


APPA FPI


MOVING BEYOND THE BIG PICTURE

Ted Weidner, Ph.D., PE, AIA, CEFP
Associate Professor, Purdue University




AGENDA/OBJECTIVES

- FPI Basics
- Digging Deeper
- Developing the Structure
- Upcoming Research
- Discussion



FPI BASICS

- Focus on campus key measures
- Some basic KPIs (Key Performance Indicators)
- Campus-wide, not individual buildings



WHY USE ANY MEASURES?

Not everything that counts can be counted, and not everything that can be counted counts.

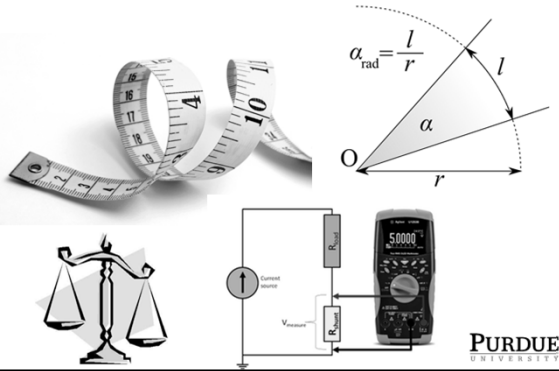
Albert Einstein

If you don't know where you're going, any road will take you there.

Cheshire Cat, Alice in Wonderland



WHAT TOOLS EXIST TO MEASURE?



APPA FPI

What FPI Doesn't

- > Solve campus condition, growth, or service levels – these are your job.
- > Answer questions about individual buildings or systems – *more tomorrow.*

What μFPI is

- > Using FPI as a guide to track individual buildings.
- > Understanding your facilities better
- > Participating in research into the advantages of planned preventive maintenance (PPM)



HOW TO MEASURE

FIRST, KNOW YOUR CAMPUS

- What kinds of buildings do you have?
- How are the buildings performing?
- What building components do you have?
- How much time to maintain components?



WHAT TO MEASURE

THREE ESSENTIAL QUESTIONS

- Who is going to use the data –
understanding the problem
- What data will be collected and how –
defining the solution
- How will the data be maintained –
ensuring integrity & confidence (present and future)



PERFORMANCE MEASUREMENT





AN EVOLUTION

- First Generation:**
Are facilities expenditures comparable to peers?
- Second Generation:**
Are we maximizing the resources committed to sustaining our facilities portfolio?
- Third Generation:**
Can we make better operational decisions with our facilities data?



FIRST GENERATION SOLUTIONS





COMPARISON CHARACTERISTICS

 Function	 Size	 Age	 Demands
Classroom	Small	New	Low
Laboratory	Medium	3 – 10 years	Medium
Office	Large	11 – 25	High
Other Use	Very Large	25 – 50	Very High
Residential		50+	

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FIRST GENERATION SOLUTIONS


COMPARISON TARGETS

 COST PER GSF	 COST PER SFTE	 FACILITY CONDITION INDEX (FCI)	 ENERGY COST PER GSF
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SECOND GENERATION

BEST PRACTICES (EXAMPLES)




Customer Satisfaction per Cost per GSF




Facility Condition Index per Cost per GSF

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**THIRD GENERATION
BENCHMARKING**



DEVELOP GOALS



EVALUATE



MODIFY

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BENCHMARKING TOOLS

<p>FPI ratios</p> <ul style="list-style-type: none"> ✓ AFOE – Annual Facility Operating Expenditures ✓ GIE – Gross Institutional Expenditure ✓ CRV – Current Replacement Value ✓ Customer Surveys ✓ Energy Consumption 	<p>μFPI ratios</p> <ul style="list-style-type: none"> ✓ μAFOE – Annual Building Operating Expenditures ✓ μIE – Institutional Expenditures within the Building ✓ μCRV – Building Replacement Value ✓ μPU – Building Utility Expenditures ✓ ηTime – Maintenance time per Component
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WHAT DOES μFPI LOOK LIKE?

- Facility Condition Index - FCI
- Current Replacement Value - CRV
- Building Area (GSF, NSF, CSF, NASF)
- Annual Facility Operating Expenditures – AFOE
- Annual Maintenance Hours
- Energy Consumption (kW, mmBTU)
- Water Usage
- Customer Satisfaction Survey
-
- Others ...

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WHAT DOES nFPI LOOK LIKE?

- Condition Index
- Replacement Value
- Annual Maintenance Hours
- Annual Material/Commodity Expenditures
- Number of maintenance actions
- Operating Efficiency – Energy Output/Input

- Others

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DEVELOP GOALS

Align	Identify	Deliver
<p>Align FS mission with that of University mission</p> <ul style="list-style-type: none"> • Understand the mission for each building. • (e.g.) Create focus for facilities, and staff 	<p>Identify what outcomes meet your goals</p> <ul style="list-style-type: none"> • Delivery of reliable services (service when promised) • (e.g.) 'FedEx' like status of work orders and other services 	<p>Deliver the services occupants want</p> <ul style="list-style-type: none"> • Service Level Agreements (SLA) <ul style="list-style-type: none"> • Individual • Uniform • Support where appropriate

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SERVICE GOALS

- ✓ Work order backlog
- ✓ Reactive Work Order Percentage
- ✓ Identify benefits of PPM
- ✓ Focus PPM where it counts

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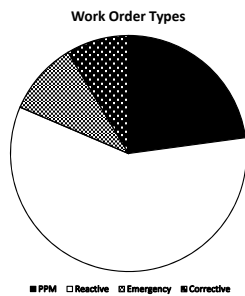
UPCOMING RESEARCH

Analysis of CMMS data from higher education facility organizations to identify any differences between time expended for planned preventive maintenance (PPM) and unplanned maintenance (UPM).

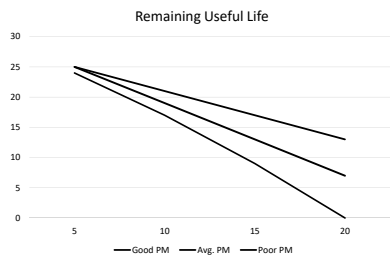
- Explore the current status of PPM in universities
- Investigate the practical issues of PPM
- Identify the gaps between the current practice with the expectation

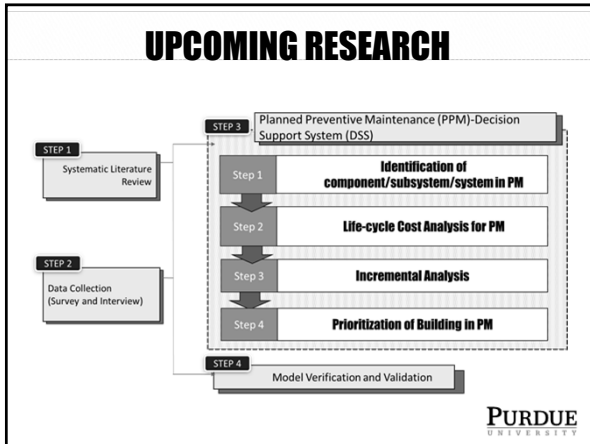


WORK DISTRIBUTION POTENTIAL STARTING POSITION



PREVENTIVE MAINTENANCE vs. COMPONENT LIFE THEORETICAL EFFECT OF PM ON REMAINING USEFUL LIFE





SOLICITING VOLUNTEERS

WHAT IS THE COMMITMENT?

- ❖ Provide selected fields from institutional CMMS focused on PPM and UPM
- ❖ Data organized by building component
- ❖ Minimum 12-months of data, multiple years ideal
- ❖ Confidentiality via APPA if desired

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WIIFM

What is the benefit to volunteer?

- ✓ Help with the validation of PPM over 'just let things happen'.
- ✓ Confidential analysis of your facilities organization demonstrating the cost/benefit of PPM.

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SURVEY PARTICIPATION

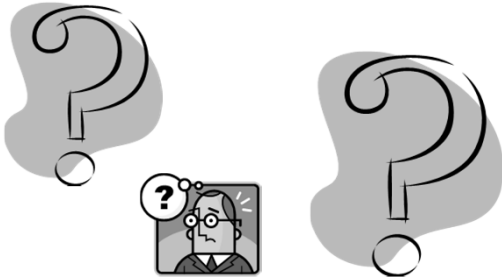


https://purdue.ca1.qualtrics.com/jfe/form/SV_e3AssKwgt0Z10nX

Using your phone, the QR code leads to the research survey.



WHAT'S NEXT?



“ IT IS THE CAPACITY FOR MAINTENANCE WHICH IS THE BEST TEST FOR THE VIGOR AND STAMINA OF A SOCIETY. ANY SOCIETY CAN BE GALVANIZED FOR AWHILE TO BUILDING SOMETHING, BUT THE WILL AND THE SKILL TO KEEP THINGS IN GOOD REPAIR DAY-IN AND DAY-OUT ARE FAIRLY RARE.”

Eric Hoffer, Working and Thinking on the Waterfront