Data Driven Change Execution Tools
Using FPI & Other Data Sources

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Course Description

Data driven change execution tools using FPI and other data sources

Change management and "big data" are current themes within our industry. Data driven change is the combination of both best practices.

The University of Chicago Facility Services has developed tools to enable their front-line and mid-level managers to use the APPA FPI and other data sources to execute data driven change within their individual service centers.

This new approach is spread through train-the trainer style instruction and easily applied by each individual manager. It is based on the 4 Essentials of Execution from APPA's Leadership Academy.

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The Mission!

Implement a Planned Maintenance Program
that
Generates the Majority of the Benefits
without
The Cost Normally Associated with PM Programs in the Past

(In other words, keep doing more with less)

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Learning Objectives

- Repeatable template for change
- Simple interpretation of lead and lag measurements within your service center
- Scrutinize "big data" and make it useful to drive change
- Reporting tools to demonstrate results

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Overview & Agenda

1. The Four Data Questions
2. Defining APPA's 4 Essentials of Execution
3. Infrastructure Resiliency Model
4. Applying the 4 Essentials of Execution
5. Measuring and Transparently reporting Data Driven Decisions

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"If we have data, let's look at data.

If all we have are opinions, let's go with mine."

-Jim Barksdale, former Netscape CEO

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Data-driven Culture

A data-driven culture is when an organization's progress is measured using data rather than intuition (gut feel) or past examples (personal experience).

In the scientific world this is usually referred to as evidenced-based decision making.

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Four Data Questions

1. I.D. & Need – Standard Approach

2. Source – FPI & internal sources

3. Validity/Accuracy – Check for "normalcy of data"

4. D.S.S. = Data Support System – How will data be "served" so that timely, accurate, usable

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I.D. & Need – Standard Approach to Select Data

1. State your "Mission"
   a) Example: "Implement PM to maximize resiliency with reduced budget"
2. Define your questions.
   a) Which factors impact my mission most?
   b) Can I measure these factors clearly and concisely?
   c) Example: "Do mechanical room conditions impact system resiliency?"
3. Cost/Effect – Risk Mitigation; the rationalization of the data that we are collecting to get the biggest impact.
   a) Score each question based on perceived "impact."
   b) Try to pick top 3 and no more than 5 data points.
   c) These data points will drive your Key Performance Indicators (KPI.s)

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Source – Pre-existing or new

1. Always start with assumption the data already exists within your grasp.
   a) Attempt to locate data to support your selected KPI.s without new data or systems.
   b) Search APPA's FPI data
   c) Poll peers with similar initiatives using the APPA Listserve.

2. Only after exhaustive efforts have been used to find existing data should new resources be devoted to collect new data.
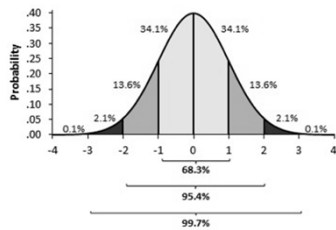
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Validity/Accuracy

1. FPI data is statistically assessed during the collection and review phase.
2. A simple test for the Normal Distribution of data can be applied using excel or manually.

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D.S.S. = Data Support System

1. Simple, easily updated & maintained but most of all "Actionable."

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WIG Builder

(Verb) (measure) from (X) to (Y) by (when)

$\underline{\text{Increase}}$ $\underline{\text{Graduation Rates}}$ from
(Verb)   (measure)

$\underline{65\%}$ to $\underline{75\%}$ by $\underline{\text{End of Academic Year}}$
(X)   (Y)   (when)

Use the space below to craft your WIGs.

1.

2.

3.

(Verb) (measure) from (X) to (Y) by (when)

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Lead-Measure Builder

80/20 ACTIVITIES	LEAD MEASURES
Example: Serving of bench warrants	Number of warrants attempted every eight-hour patrol.
1.	
2.	
3.	

Lead-Measures Credibility Test

	Yes	No
Do the lead measures predict results?	☐ Yes	☐ No
Can they be influenced weekly?	☐ Yes	☐ No

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"It is either easy or impossible"

– Salvador Dali

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APPA - 4 Essentials of Execution

1. **Focus on the Wildly Important**

   Our primary function as seen from our institutional leaders perspective is to identify and **eliminate, mitigate and manage risk** to safety and business continuity

2. **Act on the Lead Measures**

   Risk is measurable and, with data-informed probability, risk is predictable

3. **Keep a Compelling Scoreboard**

   Identifying those risks that have been eliminated or mitigated is compelling – identifying those that we are still working on even more so

4. **Create a cadence of Accountability**

   Accountability comes naturally since we are focusing on the Wildly Important as viewed from leadership's lens

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Infrastructure Resiliency Model – Resiliency Defined

Resiliency = Redundancy + Reliability+ Recoverability

Redundancy – backup for critical systems where safety or business continuity risk dictate no disruption

Reliability – enhanced quality of system and system maintenance where safety and business continuity risk dictate minimal disruption

Recoverability – ability to quickly restore normal operating conditions following a disruption to systems

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Infrastructure Resiliency Model – 5 Steps

1. Identify Risks (Environmental, Technological, Human)

2. Prioritize Risks (Probability and Severity)

3. Eliminate, Mitigate or Manage Risks (Policies, Processes and Projects)

4. Transparently Report Progress (Engage stakeholders including leaders)

5. Update the Model (Probability and Severity changes over time)

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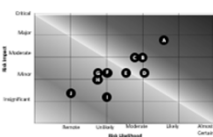
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Infrastructure Resiliency Model – Output

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Applying IRM through the 4 APPA Disciplines of Execution

- Focus on the Wildly Important:
  - IRM: Resiliency = Redundancy + Reliability+ Recoverability

  - WIG: Decrease Inherent Risk Impact Score from Inherent Rate (51.3) to Targeted Rate (24.0) by first Trustee meeting of CY 2020.

- Leverage: Act on the lead measures

- Engagement: Keep a compelling scoreboard

- Accountability: Create a cadence of accountability

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Lead Measure to Achieve the WIG

What -- Reduce exposure (Impact Score) to disruptions in operations & large costs to recovery from emergencies.

How -- Increase Compliance (Completion) of Preventive Maintenance Work Orders to 85% each month by the end of Fiscal year 2018

Part of a multi-pronged approach:
- Automated Rounds to determine Follow Up WO's
- Mechanical Room Inspections
- Service Level Agreements
- Defined Capital Project/Renovation turnover process

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Preventive Maintenance Compliance
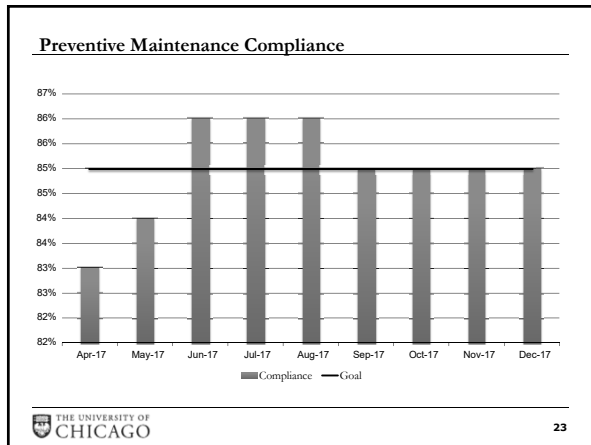

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Application of the Four Data Questions:

- Identify the Source of Data, Validity/Accuracy of Data, Cost & Effect and Data Support System:
- Using *Pareto Principle* we focused on Preventive WO's
  - o PM is the Work Type (in CMMS)
  - o Integrate *Levels* of PM
    - ✓ PM Level I = Most simple; Inspections & Routine Tasks
    - ✓ PM Level II = Adjustment, testing and minor upkeep
    - ✓ *Excluded* Rounds
- KPI measurement excludes any PM WO which does not show the use of $ or Labor
- Must have a "PM" & Job Plan in our CMMS
- Next up for Assets/PM WO's:
  - o Compliance % categorized:
    - ✓ Life Safety
    - ✓ Critical Asset
    - ✓ Non-Critical Asset

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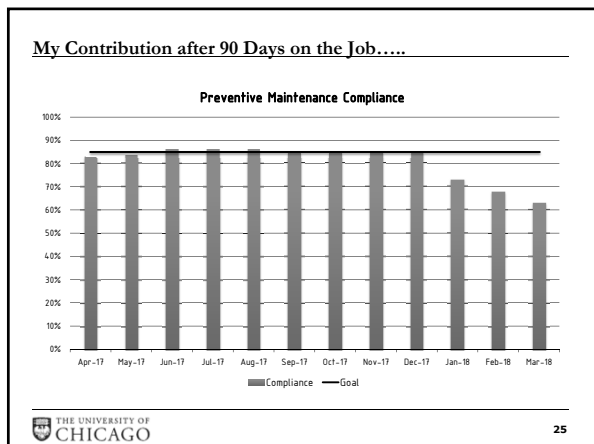## My Contribution after 90 Days on the Job…..

Preventive Maintenance Compliance

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Engagement: Keep a Compelling Scoreboard

- Openly and regularly discuss Key Performance Indicators & Reporting
  - o Who uses this and what do you use it for?
  - o Measure KPI Validity & Accuracy
  - o If we remove & no longer publish this KPI, what is the impact?
- Display/Communicate your big data–
- Must be predictable & repeatable to generate "Consistent Reliable Data Management"
  - o WO's created at an expected date, time, interval
  - o Quarterly meetings, check–ins, feedback
  - o Accepting input makes it *compelling*

Next up: Floating–to–Fixed, Fixed–to–Run Time, Run Time to Hybrid
(condition based/fixed/floating)

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Interpreting your "Big Data"

- Address your WIG's by engaging Stakeholders

  ✓How will the exact same challenge be addressed from:
  - ✓Trade Shops
  - ✓Engineering
  - ✓Procurement
  - ✓Capital Projects
  - ✓EH&S,
  - ✓Finance
  - ✓Work/Call Center
  - ✓Planning Department

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Rigorous Inquiry against Lead Measures

Source of your "big data;" is it accurate & valid?

- We questioned the validity of our 21,000 Assets and spent the better part of 8 months planning, executing an Asset Verification evolution

- How are new Assets inputted into your CMMS?
  o Break down Data Silos

- Institute an annual Audit of all Assets in CMMS:
  o Verify association with a PM

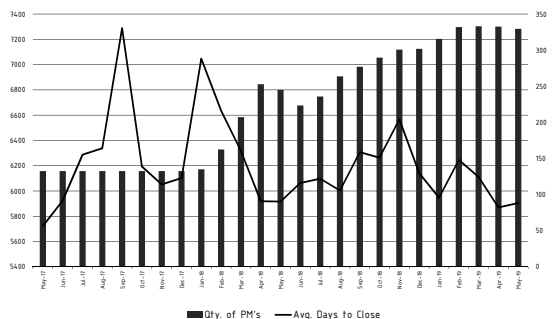- Compare "actual hours" on PM WO's across departments/shops

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A Compelling Scoreboard Leads to Accountability

■ Qty. of PM's — Avg. Days to Close

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Create a Cadence of Accountability

Focus on the Quality of the Process

- Resiliency = Redundancy + Reliability+ Recoverability
- What is/is not getting done each PM cycle and why?
- Is your process integrated with others; i.e. Facility Condition Assessments?
- Is it actually impacting the reliability one way or the other?
- Start collecting, re-visit when you can trend and make determinations
- "Clients/Customers have a voice
  o Service Level Agreement discussions
  o What is the history and purpose of the building?

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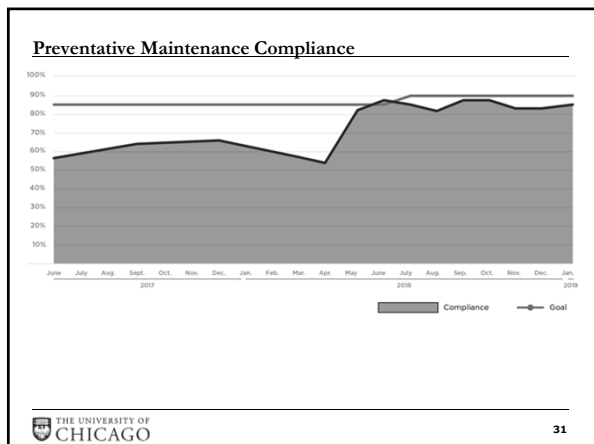
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Preventative Maintenance Compliance

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Year of WO Creation

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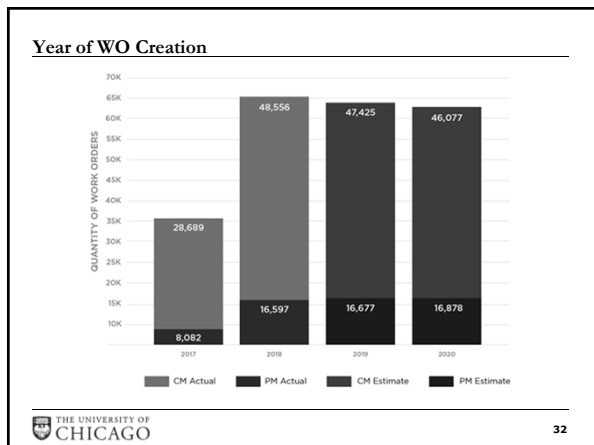
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