



STRATEGIC ASSET MANAGEMENT: AN EMERGING PORT MANAGEMENT IMPERATIVE

AAPA MTMT Program
Philadelphia
October 6-10, 2014

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STRATEGIC ASSET MANAGEMENT—WHAT IS IT?

Strategic Asset Management: “...coordinated activity of an organization to realize value from assets.” (ISO 55000)

“Asset management policy is the link that connects strategic and business goals to the physical asset portfolio.”

DRIVERS LEADING TO BETTER ASSET MANAGEMENT PRACTICES

- **Aging infrastructure**—Uncertain condition and life expectancy
- **Inadequate capital resources** – Scarce public capital, cautious private capital, and totally inadequate internal resources
- **“Preventative maintenance”** --Too typically ‘run-to-failure’
- **Deferred maintenance**--Substantial but uncertain
- **“Deficient and silo’d data** — Not enough, not the right kind, not in the right places
- **Uncertain level-of-service requirements**—What performance is required? By whom? For how long?
- **Capital planning**—Ad hoc investment prioritization
- **Leaseholder responsibilities**—Ill defined, and not monitored
- **Human resources**--Retiring ‘Boomers’ and loss of institutional knowledge

CONSEQUENCES

- Unpleasant surprises—facility failures
- Inconsistent, opaque decision processes
- Suboptimal allocation of scarce capital
- Higher than necessary repair and maintenance costs; longer down times
- Lack of confidence by Board and senior management
- Damaged reputation among critical stakeholders and customers
- Due diligence challenges – “what is the value of this facility?”
- Lower employee morale (fixing same thing over and ...)

SAM STATE OF THE PRACTICE--USDOT

MAP 21—Section 150(e): Enacted July 2012

STATE PERFORMANCE MANAGEMENT.—

“(1) IN GENERAL.—A State shall develop a risk-based asset management plan for the National Highway System to improve or preserve the condition of the assets and the performance of the system.

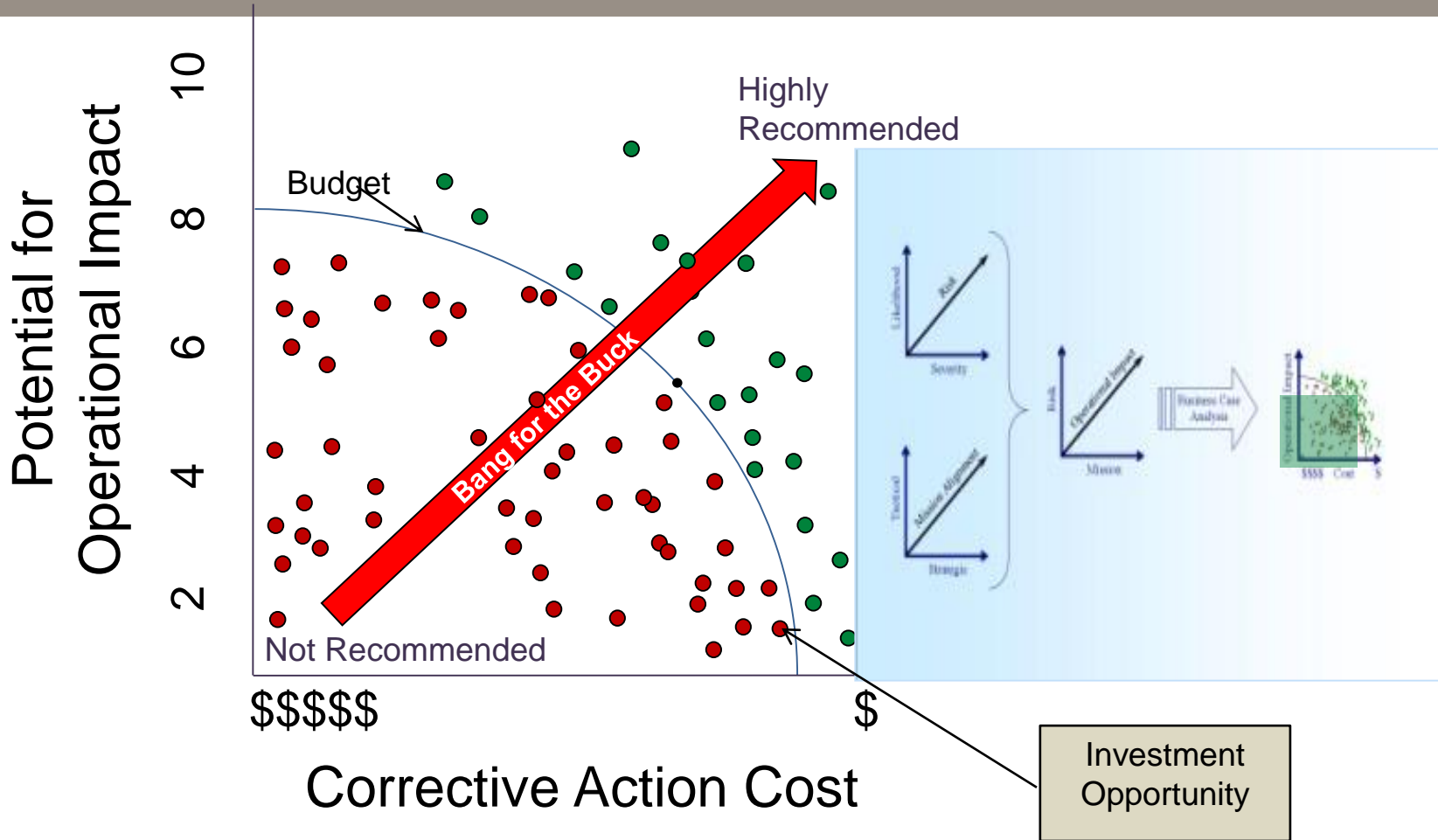
“(2) PERFORMANCE DRIVEN PLAN.—A State asset management plan shall include strategies leading to a program of projects that would make progress toward achievement of the State targets for asset condition and performance of the National Highway System ...

“(3) SCOPE.—In developing a risk-based asset management plan, the Secretary shall encourage States to include all infrastructure assets within the right-of-way corridor in such plan.

SAM STATE OF THE PRACTICE: US COAST GUARD (2002-Present)

- Develop performance standards for shore infrastructure assets based on their intended uses.
- Assessment of ability of current assets to meet those standards.
- Three step process
 - Development of a prototype set of “facility readiness scales” that allowed facility operators and users to set thresholds for minimum performance (i.e. service) levels that their assets were expected to meet, and to rate the ability of their assets to meet those standards;
 - Identification of key performance indicators or data metrics that would be used to prioritize investments; and
 - Implementation of a database system to support such a process. The Facility Readiness Gap (FRG) measures the delta between the support requirements of an asset user and the level of asset support actually provided to the user.
- Process was successfully used to support successful prioritization all AM projects associated with the six largest USCG installations in Pacific Area of the USCG.

Evaluation of Risk to Mission—Business Case



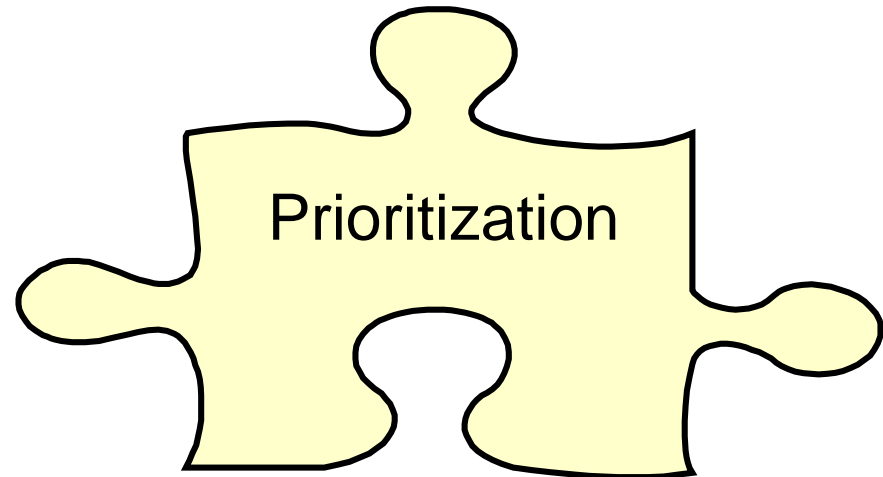
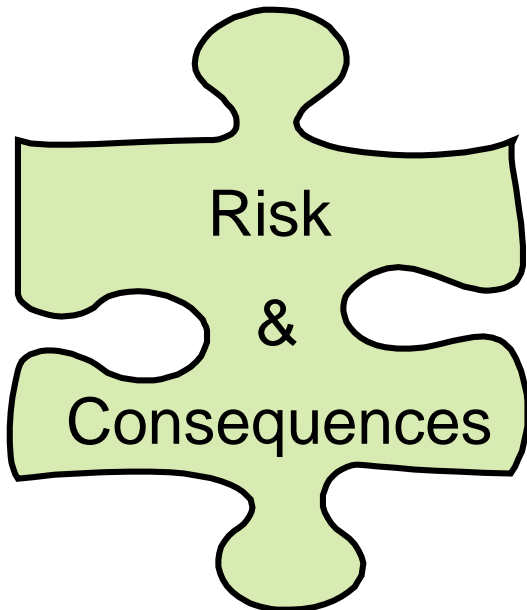
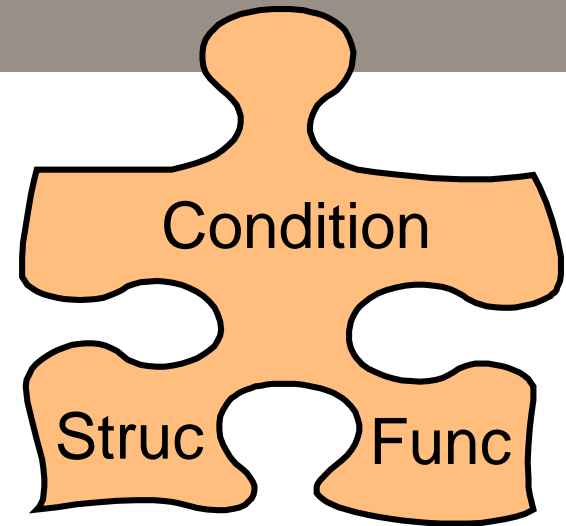
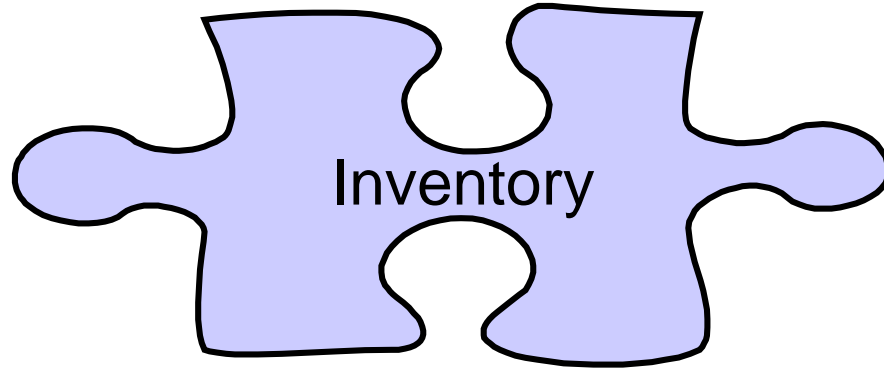
USACE AM

Goal: Develop a rational, consistent, transparent and repeatable method for assessing condition and risk for coastal navigation structures.

Methodology:

- Inventory (what we own)
- Identify Condition (what kind of shape is it in, is it functioning)
- Asset Management Strategy (min risk, max return)

Where are we now ???



SAM STATE OF THE PRACTICE: PORT INDUSTRY

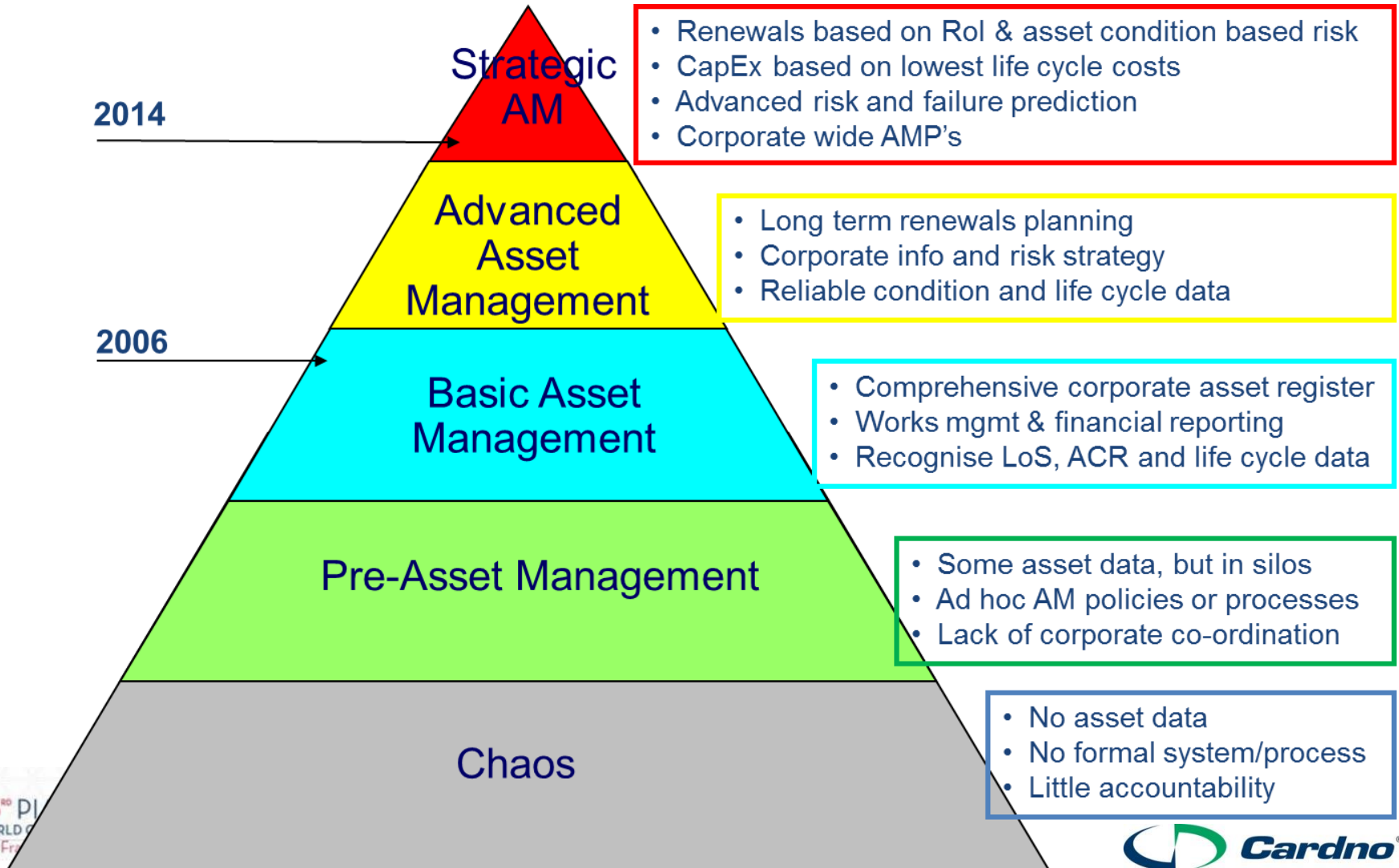
PORT OF MELBOURNE AUSTRALIA
PORT OF ROTTERDAM
PORT OF LE HAVRE
PORT OF TACOMA
PORT OF SAN DIEGO
PORT METRO VANCOUVER
PORT OF MONTREAL
PORT OF SEATTLE
PORTS AMERICA
PORT OF NEW YORK AND NEW JERSEY
PORT OF PORTLAND OREGON
HOUSTON PORT AUTHORITY
PORT OF LOS ANGELES
NORTH CAROLINA PORTS AUTHORITY

PORT OF MELBOURNE AUSTRALIA (PMOC)

WHY SAM?

- Recognition of an ageing asset base
- Age = worsening condition
- worsening condition = increased risk
- Understand future renewal liability
- Direct funds to asset in greatest need
- Optimise asset renewal decisions
- Build competency and intelligence in SAM
- Remove silo-based AM processes and improve consistency
- Develop tools to assist with optimised renewals decision making
- Embed asset management as a core business discipline

SAM Maturity Pyramid



2014

2006

Strategic
AM

Advanced
Asset
Management

Basic Asset
Management

Pre-Asset Management

Chaos

- Renewals based on RoI & asset condition based risk
- CapEx based on lowest life cycle costs
- Advanced risk and failure prediction
- Corporate wide AMP's

- Long term renewals planning
- Corporate info and risk strategy
- Reliable condition and life cycle data

- Comprehensive corporate asset register
- Works mgmt & financial reporting
- Recognise LoS, ACR and life cycle data

- Some asset data, but in silos
- Ad hoc AM policies or processes
- Lack of corporate co-ordination

- No asset data
- No formal system/process
- Little accountability

PORT OF TACOMA

“The Port recognizes it must monitor the condition of its assets, know where to reinvest for the greatest good and improve its understanding and control of asset life cycle costs.”

PORT OF SAN DIEGO

- “While there have been periodic inspections and condition assessments performed, there has been no recent comprehensive, system-wide evaluation of all major District facilities.
- The asset management work addressed under this (July 2014) solicitation shall:
 - Update and integrate existing District information into
 - Comprehensive, cost-effective strategy for asset management that is
 - Based on sound business practices and
 - Will guide District maintenance programs into the future.”

PORT METRO VANCOUVER

- PMV is committed to managing its assets responsibly by seeking the best value approach in achieving the optimal combination of costs, risks, performance and sustainability.
- Internal approach: Initiated with inventory data collection of its assets—first phase focus on concrete dock structures and overpasses.
- External support: condition assessments, application of proven predictive models, and establishment of a comprehensive AM system at major terminals (February 2014 RFQ).

PORT OF SEATTLE

- For a port “to survive and compete with vintage assets that are approaching their design lives deserves management attention and resources-- today, and from now on.”
- “‘Run hard and put away wet’ is no way to operate a going concern....the business case for deferred maintenance, if there ever was one, is over.”
- “Mission critical—if ports don’t have docks to receive and ship cargo, they don’t need building or yard systems. If the results from the Dock System condition assessments are compelling, it may pave the way for funding assessments of our yard and building systems.”
- “By starting small with a program that’s affordable (\$2M over 2 years), the value in doing so will shine”

PORTS AMERICA CORPORATION

- As part of the concession agreement at the Port of Baltimore (Seagirt Terminal), PAC is responsible for implementing a System Preservation Plan for maintaining the terminal assets in optimal condition.
- The Plan will apply a long-term, comprehensive and proactive approach to the maintenance of the equipment and infrastructure, through the establishment of an Asset Management System (AMS).
- The primary purpose of the AMS tool will be to help PAC prioritize investments in preventative maintenance to extend the service life of the terminal infrastructure. (Awarded July 2014)

SAM—HOW IS IT DIFFERENT FROM CURRENT PRACTICES

- Better data;
 - Inventory
 - Condition assessments
 - Life-cycle position—degradation modeling
- Assessment of required functionality of critical assets
- Risk-based asset prioritization
 - Strategic importance
 - Financial analysis
- Data availability to inform better decision making
 - Accessible
 - Common terminology
- Decision-making
 - Defensible
 - Auditable
 - Repeatable
 - Transparent

LESSONS LEARNED

- Senior leadership engaged at beginning and throughout
- Identify clear, measurable goals
- Find and deliver early successes — demonstrate value
- Keep all departments engaged — be open to dissonance and its rational--don't ignore it
- Develop a road map defining goals, critical paths and budget forecasts

Resources/References

- **AASHTO Transportation Asset Management Guide**
- **FHWA Asset Management Primer**
- **FTA Asset Management Guidebook**
- **TRB (Transportation Research Board), National Cooperative Highway Research Program (NCHRP) Transportation Asset Management -- Guide to Implementation**
- **TRB Airport Cooperative Research Program (ACRP) Report 69 – Asset and Infrastructure Management for Airports; Primer and Guidebook**
- **ISO 55000 AM Standard to be released 1214**
 - **ISO 55000-Overview, Principles, and Terminology;**
 - **ISO 55001-Management System Requirements;**
 - **ISO 55002-Application Guidelines**
- **International Infrastructure Management Manual (IIMM), 2011**
- **New Zealand Asset Management Steering (NAMS) Group--Optimised Decision Making Guidelines Ed 1.0**
- **PIANC InCom Report of WG 25 – April 2006 Maintenance and Renovation of Navigation Infrastructure**
- **AAPA**
 - **Facilities Engineering and Finance committee seminars; AM Webinar (2/13)**
 - **Website: "Issues and Advocacy"--"Best Practices"-- "Asset Management"**
- **TRB Ports and Channels Committee**
- **ASCE, COPRI Ports and Harbors Committee, Waterfront Inspection Task Cte-- Waterfront Facilities Inspections & Assessments Standard Practice Manual"**