# WORKSHOP ARQUITETURA E TÉCNICAS MUSEOGRÁFICAS 2016

# ICAMT

**de 9 a 14 de outubro de 2016**
**São Paulo**

ICAMT – Comitê Internacional para Arquitetura e Técnicas de Museus do ICOM – Conselho Internacional de Museus

Patrocínio

Apoio

Apoio Institucional

Organização

Realização

ToornendPartners
Building culture

# Sustainability for museums

**Jean Hilgersom**

October 11, 2016

# Sustainability

*What is Sustainable?*

- *Long-term thinking*
- *Needs of today*
- *Needs of the future*
- *Health and Vitality*
- *Resources*

ToorendPartners
*Building culture*

_São Paulo Museum Sustainability

# Sustainability

*What is Sustainable Development?*

# Sustainability

*What is Sustainability?*

- *Talent to be sustainable*
- *Talent to develop*
- *Talent to improve*

ToorendPartners
*Building culture*

_São Paulo Museum Sustainability

# Sustainability

*Sustainability in your Museum?*




- *Energy Use*

- *Water Use*

- *Indoor Environmental Quality*

- *Impact of Materials*

- *Management*

# Policy on Sustainability

- Museum buildings equipped with several sustainability features are not necessarily sustainable, the museum organization implement a policy and controls.

- To achieve a truly sustainable (museum) building, commitment with the museum vision, where sustainability as a target is elaborated, is essential.

- In order to embed this vision in the organization, leadership in the organization is required.

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# Commitment


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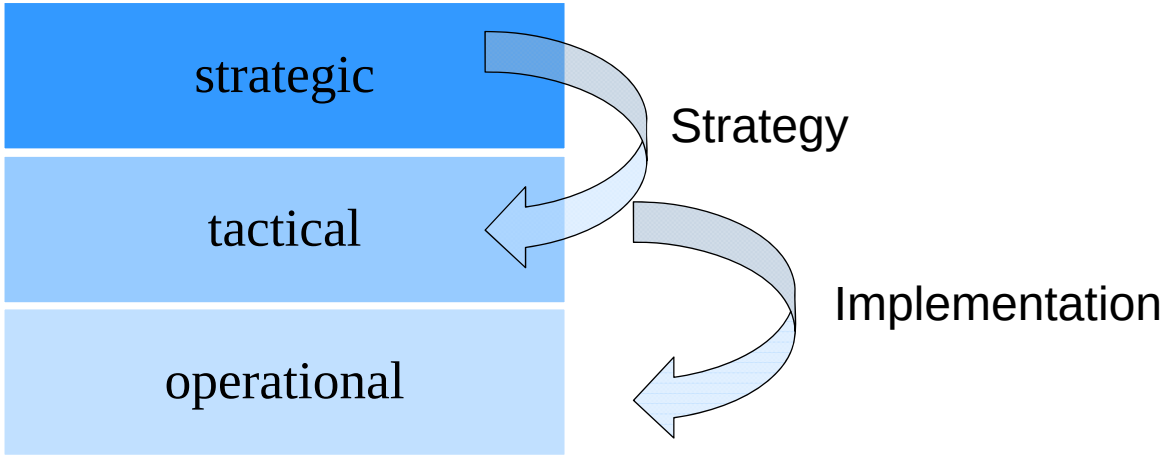
# Commitment

# Leadership

Why

How & When

What




levels

# Leadership


Why
How & When
What
strategic
tactical
operational
vision
targets / goals
leadership
action- / implementation plan
maintenance plan
communication
implementation
measurements
commitment
levels

# Implementation

*New Museum Building and Major Renovations*

*Existing Museum Building*

- *Energy Use*
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

## *New Museum Building and Major Renovations*

- ***Energy Use***
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Energy Efficiency
2. On-site Renewable Energy
3. Measurement and Verification
4. Benchmarking

## *New Museum Building and Major Renovations*

- ***Energy Use***
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Energy Efficiency
   - energy performance
   - approach of integrated design
   - computer simulation
2. On-site Renewable Energy
3. Measurement and Verification
4. Benchmarking

## *New Museum Building and Major Renovations*

- ***Energy Use***
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Energy Efficiency
2. On-site Renewable Energy
   - wind
   - solar
   - tidal
   - biomass
   - geothermal
   - …
3. Measurement and Verification
4. Benchmarking

## *New Museum Building and Major Renovations*

- ***Energy Use***
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Energy Efficiency
2. On-site Renewable Energy
3. Measurement and Verification
   - Meters by Type of Use
   - Meters by Level
4. Benchmarking

## *New Museum Building and Major Renovations*

- ***Energy Use***
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Energy Efficiency
2. On-site Renewable Energy
3. Measurement and Verification
4. Benchmarking
   - BREEAM
   - LEED
   - ENERGY STAR

# *Existing Museum Building*

- ***Energy Use***
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Optimize Energy Performance
2. On-site Renewable Energy
3. Measurement and Verification
4. Benchmarking

# *Existing Museum Building*

- ***Energy Use***
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Optimize Energy Performance
   - Improvement in use
   - Collect data to make decisions
2. On-site Renewable Energy
   - Investigate the use of solar panels
   - Life cycle costing by replacements
3. Measurement and Verification
   - Collect data to make improvements
4. Benchmarking

## *New Museum Building and Major Renovations*

- *Energy Use*
- ***Water Use***
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Indoor Water
2. Outdoor Water
3. Measurement
4. Water efficient products

## *New Museum Building and Major Renovations*

- *Energy Use*
- ***Water Use***
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Indoor Water
   - Reduce the use of potable water
   - Consider the use of rainwater and wasted water
2. Outdoor Water
3. Measurement
4. Water efficient products

# *Existing Museum Building*

- *Energy Use*
- ***Water Use***
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Indoor Water
2. Outdoor Water
3. Measurement
4. Water efficient products

# *Existing Museum Building*

- *Energy Use*
- ***Water Use***
- *Indoor Environmental Quality*
- *Impact of Materials*
- *Management*

1. Indoor Water
   - Improve the use of water
2. Outdoor Water
   - Use no potable irrigation water
3. Measurement
   - Collect data to make improvements
4. Water efficient products
   - Replacements

## *New Museum Building and Major Renovations*

- *Energy Use*
- *Water Use*
- ***Indoor Environmental Quality***
- *Impact of Materials*
- *Management*

1. Ventilation and Thermal Comfort
2. Moisture and Humidity Control
3. Daylighting
4. Low-emitting materials

## *New Museum Building and Major Renovations*

- *Energy Use*
- *Water Use*
- ***Indoor Environmental Quality***
- *Impact of Materials*
- *Management*

1. Ventilation and Thermal Comfort
   - balanced use for collection, building and human beings
   - use the inside air several times
2. Moisture and Humidity Control
3. Daylighting
4. Low-emitting materials

# *Existing Museum Building*

- *Energy Use*
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1. Ventilation and Thermal Comfort
2. Moisture Control
3. Daylighting
4. Low-emitting materials

# *Existing Museum Building*

- *Energy Use*
- *Water Use*
- ***Indoor Environmental Quality***
- *Impact of Materials*
- *Management*

1. Ventilation and Thermal Comfort
   - Reconsider use
2. Moisture Control
   - What is the standard
   - Dew Point analysis
3. Daylighting
   - Automated lighting controls
4. Low-emitting materials
   - Renewals
   - Exhibitions, carpets

## *New Museum Building and Major Renovations*

- *Energy Use*
- *Water Use*
- *Indoor Environmental Quality*
- ***Impact of Materials***
- *Management*

1. Recycled Content
2. Environmentally Preferable Product
3. Waste Management
4. Material Management

## *New Museum Building and Major Renovations*

- *Energy Use*
- *Water Use*
- *Indoor Environmental Quality*
- ***Impact of Materials***
- *Management*

1. Recycled Content
   - Use recycled materials
2. Environmentally Preferable Product
   - Find out where materials come from
3. Waste Management
   - Waste management plan
4. Material Management

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## *New Museum Building and Major Renovations*

- *Energy Use*
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- *Impact of Materials*
- ***Management***

1. Leadership
2. Integrated Design
3. Commissioning

## *New Museum Building and Major Renovations*

- *Energy Use*
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- ***Management***

1. Leadership
   - Vision
   - Plan what you do, do what you plan
   - Communicate
2. Integrated Design
   - Integrated planning and design process
3. Commissioning

# *Existing Museum Building*

- *Energy Use*
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- ***Management***

1. Leadership
2. Sustainable maintenance practices
3. Building Management plan

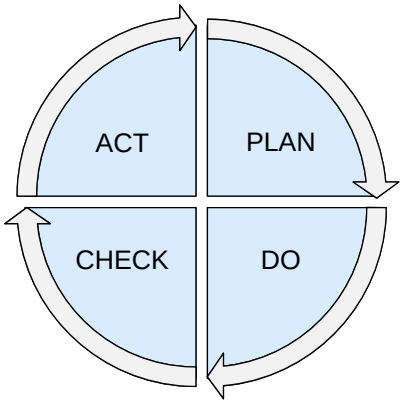
# *Existing Museum Building*

- *Energy Use*
- *Water Use*
- *Indoor Environmental Quality*
- *Impact of Materials*
- ***Management***

1. Leadership
   - Plan what you do, do what you plan
2. Sustainable maintenance practices
   - operational performance goals
3. Building Management plan

# Implementation

- From vision to implementation
- Planning the strategy
- Continuous quality improvement




- ACT define a vision
- PLAN construct the vision and define a strategy
- DO implement vision through strategy
- CHECK develop and improve goals in vision

# How to do things right

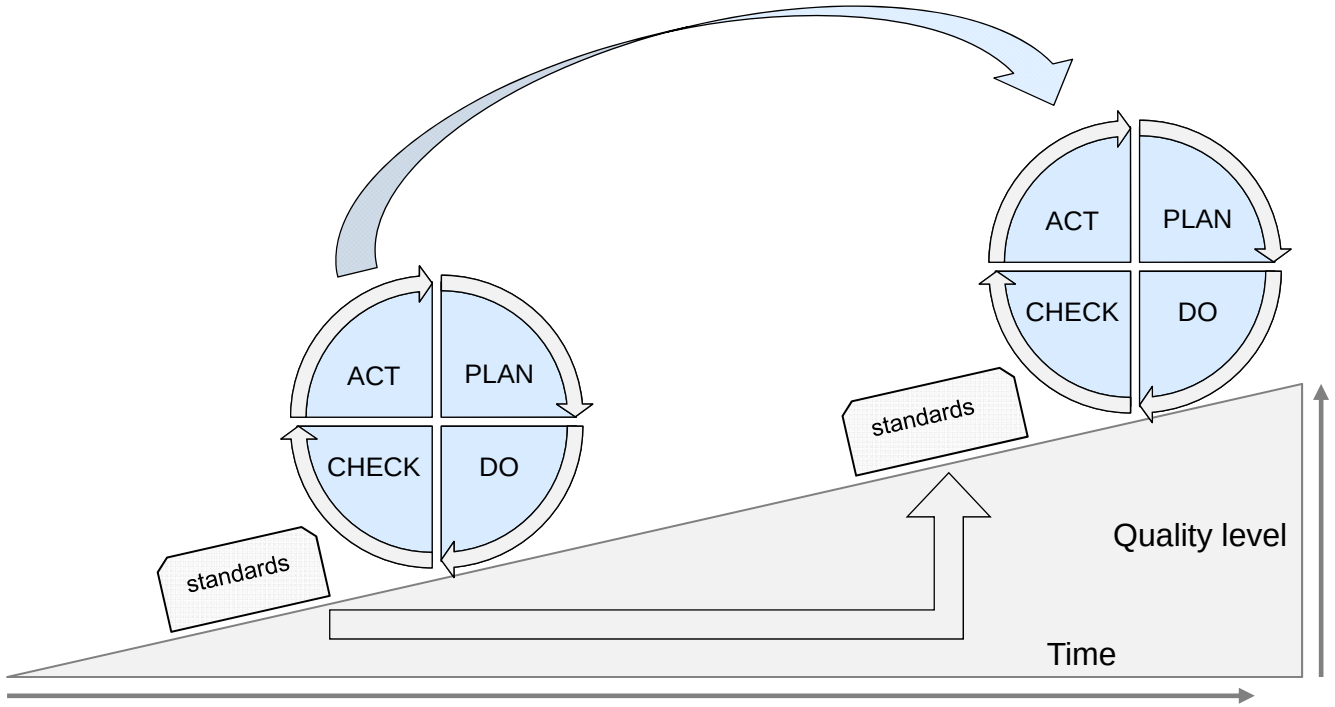
- Specify the targets you want to achieve in measurable terms
- Communicate vision and results to create commitment in organization
- Use ‘Life Cycle Costing’ for investments
- Check and accrediting methods
  LEED - BREEAM - Greencalc

# How to do things right

Management tools

- Continuous quality improvement
- Stagnation equals decline
- Set new standards
- Sustainability never ends!

# How to do things right



# Sustainability

- *Talent to be sustainable*
- *Talent to develop*
- *Talent to improve*

*Never ends!*

# Sustainability

## More Information:

- *Book: The Green Museum, Brophy and Wylie*
- *Website: https://portfoliomanager.energystar.gov*
- *Website: https://sustainabledevelopment.un.org*
- *Website: http://network.icom.museum/icamt/*
- …..

ToorendPartners
Voor bouwen en gebouwen

Sustainability Never Ends!

Thank You!

**http://www.toornend.com**

ToorendPartners

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