

AIA Information

Credit(s) earned on completion of this course will be reported to American Institute of Architects (AIA) Continuing Education Session (CES) for AIA members.

Certificates of Completion for both AIA members and non-AIA members are available upon request.

This course is registered with AIA CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

AIA
Continuing
Education
Provider

Course Description

This course will provide a discussion of total cost of ownership and how it applies to higher education facilities. The focus will be on survey results, real life application, and how to implement in higher education facility settings. Discussions will include challenges and opportunities.

AIA
Continuing
Education
Provider

Learning Outcomes

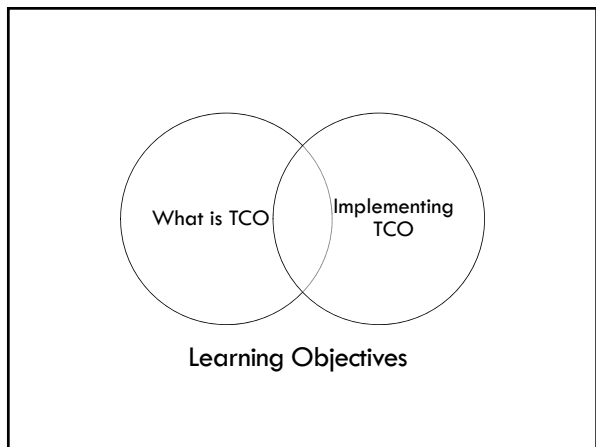
Learning Objective 1:
Learn the benefits of Total Cost of Ownership.

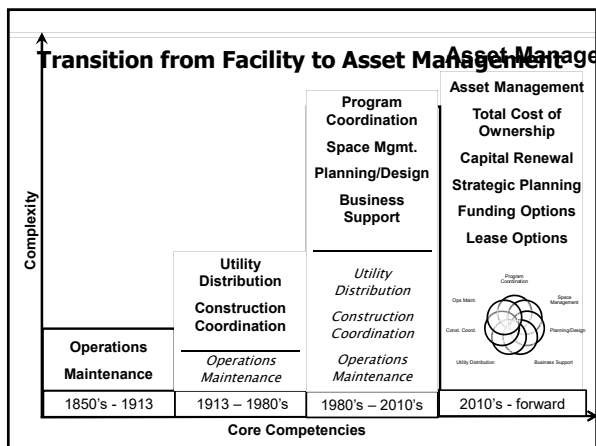
Learning Objective 2:
Learn strategies for implementing a TCO approach.


Learning Objective 3:
Learn the differences between first cost, Life Cycle Costing (LCC) and TCO.

Learning Objective 4:
Learn how to take advantage of big data.


AIA
Continuing
Education
Provider






Radical Approaches 


FCI Preventive maintenance
Predictive analysis (R&R)
LCCA AGE & CONDITION OF SYSTEMS
Historical Costs LCC
 Benchmarking


Total Cost of Ownership

© Copyright APFA. All rights reserved.

TCO – Definition PUBLISHED


A **holistic approach** to maximizing return on investment of managed physical assets that includes the **summation of all known and estimated costs** to include first, recurring, renewal / replacement and end-of-useful life costs revised at critical decision points to **aid in life-cycle asset management decisions.**



Copyright © APPA 2018. All rights reserved.

“The bitterness of poor quality remains long after the sweetness of low price is forgotten.”

Benjamin Franklin



Copyright © APPA 2018. All rights reserved.


TCO and Your House



Copyright © APPA 2018. All rights reserved.

- Initial Asset Costs/First Costs (One time)
- Operations & Maintenance(Reoccurring)
- Utilities (Reoccurring)
- Renewal and Replacement (Periodic)
- End of Useful/Functional Life (One Time)

TCO Cost Groupings




Total Cost of Ownership

$$TCO = C_a + C_b + C_c + C_d + C_e$$

Where:

- C_a = Initial Asset Costs / First Cost (one Time)
- C_b = Cost of Operations and Maintenance (Recurring)
- C_c = Cost of Utilities (Recurring)
- C_d = Cost of Renewal
- C_e = Cost at End of Useful / Functional Life (One Time)

= TCO




Please note this is pre-decisional TCO material and not yet the product of the APPA 1000 committee.

Information Sharing

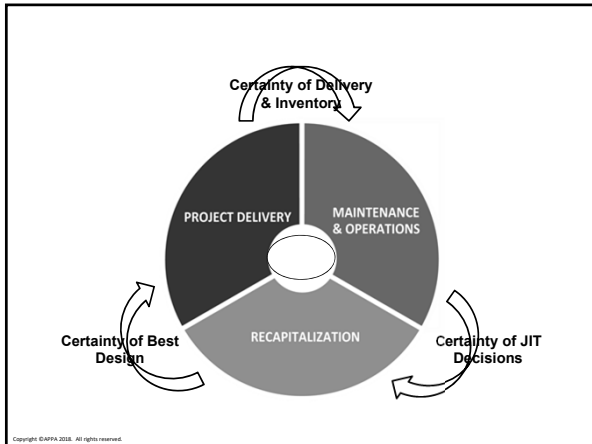
Nearly every piece of information today is available electronically at some point in its life...

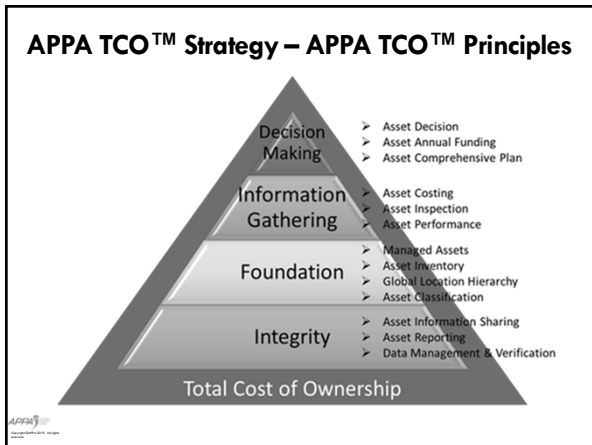
Forward Thinking Approach
Information sharing, cumulative information gained, efficiency increases result in more information

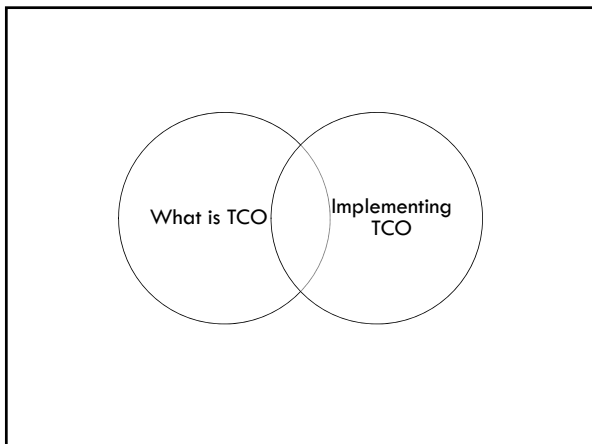
Value of Improvement (ROI)
Information collected one time
Supports decision making over the life of the facility

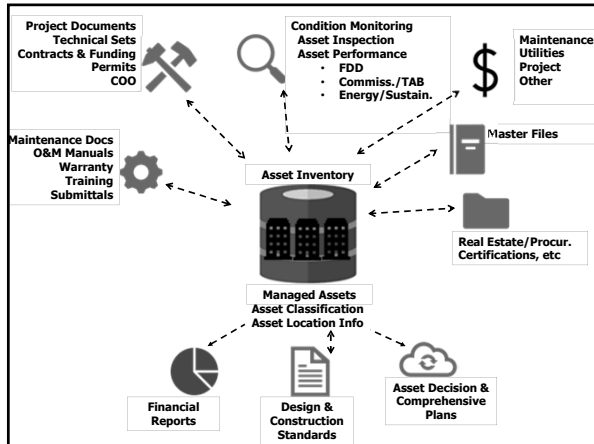


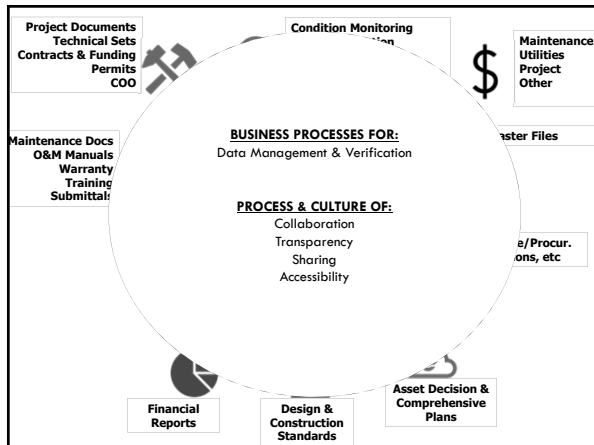
© Copyright APPA. All rights reserved.





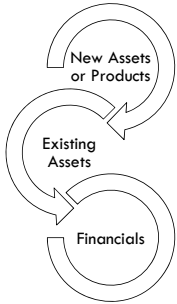








SCALABLE
small to large
one or many
basic to complex



New Building

- Costs
- Mission
- Standards

New Asset

Roof System



Existing Asset

Past costs + future costs
for each of the five decisions

Do nothing
Repair
Retrofit/Renew
Replace

Existing Asset

The diagram shows a horizontal bar representing the 'Life of Asset' with a total duration of '20 YRS'. A vertical line marks the start of the asset's life at '5 YRS'. Below the bar, three cost categories are identified: 'First \$' (at the 5-year mark), 'Reoccurring \$' (between 5 and 20 years), and 'Future \$' (at the 20-year mark). Brackets indicate that 'First \$' and 'Reoccurring \$' are 'Estimated or Actual', while 'Future \$' is 'Estimated based on estimates or actuals'. The text 'Past costs + future costs' is written below the diagram.

Past costs + future costs

Existing Asset

© Copyright APRA. All rights reserved.

Reporting
System Name
System Cost
System Age
System Life Cycle

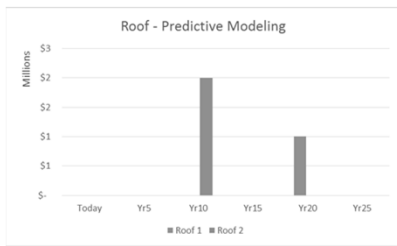
Financials

Predictive Modeling

System Name	System CRV	System AGE	System LCC
Roof 1	\$ 1,000,000	New	20
Roof 2	\$ 2,000,000	10	20

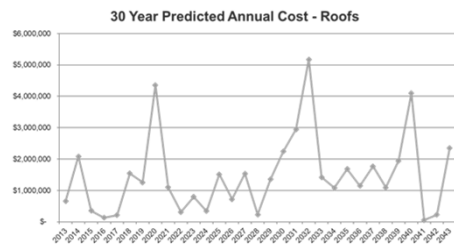
Financials

Example by Ana Thieme



Financials

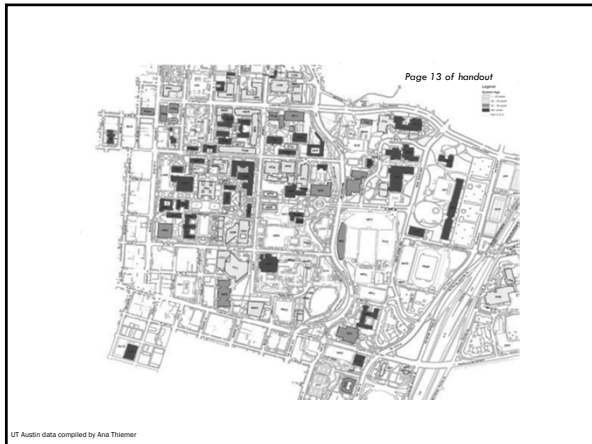
Example by Ana Thieme

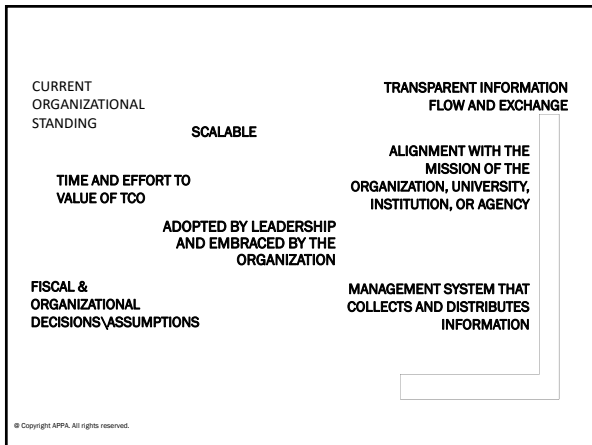


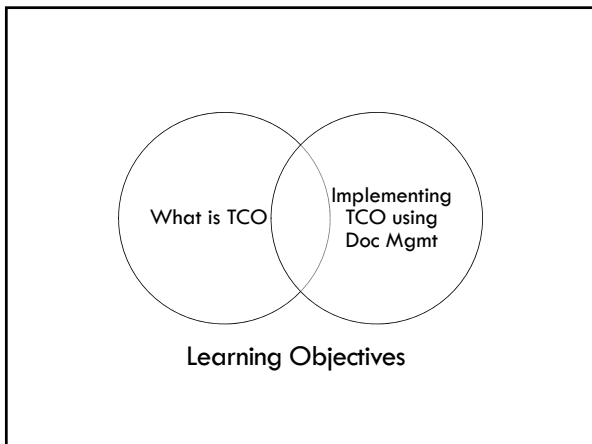
Financials

UT Austin data compiled by Ana Thieme

30







APPA TCO™ Definition

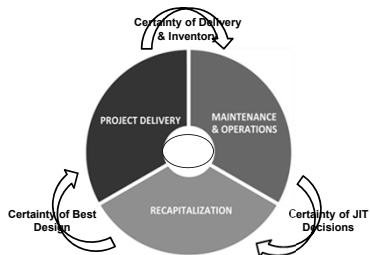
A holistic approach to maximizing return on investment of managed physical assets that includes the summation of all known and estimated costs to include first, recurring, renewal / replacement and end-of-useful life costs revised at critical decision points to aid in life-cycle asset management decisions.

© Copyright APPA. All rights reserved.

APPA TCO™ Strategy – APPA TCO™ Principles



© Copyright APPA. All rights reserved.



© 2018 Turner, Inc.

This concludes The American Institute of Architects
Continuing Education Systems Course.

AIA
Continuing
Education
Provider



**APPA TOTAL COST
OF OWNERSHIP**
the APPA 1000™ Standard
and Document Management

Ana.Thiemer@Austin.utexas.edu

© Copyright APPA. All rights reserved.
