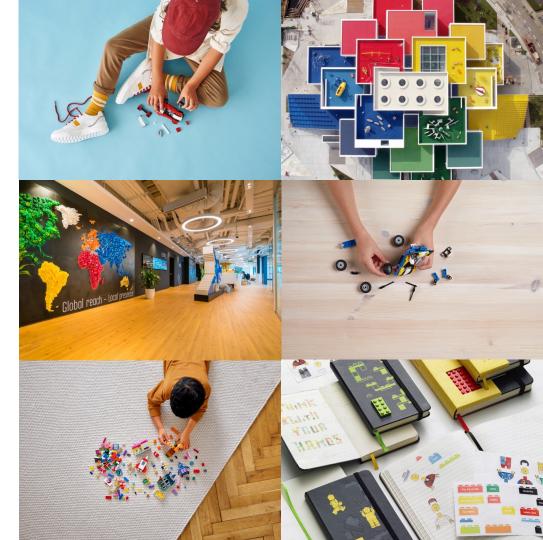
#### Borger Borgersen

Global Digital Transformation Manager The LEGO Group

27. Oktober 2022

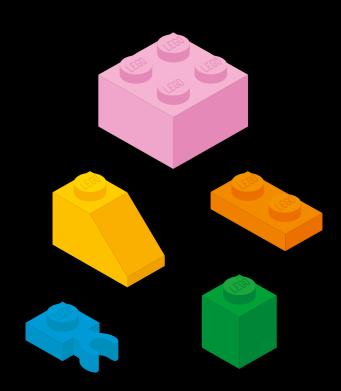


#### Content #1 Data i FM – hvilke data har vi allerede adgang til? Håndtering af data for fysiske assets (FM) Life Cycle Asset management Initial Asset data collection Assess and plan #6 Replace Implement / Adjust #8 Operate #9 Monitor & Optimise

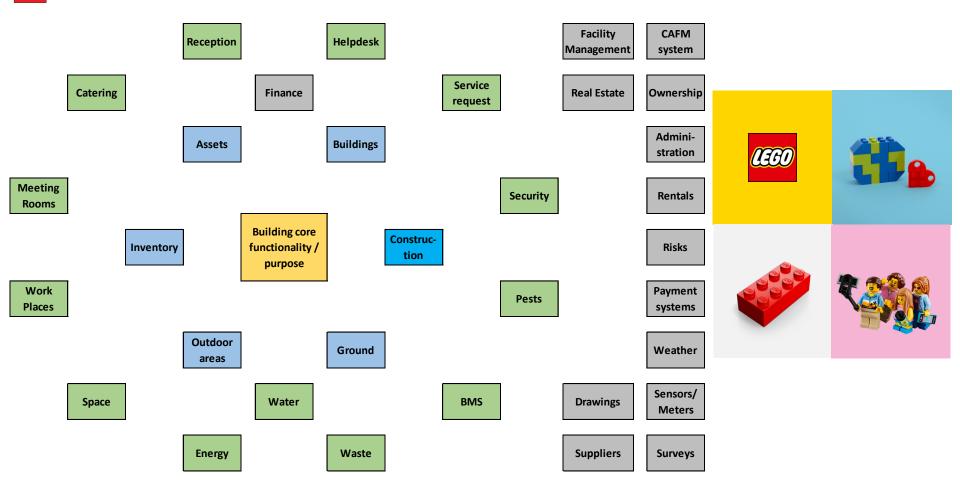




### Data i FM – hvilke data har vi allerede adgang til?



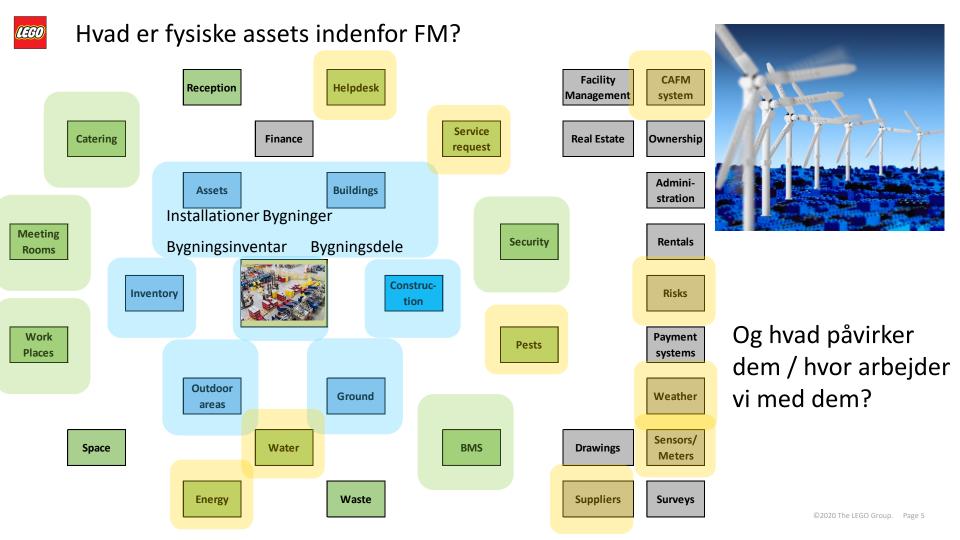
#### Data i FM – hvilke data har vi allerede adgang til?



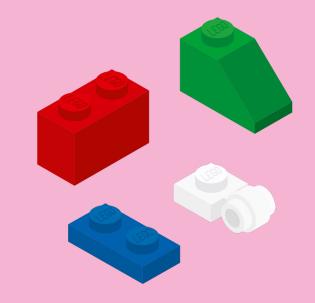


## Håndtering af data for fysiske assets (FM)



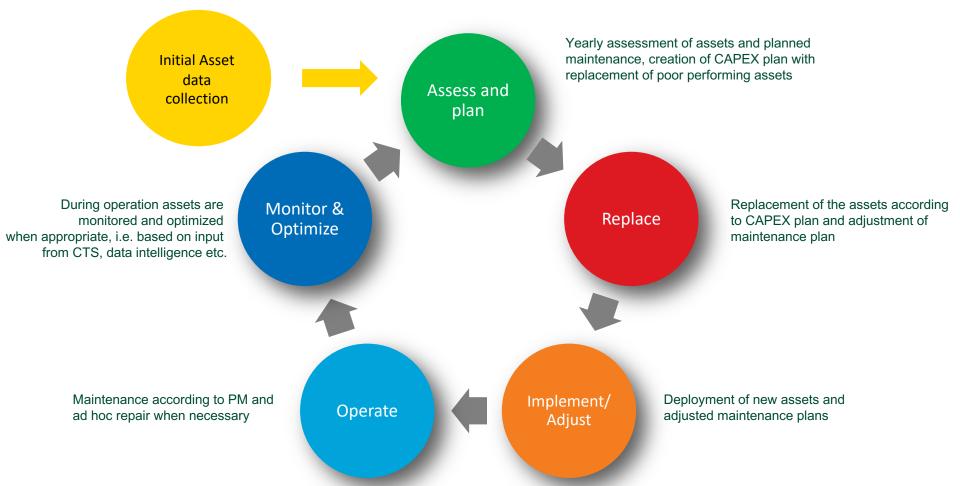


# Life Cycle Asset management

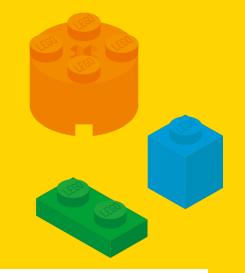


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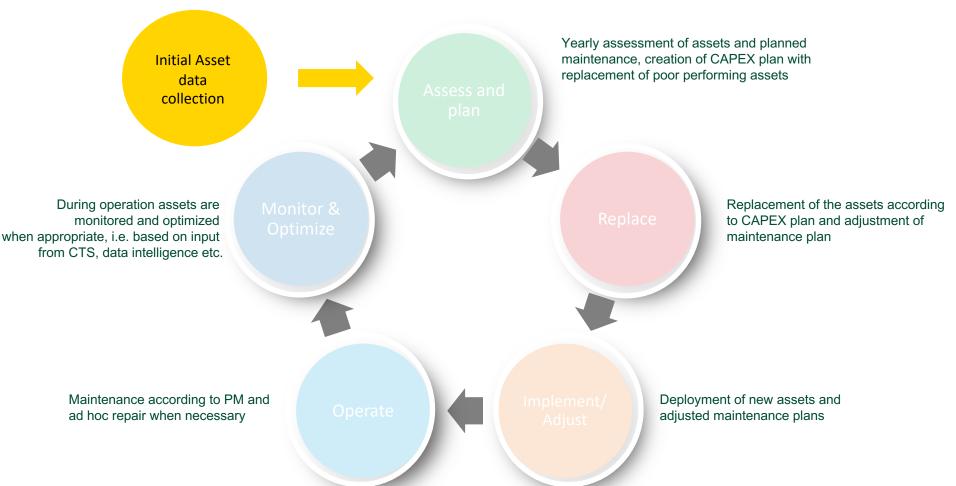
#### Life Cycle Asset management



## Initial Asset data collection



#### Life Cycle Asset management



A: Asset input in Facility Management System (FMS) off site						
1: Get asset data	2: Prepare data for upload / typing in FMS and create barcode (=QR code)	3: Upload /type in FMS	4: Create barcode (main rule = Asset ID) and QR code	5: Print label with QR code ("picture"), asset ID, asset name, Asset location, asset type		

B: Asset validation on site:							
1: Put label on asset	2: Scan QR code	3: Validate asset data (name, type, location)	4: Evaluate asset criticality	5: Evaluate asset condition	6: Estimate asset replacement cost	7: Save	

#### Criticality, Workorders and Replacement Cost

Criticality Assessment Rating		Workorders	Replacement cost mandatory with condition				
	Criticality Description	Workorders mandatory when handling	A: Beyond usefull life (<0, year)	B: End of life (½-2 years)	C: OK (3-6 years)	D: Good (>7 years)	E: As new (>10 years)
Safety	Life Safety, Fire Safety and Security systems	Yes	Yes	Yes	Preferably	No	No
Business critical	Asset w hich, w hen affected, w ill immediately impact the core business Asset w hich, w hen affected, can cause loss of use to entire facility or a critical system or area w hich w ill severely limit the intended function or image of the building	Yes	Yes	Yes	Preferably	No	No
Business support	Other important asset w hich, w hen affected, w ill cause an interruption, but for w hich time exists to recover before impacting business	Yes	Yes	Yes	Preferably	No	No
Site suport	Any other asset w hich, w hen effected w ill not have any business impact but causes annoyance or less comfort to the customer	No	Yes	Yes	No	No	No

#### GGO Asset Condition rating

A. Beyond usefull life: Expected EOL < 0,5 year

**B. End of Life**: Condition poor. Increased service interval, Can fail at any time, A Replacement (plan) should be considered, Expected EOL ½-2 years

**C. OK:** Condition, Expected EOL 3-6 years. A replacement/ condition improvement plan should be descussed with client.

**D. Good:** Condition. Expected EOL > 7 years.

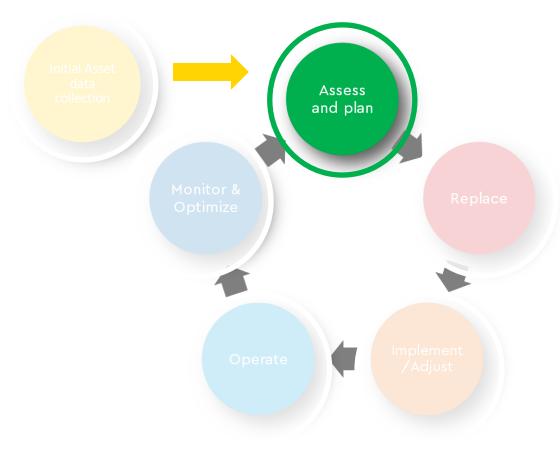
E. As New: New or as good as new Expected EOL > 10 years

NA: Not assessed: No validation of assets possible / available

## Assess and plan



#### Yearly Re-assessment of assets





- 1. Every year 5 months before budget year starts
  - · Re-assess conditions
  - Re-assess Criticality
  - Re-assess Replacement Cost for assets according to the agreed combination of condition and criticality:
- 2. Create suggested CAPEX plan with replacement of poor performing assets
- 3. Prior to budget process for next year discuss CAPEX plan
- 4. Create adjusted PM plan according to re-assessment and number of ad hoc maintenances in the past

#### 1f - asset Data collection - Life cycle vs. workorder historic

Asset Condition and Workorders Possible Asset End-of-life VOs on assets Planned Asset End-of-Life Calculated Statutory Proactive Equipment Category (AII) Architectural element Business - Productio Catering systems Cleaning Equipment Doors Electrical and Power HVAC systems Integrated Automat No category Safety Systems Vertical & Horizon iticality 1 Site Support 2 Business Support 3 Business Critical etails on WOs on assets 4 Life Safety Criticality Equipment Desc Asset cond., Year o., Workord., Work type Workorder Desc Criticality -✓ (AII) 417535 Planned PM/SHV9/1M/Peugeot 2 kontrol 2 Business Support ✓ 3 Business Critical 419967 Planned ✓ 4 Life Safety uset condition all Default CAPEX plan # Assets Assets per site Not Capex Year / Criticality Criticality 0 Offline CAPE CAPEX Year Further A Beyond usefull life XYe. CAPEX Year 3-5 B End of life (1/2 yea COK (>3 years) Trykluft - HEF D Good (>7 years) E As New Criticality 1 Site Support 2M ✓ 3 Business Critical ✓ 4 Life Safety Count Assets 500 1.000 1,455 ountry Cod sset details with workorders (ILA) ( Null Count Criticali Asset Equip Equipm Equipmer ry C... Site ty condition ... ment ... ent Su... Desc Criticali Asset Equip Equipm Equipment Installat Asset Replacem Workorde Workorder Due Date China ion Date End-o... ent cost Work type r Number Desc Ts ) Denmark Germany 20-04-2018 China BLA 1Site COK(>3 TEDA Support years) Decent A/C, Air 空间室外机 Air 011998 2024 Outdoor unit BL2.3.301 Great Britain Equipment Category Des (All) Null Air Terminal Units S... 25-10-2018 Outdoor unit BL2.3.301 85910 104744 conditioner 27-03-0utdoor unit 27-03-8L2.3.301 2019 Architectural Eleme. Architectural Eleme. Battery Equipment . 129172 Conditioner 08-10-0utdoor unit 8L2.3.301 2019 Central Cooling Equ. Central HVAC Equip. Cleaning Equipment conditioner 148842 Outdoor unit 01-04-BL 2 3 301 2020 Decentralized HVAC Dishwaher & Dispos...

Based on WO history, you may find argument to either up-grade or replace an asset.

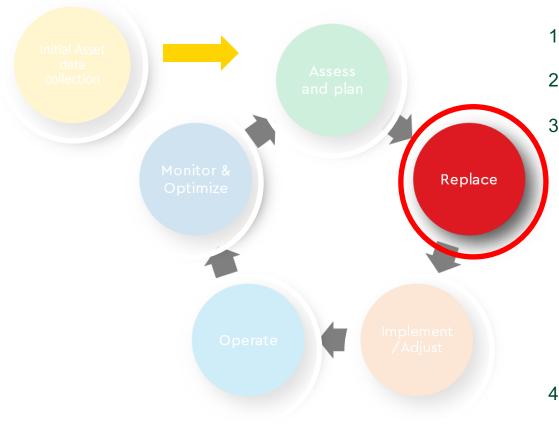
You may also experience a need for changes of the PM regime, either on frequency or job-plans or both.

Any change needs to be highlighted in order to agree/sign off the future impact to the OPEX and CAPEX budget

# Replace



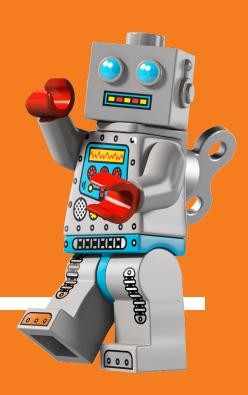
#### Replacement of assets



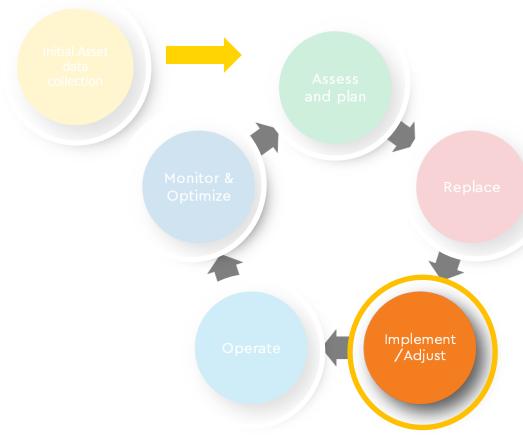


- 1. Present Asset Criticality categorization and suggested CAPEX
- 2. Secure approval of criticality categorizations
- 3. Get approval of
  - 1. Which assets needs to be replaced and agree on how to handle the replacement(CAPEX planning).
  - 2. How to handle assets in suggested CAPEX plan which are decided not to be replaced
    - 1. Increased maintenance cost, due to increased maintenance cost
    - 2. And/or accept of breakdowns due to lack of replacement
- 4. Plan and manage the replacement projects

## Implement / Adjust

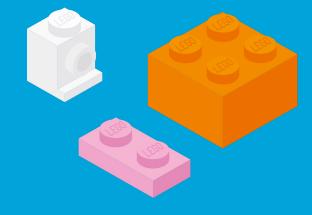


#### Implement and adjust PPMs



Component	Description	Frequency – E.g. every x. day, week, morium or year		Remarks	Documentatio	
	Re	quirements for				
Building envelop	e					
Door	Inspection of doors			1		in FMP
Window	Inspection of windows			1		in FMP
Exterior wall	Inspection of exterior walls			1		in FMP
Roof	Inspection of roof		6			in FMP
Flexible joint	Inspection/Replacement of flexible joints			5		in FMP
Outlet/Inlet	Inspection of outlets/inlets			1		in FMP
Overhead door	Mandatory inspection of overhead doors			1	Mandatory in Denmark.	Service docun FMP
Revolving door	Mandatory inspection			1	Mandatory in Denmark.	Service docun FMP

- 1. Deploy new assets and create PMs for these
- 2. Adjust PMs according to agreements with customer and/or according work order historic



## Operate

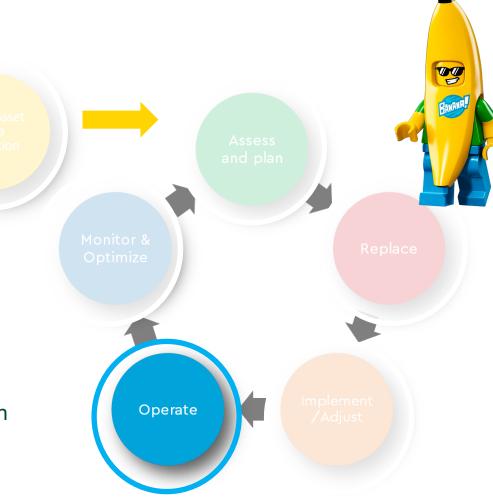
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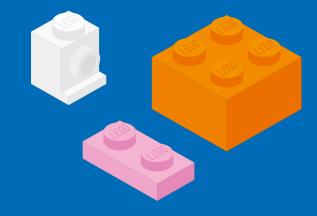


#### Daily operation of assets

- Maintenance according to PMs
  - Special attention to statutory maintenance
- Ad hoc repair when necessary
  - Special attention to registration of assets on ad hoc workorders based on asset criticality



# Monitor & Optimise

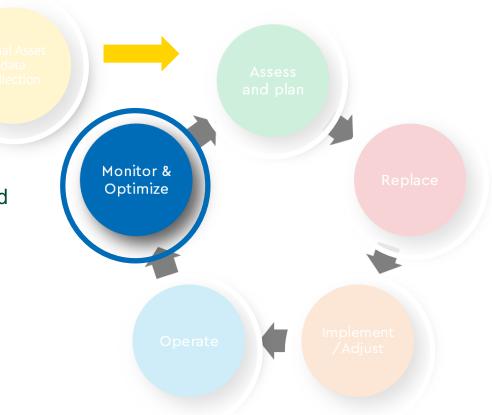


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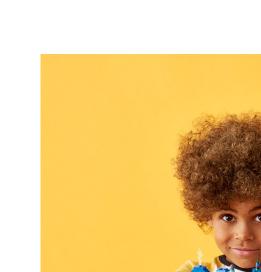
#### Monitor & optimize

During operation assets are monitored and optimized when appropriate, i.e. based on input from

- Manuel reports on errors/breakdowns
- BMS/CTS alarms
- Sensors
- Meters
- data intelligence re weather
- other



Dashboards for r	Dashboards for monitoring of assets		ASSET MANAGEMENT – CONDITION ASSESSMENT AND CAPEX PLANS			
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