Air Force Installation & Mission Support Center

USAF – Incremental Steps to Advanced Asset Management with ISO 55000 Guidance

Mr. Russell Weniger
AFIMSC/IZB
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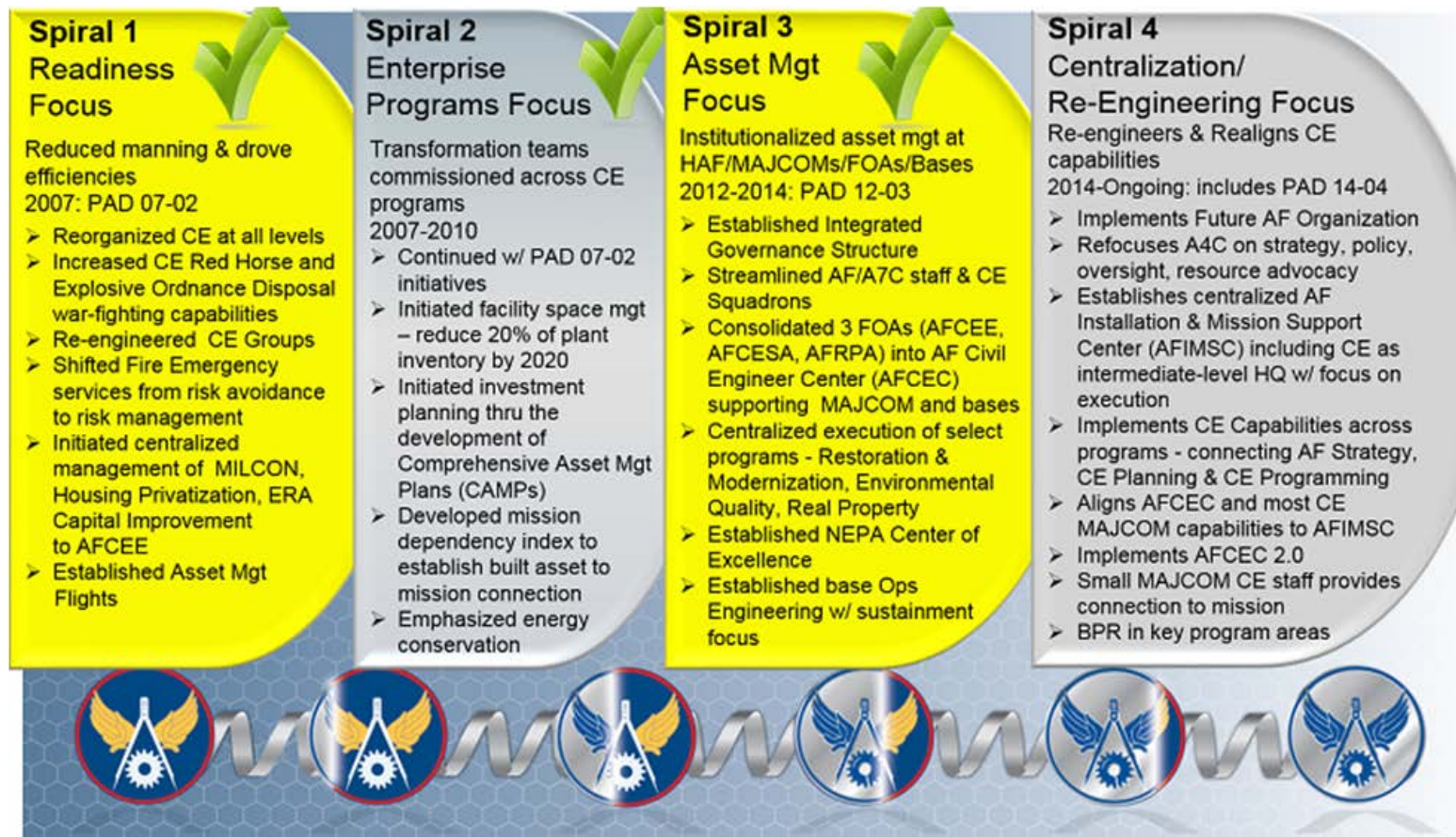**Version 4.0**

Agenda

- **The Air Force asset management journey**

- **Air Force use of ISO 55000**
    - **Modernize installation management practices**
    - **Shape installation investments.**

- **Air Force benefits observed from ISO 55000**
    - **Realize value from assets**
    - **Restore readiness to Air Force power projection platforms**

- **Do/don't do recommendations for large scale asset owners**

- **Discussion**

The Air Force's Asset Management Journey

- Feb 2004 – Executive Order 13327 – Federal Real Property Asset Mgmt.
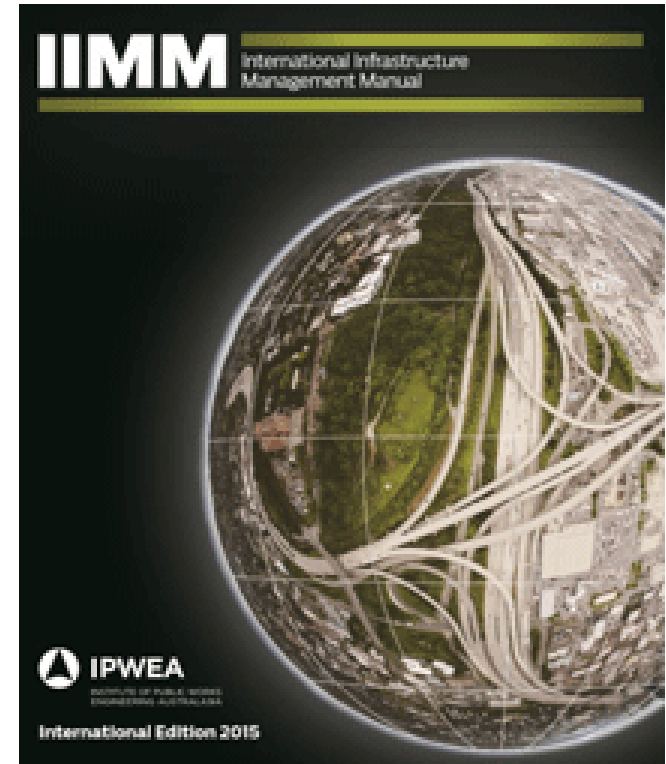 - Set expectations: *reform policies, promote efficient & economical use of assets*

Spiral 1 — Readiness Focus
Reduced manning & drove efficiencies
2007: PAD 07-02
- Reorganized CE at all levels
- Increased CE Red Horse and Explosive Ordnance Disposal war-fighting capabilities
- Re-engineered CE Groups
- Shifted Fire Emergency services from risk avoidance to risk management
- Initiated centralized management of MILCON, Housing Privatization, ERA Capital Improvement to AFCEE
- Established Asset Mgt Flights

Spiral 2 — Enterprise Programs Focus
Transformation teams commissioned across CE programs
2007-2010
- Continued w/ PAD 07-02 initiatives
- Initiated facility space mgt – reduce 20% of plant inventory by 2020
- Initiated investment planning thru the development of Comprehensive Asset Mgt Plans (CAMPs)
- Developed mission dependency index to establish built asset to mission connection
- Emphasized energy conservation

Spiral 3 — Asset Mgt Focus
Institutionalized asset mgt at HAF/MAJCOMs/FOAs/Bases
2012-2014: PAD 12-03
- Established Integrated Governance Structure
- Streamlined AF/A7C staff & CE Squadrons
- Consolidated 3 FOAs (AFCEE, AFCESA, AFRPA) into AF Civil Engineer Center (AFCEC) supporting MAJCOM and bases
- Centralized execution of select programs - Restoration & Modernization, Environmental Quality, Real Property
- Established NEPA Center of Excellence
- Established base Ops Engineering w/ sustainment focus

Spiral 4 — Centralization/Re-Engineering Focus
Re-engineers & Realigns CE capabilities
2014-Ongoing: includes PAD 14-04
- Implements Future AF Organization
- Refocuses A4C on strategy, policy, oversight, resource advocacy
- Establishes centralized AF Installation & Mission Support Center (AFIMSC) including CE as intermediate-level HQ w/ focus on execution
- Implements CE Capabilities across programs - connecting AF Strategy, CE Planning & CE Programming
- Aligns AFCEC and most CE MAJCOM capabilities to AFIMSC
- Implements AFCEC 2.0
- Small MAJCOM CE staff provides connection to mission
- BPR in key program areas

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Where do you begin?

Lots of places to get help!

- **ISO**
- **IAM**
- **IPWEA/IIMM**
- **GFMAM**
- **ALN**
- **Many others!**
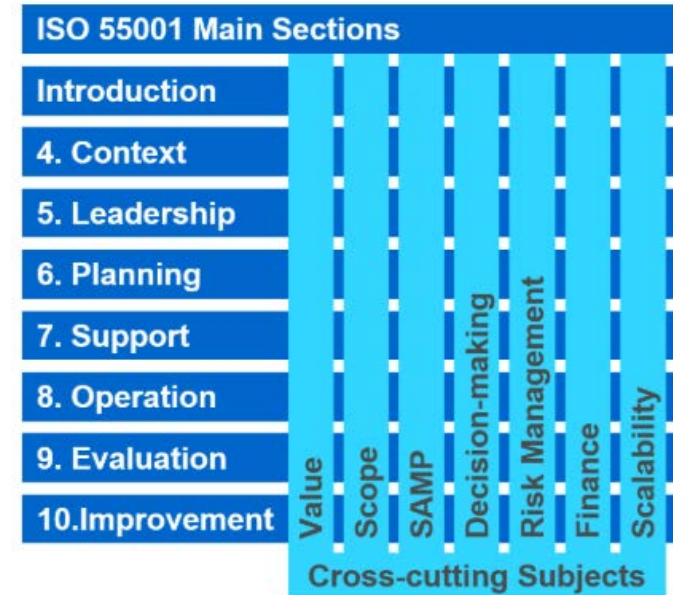
What is ISO 55000?

- **Defines a Management System for Managing Assets**

- **Contains 175 shall statements for AMS Requirements**

- **Not a "how to guide"**

- **Three Standards**
  - ISO 55000 - Overview
  - ISO 55001 - Requirements
  - ISO 55002 - Guidelines

- **ISO Management System – High Level Structure**
  - Quality, Environmental Management, Facilities Management, Energy Management…

Asset Management Fundamentals

USAF Civil Engineering
Asset Management System Maturity Assessment
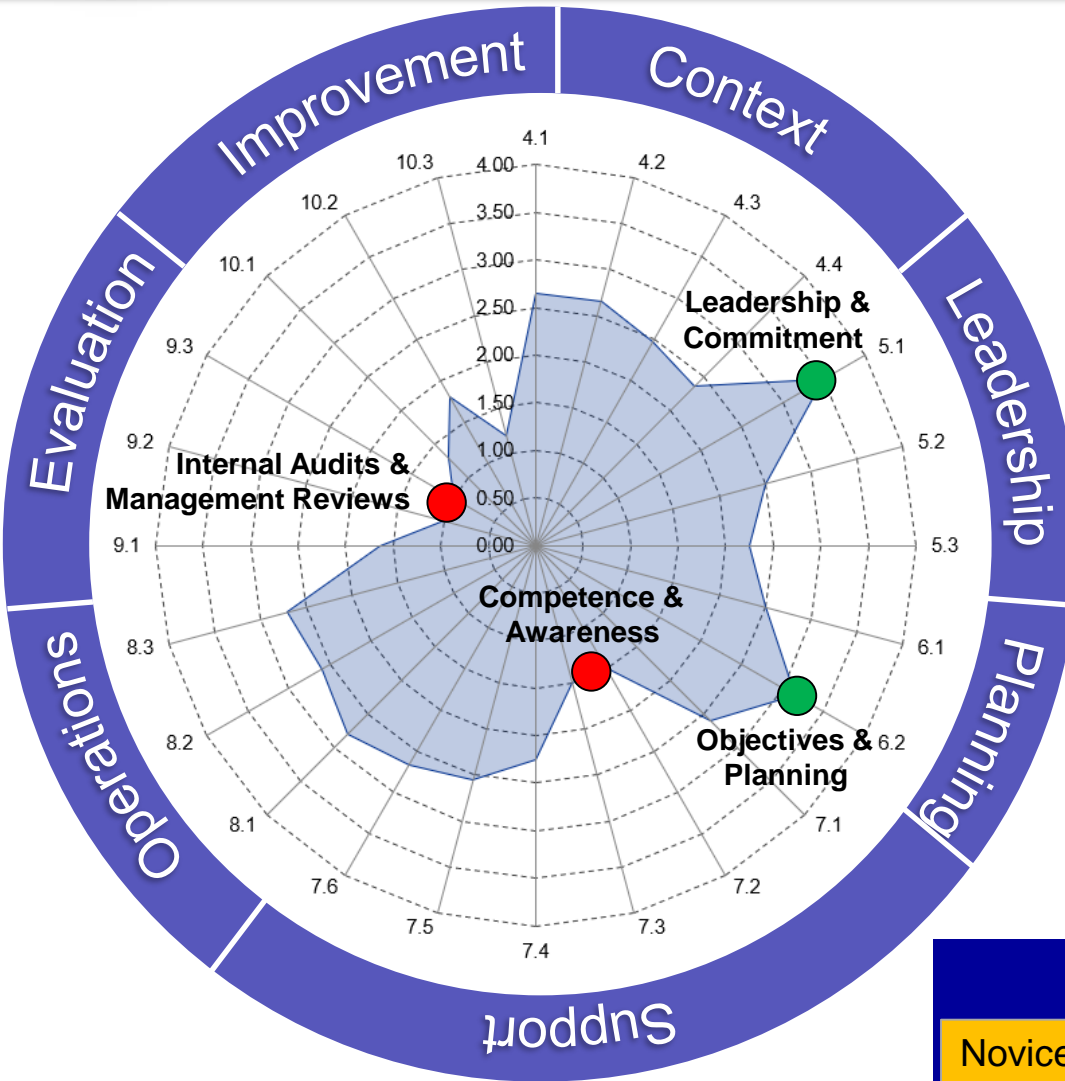
ISO 55001 Management System Requirements

4.	**Context of the Organization**
4.1.	Understanding the Organization and it's Context
4.2.	Stakeholder needs and expectations
4.3.	Scope of the Asset Management System
4.4.	Asset Management System
5.	**Leadership**
→ 5.1.	Leadership and commitment
5.2.	Policy
5.3.	Organizational roles, responsibilities, and authorities
6.	**Planning**
6.1.	Risks and Opportunities
→ 6.2.	Objectives and planning to achieve them
7.	**Support**
7.1.	Resources
→ 7.2.	Competence
7.3.	Awareness
7.4.	Communication
7.5.	Information Requirements
7.6.	Documented Information
8.	**Operations**
8.1.	Operational planning and control
8.2.	Management of change
8.3.	Outsourcing
9.	**Performance Evaluation**
9.1.	Monitoring, measuring, analysis, and evaluation
→ 9.2.	Internal Audit
9.3.	Management Review
10.	**Improvement**
10.1.	Non-Conformity and corrective action
10.2.	Preventative Action
10.3.	Continual Improvement

Maturity Levels

Air Force Average: 2.21

Novice	Apprentice	Practitioner	Master

USAF Self Assessment developed w/ small team perspective only

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Modernizing Installation Mgmt Practices
What is Asset Management?

Asset Management is *the coordinated activity of an organization to realize value from assets*

Asset Management involves the _balancing_ of
 costs
 opportunities &
 risks
 desired performance
to achieve organizational objectives

Source: ISO 55000

Key Assumptions:

- Assets fundamentally exist for a singular purpose
  - To provide value and/or service to customers

- People "do" Asset Management
  - Good/Poor AM is reliant on people, their knowledge, competence, motivation, and teamwork

- Asset Management is Multi disciplinary
  - Involves many parts of the organization, including "Customers", Leadership, Resources, Functionals

- Asset Management means different things to different people
  - End goals are often aligned

Asset Management is not a goal, it's a *System!*

Asset Management or Managing Assets
What's the difference?

Managing Assets	Asset Management
Functional Managers focus is on • Asset data, location and condition assessment • Current KPI's • Department Budget	**Functional Managers** focus is on • Information supported decisions (strategic context and related customer needs • Strategies to select and exploit assets over their lifecycle to support mission aims • Collaboration across departments to optimize resources allocated and activities
Stakeholders focus is on • Costs • Current performance • Response to failures/maintenance function	**Stakeholders** focus is on • Triple bottom line & value (=social, environmental, and financial) • Clarity of purpose for the organization • Activities' Impact on organization's objectives
Top Management focus is on • Short term gains/losses • Departmental/individual performance • Savings	**Top Management** focus is on • Long-term value for the organization • Developing competence and capability • Mission risks understood and mitigated
Suppliers focus is on • Short term contracts and performance • Service level agreements are focused on contract specifications	**Suppliers** focus is on • Long-term contracts and/or partnering relationships in support of client value and objectives • Understanding client strategy and needs in 5-10 yrs

Adapted from: ISO Technical Committee's *Managing Assets in the context of Asset Management*, First Edition May 2017   Items in Red directly relate to I2S Imperatives

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Shaping Installation Investments
Infrastructure Investment Strategy (I2S)

Why is this important?

- The Air Force fights from our bases
- Backlog of deferred maintenance = $33B
- Key elements include:
  - Targeted, data-driven repair and recap
  - 5% divestiture of failing infrastructure
  - Budget = 2% of Plant Replacement Value (PRV)
  - Target = 2.3% of PRV
  - Leverages category management
  - Best practices in real property management
- Represents "get well plan" to address growing backlog
- Smarter and faster way to modernize infrastructure

" AIR BASES are a determining factor in the SUCCESS OF AIR OPERATIONS.
The two-legged stool of men and planes would topple over without this equally important third leg. "

- GENERAL HENRY H. "HAP" ARNOLD

Shaping Installation Investments
I2S Imperatives

Adequate, stable, long-term funding
- Programmed budget floor = 2% of Plant Replacement Value (PRV)
- Target is 2.3% to meet Line of Effort 1 and 2 while reducing the FSRM backlog

Smart infrastructure Investment Efforts
- Data-driven asset management
- 5-year Integrated Priority Lists (IPLs) and Construction Tasking Order (CTO)

Unity of Effort across the enterprise (HAF, MAJCOMs, AFIMSC, Bases all working toward same goals)
- Clear roles and responsibilities
- Common investment priorities
- Metrics that drive better outcomes

Revitalized Squadrons (diverse & capable workforce)
- Exceptional leaders in engineering and acquisition
- Updated engineering and acquisition manpower standards

I2S Identified NEEDS:
- **Funds to make this work**
- **Do smart things**
  - **Get bang for the buck**
- **Address divestment**
- **Take advantage of best practices**

- *End-state: Adaptive, resilient, right-sized and fiscally sustainable infrastructure to assure combat readiness, lethality, and Airmen resilience.*

As of:

UNCLASSIFIED

Shaping Installation Investments
I2S Lines of Effort

Current State

Reduced
Readiness

Degrading
Infrastructure

Unsupportable
infrastructure

Limited
Capacity

•LINE OF EFFORT 1
•Restore Readiness to Power Projection Platforms

1. **Ensure Airbase Resiliency**
2. **Prioritize Repair of Mission-Critical Infrastructure**
3. **Enhance Strategic Basing Posture**
4. **Strengthen Installation Planning**

•LINE OF EFFORT 2
•Cost Effective Modernization of Infrastructure

1. **Pursue Proactive Infrastructure Investment**
2. **Implement Standard Designs**
3. **Improve (Front-End) Acquisition and Programming**

•LINE OF EFFORT 3
•Drive Innovation in Installation Management

1. **Employ Partnership and Third Party Finance**
2. **Utilize Facilities Management Technologies**
3. **Exploit Category Management**
4. **Leverage New Authorities**

End State

Ready Power
Projection
Platforms

Sustainable
Infrastructure

Resilient
Infrastructure

Diversified/
Agile Basing

Updated
Capabilities with
New Technology

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Installation Health Assessment Evolution
Predictive, Data Driven Analytics

- **PowerPoint – SharePoint – Visualization – Predictive – Cloud**
- **Authoritative Data: ABIDES, SMS, E-Dash, PBES, etc**
- **Integration: EX: predictive APIs integrated into CERL SMS**
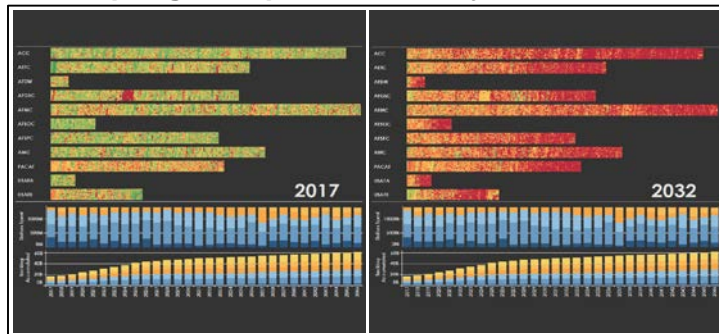
•Summer '16 – concept
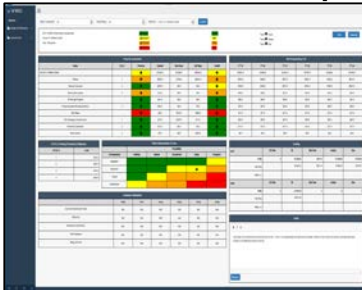
•Jan'17 - Dashboard
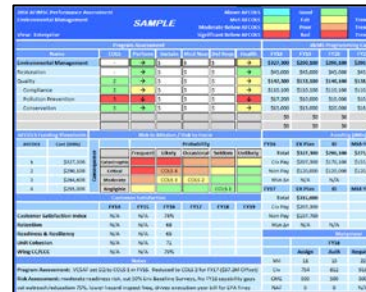
•Fall '17 – data visualization
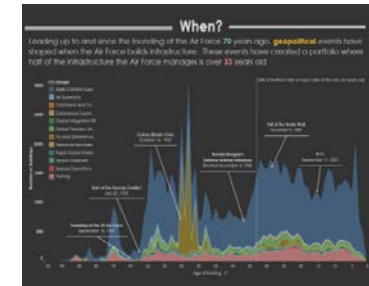
•Spring '18 – predictive analytics to CSAF

•Fall '18 – Base-level analytics

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Infrastructure Data-Driven Analytics

Installation Health Assessment (IHA)

Mission Dependency Index (MDI) denoted spatially (Higher to left, lower to right)

Each pixel represents a discreet facility

•How Does This Work?

- Accurate Inventory
- Condition Assessments
- Degradation Algorithms
- Simulates Investment Decisions
- Predictive Maint./Sustainment
- Predicts specific requirements

Color represents current condition index; scale 1-100

Each bar is associated with MAJCOM inventory

Air Force Infrastructure Health Assessment Dashboard
2.3% PRV, I2S Strategy, 2% Construction Cost Inflation

- Condition Index (CI):
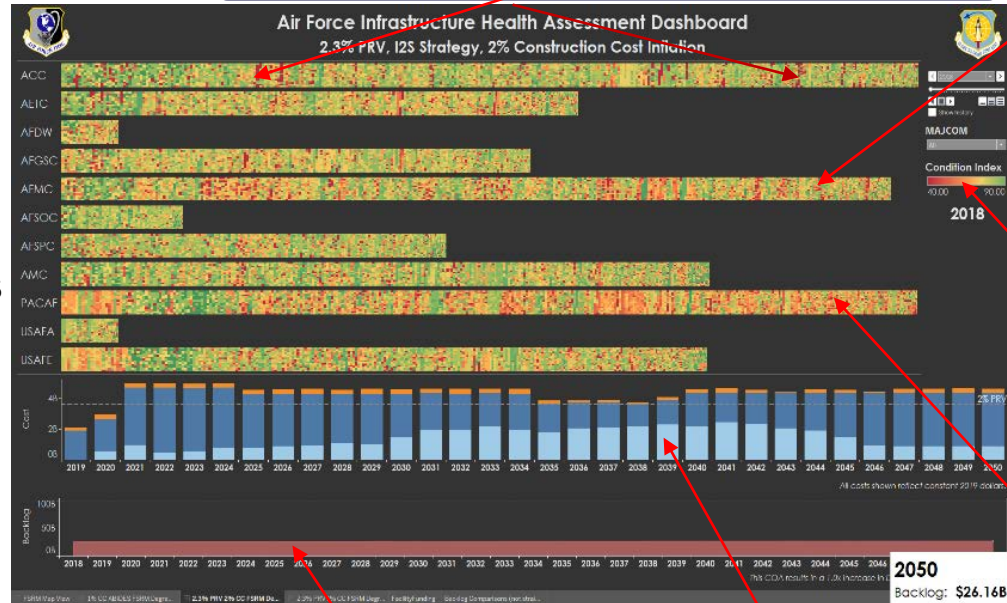
Red graph represents the change in deferred maintenance backlog growth

Blue bars represent annual level of funding; dark blue = Recapitalization; light blue = lowest lifecycle

Fail	Poor	Sat	Good
Extreme serviceability reduction or total degradation	Significant serviceability & reliability loss	Component reliability degraded but adequate Investment "Sweet Spot"	Slight serviceability & reliability reduction
CI: 40-60	60-75	75-85	85-100

Orange – $ MILCON

Dark Blue – $ Restoration & Modernization

Light Blue - $ Sustainment

Red – FSRM Backlog

Note: All calculation use today's $$, no inflation, no cost growth
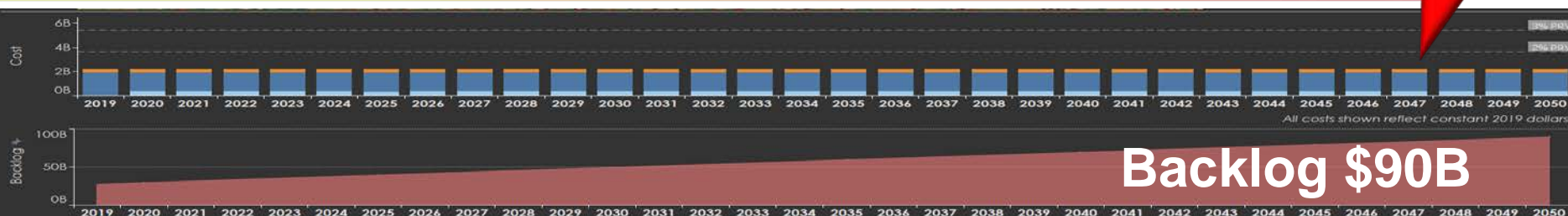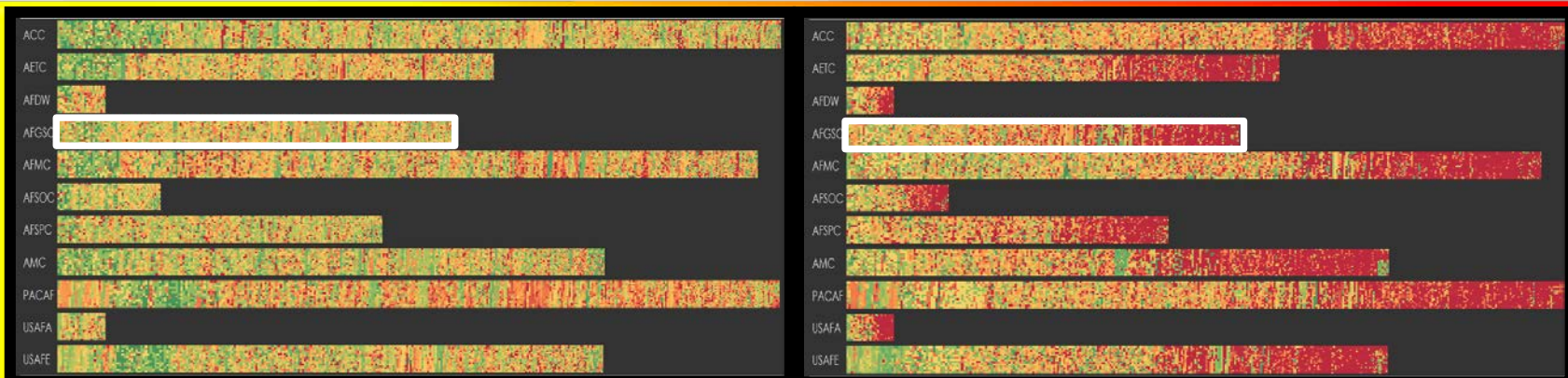
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Modeled FY19 Funding Strategy
(Status Quo)

■ **Status Quo (FY19 Funding Levels; 1.5% PRV; no divestment)**

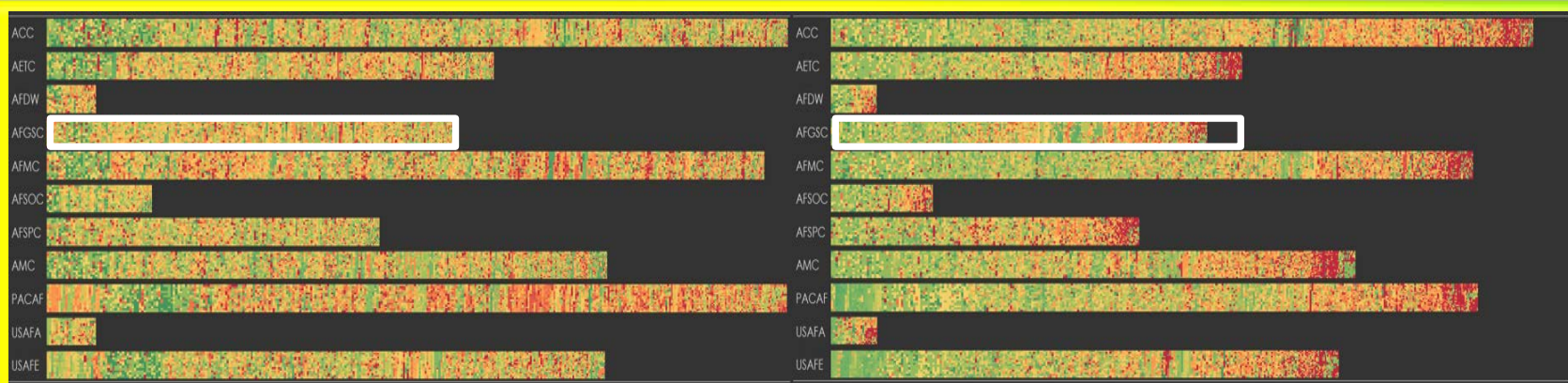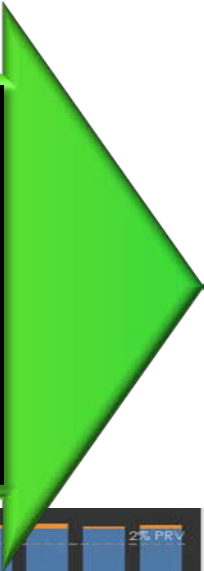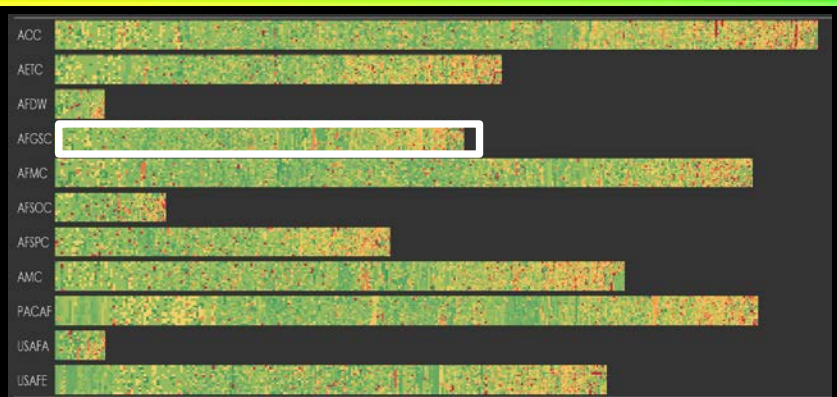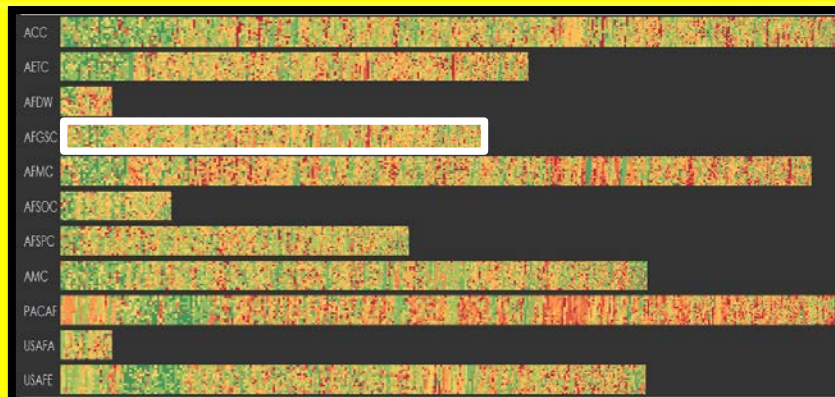**FY 19, Avg CI: 74.3**　　　　　　　**FY 50, Avg CI: 55.3**

Backlog $90B

Modeled I2S Implementation
2% Investment w/ 5% Divestment

■ **Infrastructure Investment Strategy 2.0% PRV, 5% Divestment**

FY 19, Avg CI: 74.3   **FY 50, Avg CI: 77.9**

Backlog $23B

Modeled I2S Implementation
2.3% Investment w/ 5% Divestment

■ **Infrastructure Investment Strategy 2.3% PRV, 5% Divestment**

FY 19, Avg CI: 74.3 **FY 50, Avg CI: 81.6**

Backlog $11B

Managing Assets vs Asset Management
Examples

■ **Small Arms Firing Ranges**

- ■ **Managing Assets**   **Focus: Range condition and age**
- ■ **Asset Management:**   **Focus:** (in addition to condition & age)
  - ■ How many Airmen need training
  - ■ Are other economical training alternatives available

■ **Air Force Dorms**

- ■ **Managing Assets**   **Focus: Dorm condition and age**
- ■ **Asset Management:**   **Focus**: (in addition to condition & age)
  - ■ Are dorms standards promoting Air Force principles?
  - ■ Is there adequate capacity to meet mission needs?

■ **Child Development Centers** *(analysis is in early stages of development)*

- ■ **Managing Assets**   **Focus: CDC condition and age**
- ■ **Asset Management:**   **Focus**: (in addition to condition & age)
  - ■ Do we have the right capacity at the right locations?
  - ■ Are facilities functionally adequate ?

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Small Arms Firing Ranges
It's all about trained Airmen!

- **Requirements**
  - Throughput
  - Range type
  - Lanes req'd
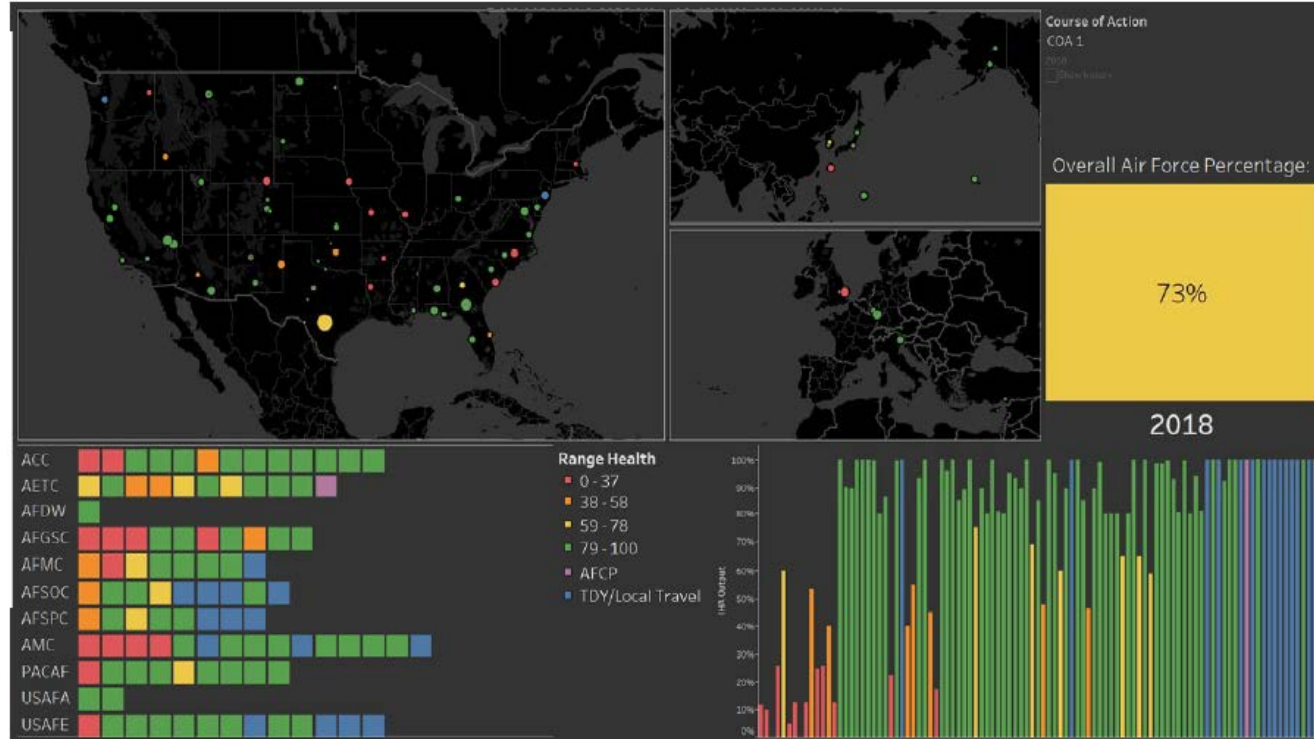- **Inventory/Condition**
  - Current venue
  - Number of lanes
  - Physical condition
- **Gap Analysis**
  - Does existing meet needs?
  - Health & safety issues?
- **Solution**
  - Throughput drives long-term answer
  - AF owned prioritized by condition/capacity

- **Insight for Air Force ranges provided through Advanced analytics, optimizes decisions**
  - **High throughput: AF owned ranges right answer**
  - **Low throughput: alternate solutions possible**
  - **Medium throughput: negotiated solution set**

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Air Force Dorms
Promoting Air Force Readiness

- **Requirements**
  - PP & Student Throughput
  - Qty per Room
  - Configuration Issues
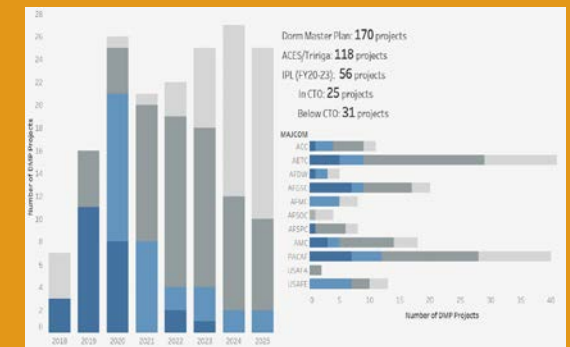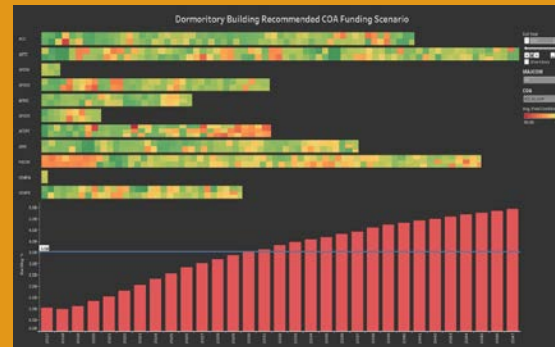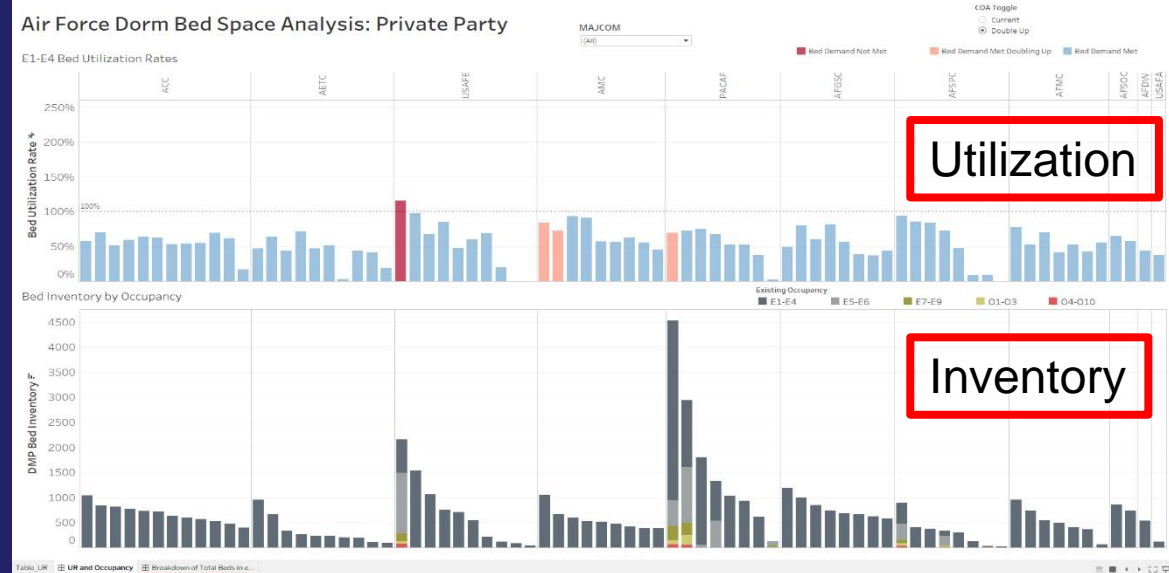- **Inventory/Condition**
  - Room Count
  - Utilization
  - Facility Condition
  - NEW: Health Risks?
- **Gap Analysis**
  - Adequate Capacity?
  - Adequate Condition?
- **Solution** (in development)
  - Dorm Master Plan execution – keep on track
  - AF owned prioritized by condition/capacity

Utilization

Inventory

Analysis: Requirements vs Capacity

Condition Analysis

Execution Review

Do's/Don'ts – Large Scale Asset Owners

- **<u>Do</u> establish top-level policy & guidance to shape your direction**

- **<u>Do</u> develop a Change Management Plan to implement your AMS**
  - **Address all levels of the organization**
  - **Don't forget the guys that do the work in the trenches**
  - **Address all components: Skills, Procedures, Structure, Strategy, Culture**

- **<u>Do</u> plan out your AMS improvements**
  - **ANY maturity model is better than no maturity model**

- **<u>Do</u> leverage any & all data you have**
  - **Quality is important, but some data is better than NO data**
  - **Analytics will provide insight, even at a macro level**

- **<u>Don't give up!</u>**

AIR FORCE IMSC