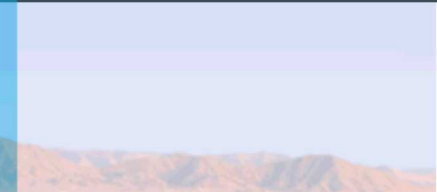
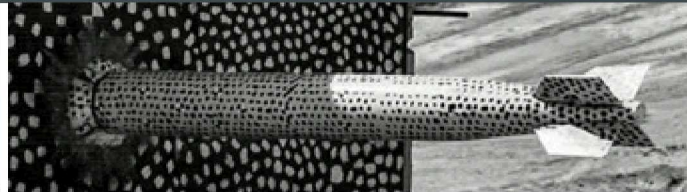
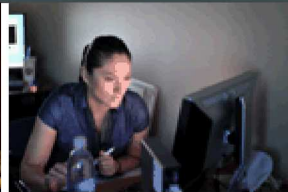




SAND2020-9931R

# ISO 55001 - A Structured, Disciplined and Consistent Approach to Physical Real Property Asset Management



Asset Management Architecture Team

ISO 55001 Gap Analysis



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- ▶ ISO 55001 Gap Analysis
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  - ▶ Process
  - ▶ Alignment Ratings and Conclusions
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  - ▶ AM Framework
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    - ▶ Hierarchy of Elements
    - ▶ Mapping
    - ▶ AM Architecture Model (Building the AM Framework)
    - ▶ AM Framework Organizational Line of Sight
- ▶ Next Steps

# ISO 55001 Asset Management

## Agenda

## ► Team Members

- Birgitta Foster - Department 4853
- Chris Evans - Department 4744
- Diane Sholtis - Department 4854
- Gabe Martinez - Department 4851
- Jennifer Herrington (ad hoc member) - Department 8547
- Jeremy Michaels - Department 4852
- John Zavadil - Department 4853
- Pete Otero - Department 4853
- Waylon Clark - Department 4853

# Asset Management Architecture

## Team Introduction

# ISO 55001 Gap Analysis

- ▶ Driver: Lifecycle Asset Management (LCAM) Excellence!
  - ▶ FY2020 Balanced Scorecard P&P-02 Objective - Conduct an ISO 55000 Gap Analysis
- ▶ Purpose: Determine the alignment with the International Standard Organization (ISO) 55001 Asset Management System (AMS) requirements and recommend an AM Framework.
- ▶ Scope: Facilities (Centers 4700/4800) AMS with emphasize on the “what” is required of and NOT the “how” to implement an AMS.
- ▶ Focus: Lifecycle Asset Management (LCAM) Planning and Execution
- ▶ Gap Analysis Format: Leveraged “The Institute of Asset Management (IAM)” ISO 55001 self-assessment questions.



# ISO 55001 Gap Analysis Template

- ▶ ISO Sections Analyzed
  - ▶ Section 4 - Context (Pete Otero - Lead)
  - ▶ Section 5 - Leadership (Chris Evans - Lead)
  - ▶ Section 6 - Planning (Diane Sholtis/Gabe Martinez - Lead)
  - ▶ Section 7 - Support (Jeremy Michaels - Lead)
  - ▶ Section 8 - Operations (John Zavadil - Lead)
  - ▶ Section 9 - Performance Evaluation (Waylon Clark - Lead)
  - ▶ Section 10 - Improvement (Birgitta Foster - Lead)
- ▶ Gap Analysis Ratings
  - ▶ Overall ISO 55001 Alignment Rating (1-5 Score)
    - ▶ Lagging  $\leq 2$ , 2 < Aligning < 4, Leading  $\geq 4$
  - ▶ Individual ISO 55001 Section Alignment Ratings
    - ▶ Requires immediate attention if % Lagging ratings  $\geq 80\%$
- ▶ Gap Closure Recommendations
  - ▶ Proposed solutions to improve alignment with ISO 55001 AMS requirements.

# Overall ISO 55001 AMS Alignment Rating:

## LAGGING

(86% of alignment ratings were Lagging)

**Common Observation :** Absence of a structured, disciplined, and consistent AM approach.

### Causal Factors: (Absence)

- ▶ Executive AM Sponsorship
- ▶ Corporate specific AM objectives
- ▶ AM specific Vision and Mission
- ▶ AM Policy
- ▶ Strategic AM Plan (SAMP)
- ▶ Aligned AM objectives
- ▶ AM Strategies
- ▶ AM Communication Plan

### Conclusion:

- ▶ Unclear AM roles and responsibilities
- ▶ Competing AM objectives
- ▶ Different AM direction and/or implementation approaches
- ▶ AM activities that do not support common AM goals and objectives
- ▶ Hinders an AM culture where everyone understands how their contributions affect AM and ultimately the mission

# ISO 55001 Gap Analysis

## Common Observations and Overall Alignment Rating

ISO 55001 Section	% of Lagging Ratings	Alignment Rating
Section 4 - Organization Context	65% Lagging	*Lagging – immediate attention <b>NOT</b> required
Section 5 - Leadership	95% Lagging	**Lagging – immediate attention required
Section 6 - Planning	100% Lagging	Lagging – immediate attention required
Section 7 - Support	82% Lagging	Lagging – immediate attention required
Section 8 - Operation	86% Lagging	Lagging – immediate attention required
Section 9 - Performance Evaluation	100% Lagging	Lagging – immediate attention required
Section 10 - Improvement	70% Lagging	Lagging – immediate attention <b>NOT</b> required

\* Evidence of partial alignment with ISO 55001 exists.

\*\* Very little evidence of alignment with ISO 55001 exists.

# ISO 55001 Gap Analysis

## Section Alignment Ratings

#### Section 4 : Context (Pete Otero)

- Lagging
- **GAP** : The absence of a common approach to AM prevents cross-cutting AM functions from collaborating and working cohesively to meet AM objectives. A corporate-wide AM awareness and a clear understanding of the AM Vision, AM policy, SAMP, AM objectives and AM strategies is needed.

#### Section 5 : Leadership (Chris Evans)

- Lagging
- **GAP** : AM is not as important as other business needs. In turn a culture of lifecycle AM excellence is difficult to promote and sustain. Lifecycle AM will be mediocre at best and resulting asset failures will adversely affect the ability to meet mission deliverables.

#### Section 6 : Planning (Diane Sholtis/Gabe Martinez)

- Lagging
- **GAP** : Existing planning documents and work improvement plans at the system level are inconsistent across site infrastructure and building systems lack support and a structured system of reporting, and are disjointed and lack integration.

\* Evidence of partial alignment with ISO 55001 exists.

\*\* Very little evidence of alignment with ISO 55001 exists.

# ISO 55001 Gap Analysis

## Alignment Ratings by Section



## Section 7 : Support ( Jeremy Michaels)

- **Lagging**
- **GAP** : Activities are **not integrated**, siloed. Results of PMs are not integrated. **Lack awareness** of how their job role can support and impact AM. Does **not consistently communicate** the significance of the identified AM risk.

## Section 8 - Operation (John Zavadil)

- **Lagging**
- **GAP** : Methods in place to identify internal and external issues **do not flow down** to AM. Risk management is dealt with on a case-by-case basis. **Metrics are mainly lagging and not proactive**. Outsourcing decisions are **based on resources, not risk**.

## Section 9 - Performance Evaluation (Waylon Clark)

- **Lagging**
- **GAP** : **Lack of a formal documented processes** necessary to determine what assets need to be monitored and measured, what information is to be generated, how it is to be analyzed, evaluated and reported.

## Section 10 - Improvement ( Birgitta Foster)

- **Lagging**
- **GAP** : Existing CI processes are embedded in corporate programs, but **no similar formal CI programs exist for an AMS and AM**.

\* Evidence of partial alignment with ISO 55001 exists.

\*\* Very little evidence of alignment with ISO 55001 exists.

# ISO 55001 Gap Analysis

## Alignment Ratings by Section

## Prioritized Gap Closure Recommendations

1. Obtain Corporate Executive level sponsorship for AM and Facilities AM Champions
2. At the leadership levels noted develop:
  - ▶ Corporate: Specific AM objectives
  - ▶ Division: AM Policy, SAMP and AM Vision Statement
  - ▶ Center: AM objectives & AM Vision and Mission Statements
  - ▶ Group: AM strategies
  - ▶ Group and Department AM Communication plans
3. Align Area-Plans and LCAMPs with the SAMP and AM objectives
4. Apply Quality Mgt System (QMS) to:
  - ▶ Validate AM objective are being fulfilled
  - ▶ Ensure the AMS is enabling AM

## Future Considerations

- Supporting AM activities\* that should be developed and/or improved
- ▶ Collaborate with SNL line organizations to develop a corporate-wide approach to AM
  - ▶ Develop an Asset Data Quality Assurance Program to ensure asset data fidelity
  - ▶ Develop an Asset Criticality Identification Program to promulgate a risk-based approach to AM
  - ▶ Develop an Asset Health Monitoring system aligned with the ISO 55001 Performance Monitoring & Evaluation requirements.

\* Facilities' AM Champion and 4853 AM manager should validate gap closure priorities, prioritize future considerations, and identify resources to implement the recommendations.

# ISO 55001

## Gap Closure Priorities and Future Considerations

## Section 4 : Context (Pete Otero)

- **Recommendation(s):** Obtain corporate level **AM sponsorship.**

## Section 5 : Leadership (Chris Evans)

- **Recommendation(s):** AM Planning activities are heavily centered around Center 4800 with minimal input/representation from Center 4700, Therefore, **AM collaboration must be communicated and driven at the Division level.**

## Section 6 : Planning (Diane Sholtis/Gabe Martinez)

- **Recommendation(s):** Develop systematic approaches to planning and reporting to ensure **data is consistently managed and reported by all stakeholders** and administered to be effectively synthesized for reporting to NNSA. **Synthesis needs to occur between NNSA capabilities and assets and reflected in Area Plans and LCAMPs.** The addition of consistent and consolidated reporting can improve the integration of all information.

# ISO 55001 Gap Analysis

## Gap Closure Section Specific Recommendations



## Section 7 : Support ( Jeremy Michaels)

- **Recommendation(s):** Complete a self-assessment of required asset information and data to determine where gaps exist supporting the development of the SAMP. Create an AM culture and ensure that our AMS clearly communicates roles and responsibilities of the AM program. Conduct a financial analysis on AM benefits realized and use identified cost avoidances and savings to help sustain and justify the AM resources.

## Section 8 - Operation (John Zavadil)

- **Recommendation(s):** Engage Department 4801 to help develop and implement SAMP, using QMS to determine whether objectives are met and processes are implemented. Use Risk management to ensure risks are properly assessed and managed. Ensure outsourced activities consider risk and are properly identified, managed and controlled.

## Section 9 - Performance Evaluation (Waylon Clark)

- **Recommendation(s):** Provide structure within the AMS that dictates the flow of information from assets that are monitored. Leverage SAMPs and AMPs to provide a clear rationale as to which assets require monitoring. Leverage audits to ensure asset data-driven risk-based decision making and championing an overall effort toward asset health monitoring/condition-based monitoring methods for Facilities assets.

## Section 10 - Improvement ( Birgitta Foster)

- **Recommendation(s):** Utilize corrective action processes for nonconformities, failures, and incidents on assets. Follow up procedures for asset nonconformities, failures, or incidents that require corrective and preventative actions are necessary.

# ISO 55001 Gap Analysis

## Gap Closure Section Specific Recommendations

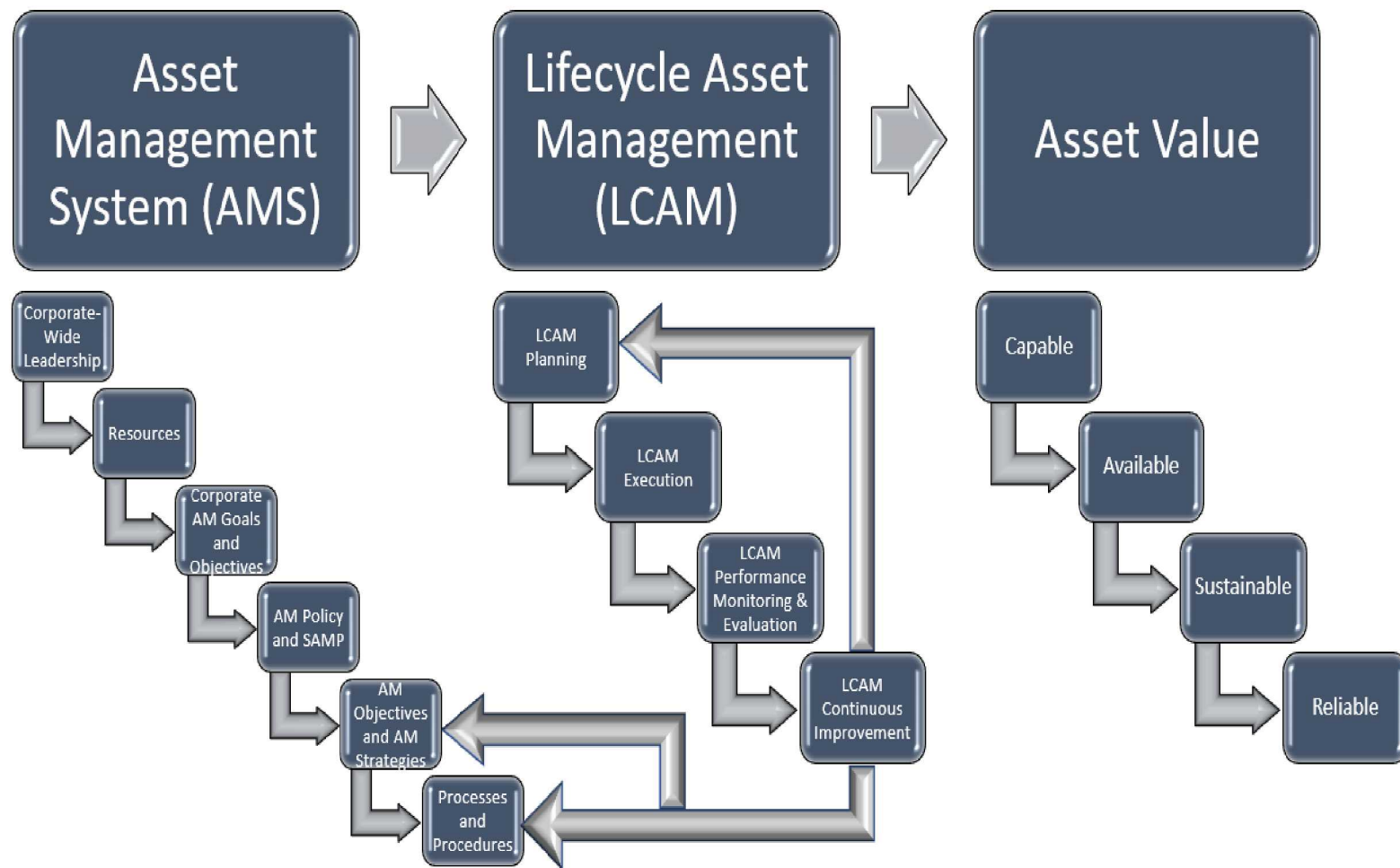


## ► Asset Management - Beyond 2020

- ▶ Discusses the Asset Management System (AMS)
- ▶ Discusses the ISO Asset Management (AM) Standards (55000/1/2)
- ▶ Discusses the ISO 55001 Gap Analysis, Results and Recommendations
- ▶ Introduces the Asset Management Architecture (AMA) Model
- ▶ Navigates through Frameworks of AMS Elements



# Asset Management - Beyond 2020



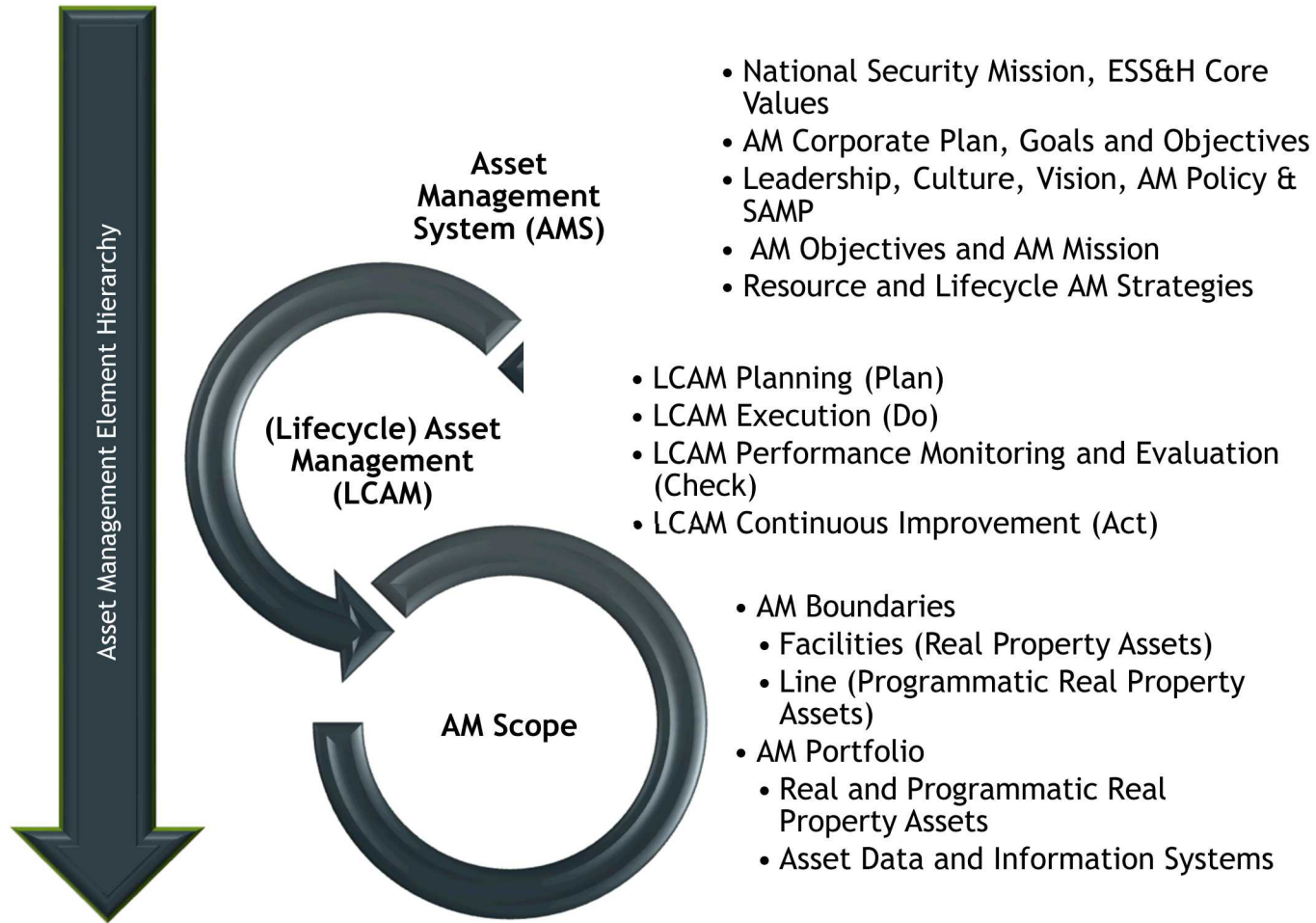
Asset Management -  
Beyond 2020

AMS and AM in  
Perspective



# Asset Management - Beyond 2020

## AM Framework (Interrelated Components)



# Asset Management - Beyond 2020

## AM Framework (Hierarchy of Elements)

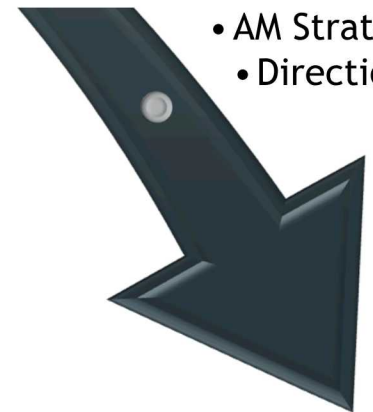


**Mission**  
• Platform  
• Requirements

**Leadership**  
• Foundation  
• Culture

**Landscape**  
• Structure  
• Collaboration

**Management**  
• AM Strategies  
• Direction



**Implementation**  
• Lifecycle AM  
• Planning and Execution  
• PME and CI

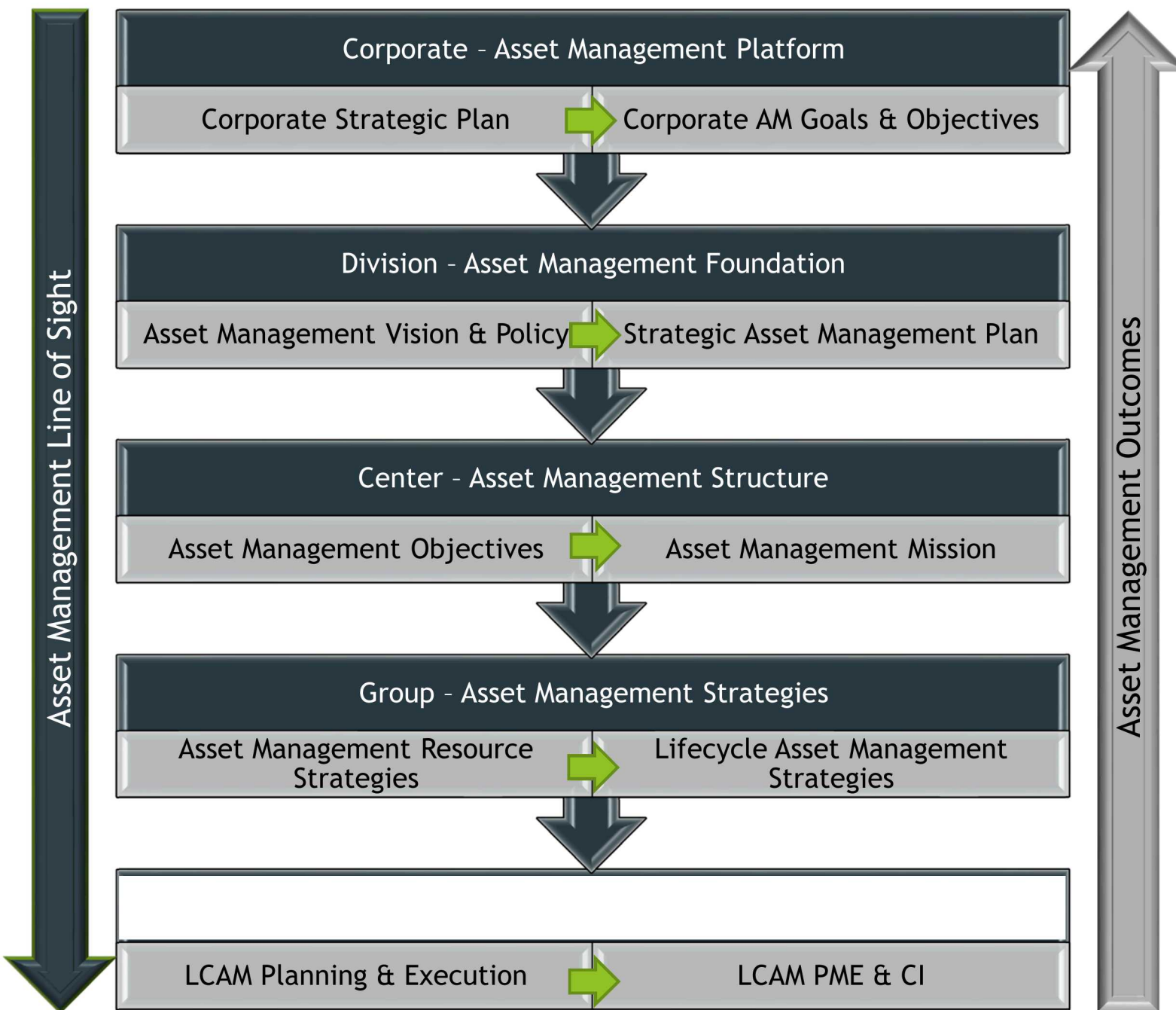
# Asset Management - Beyond 2020

## Asset Management Framework Mapping



# Asset Management - Beyond 2020

## Asset Management Architecture Model



Asset Management -  
Beyond 2020

Asset Management  
Framework  
(Organizational Line of Sight)

## Corporate-Wide Leadership Champions (Stewards of LCAM Excellence!)

- ▶ AMS Stewardship:
  - ▶ ISO 55001 AMS Gap Closure Recommendations and Future Considerations
- ▶ LCAM Stewardship
  - ▶ Data-driven and Risk-based LCAM decision making
  - ▶ LCAM Cross-Functional Collaboration
    - ▶ LCAM Phases: Planning, Sustainment, Disposition
    - ▶ LCAM Functions: Planning, Execution, Performance Monitoring and Evaluation, and Continuous Improvement
- ▶ LCAM Communication Stewardship

Asset Management –  
Beyond 2020

Next Steps

Corporate-Wide Leadership  
(AM Champions)