Barriers To Effective Management of EH&S Data

NNSA Integrated Safety Management Work Shop

NTS North Las Vegas

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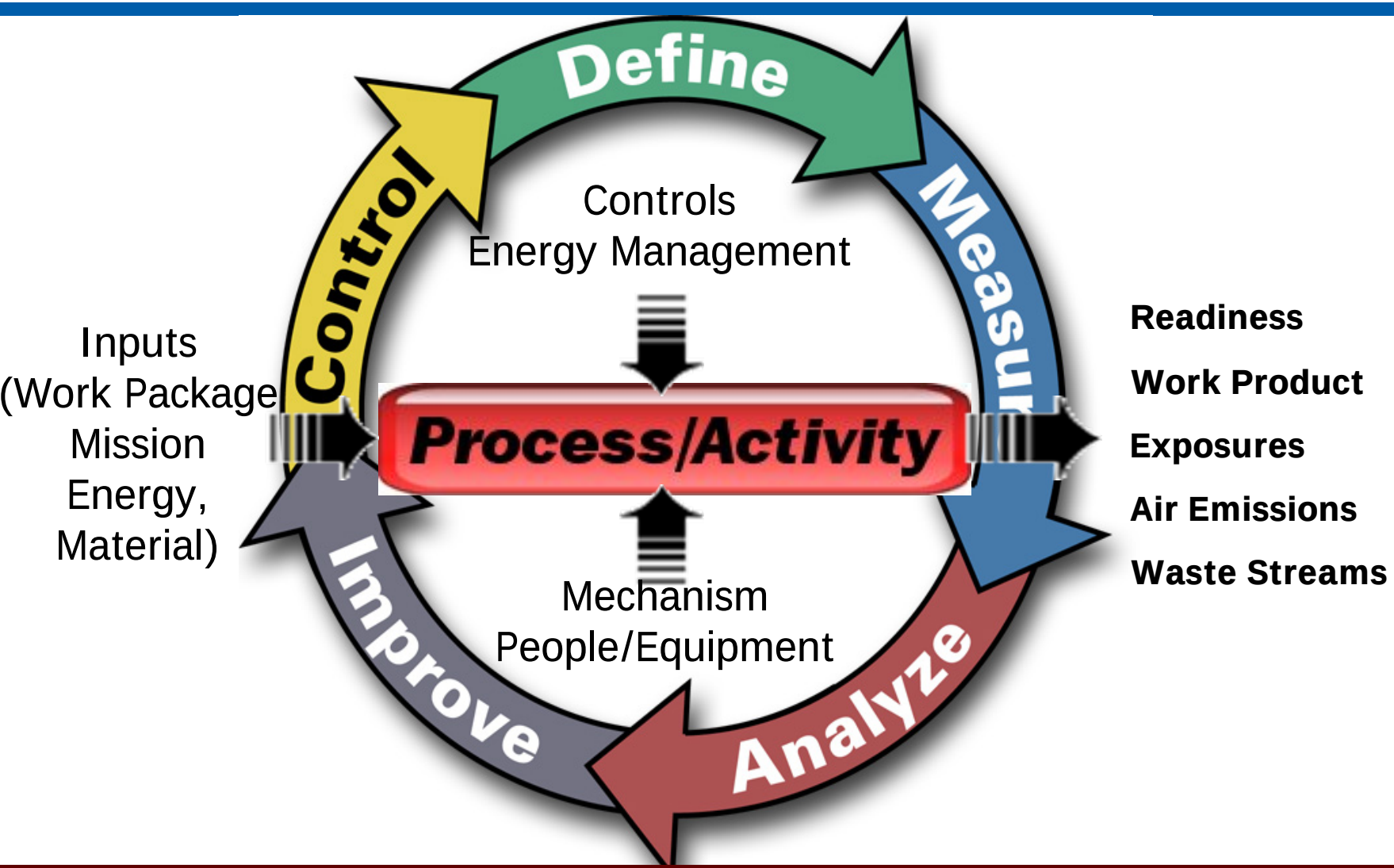
Barriers to ES&H Integration

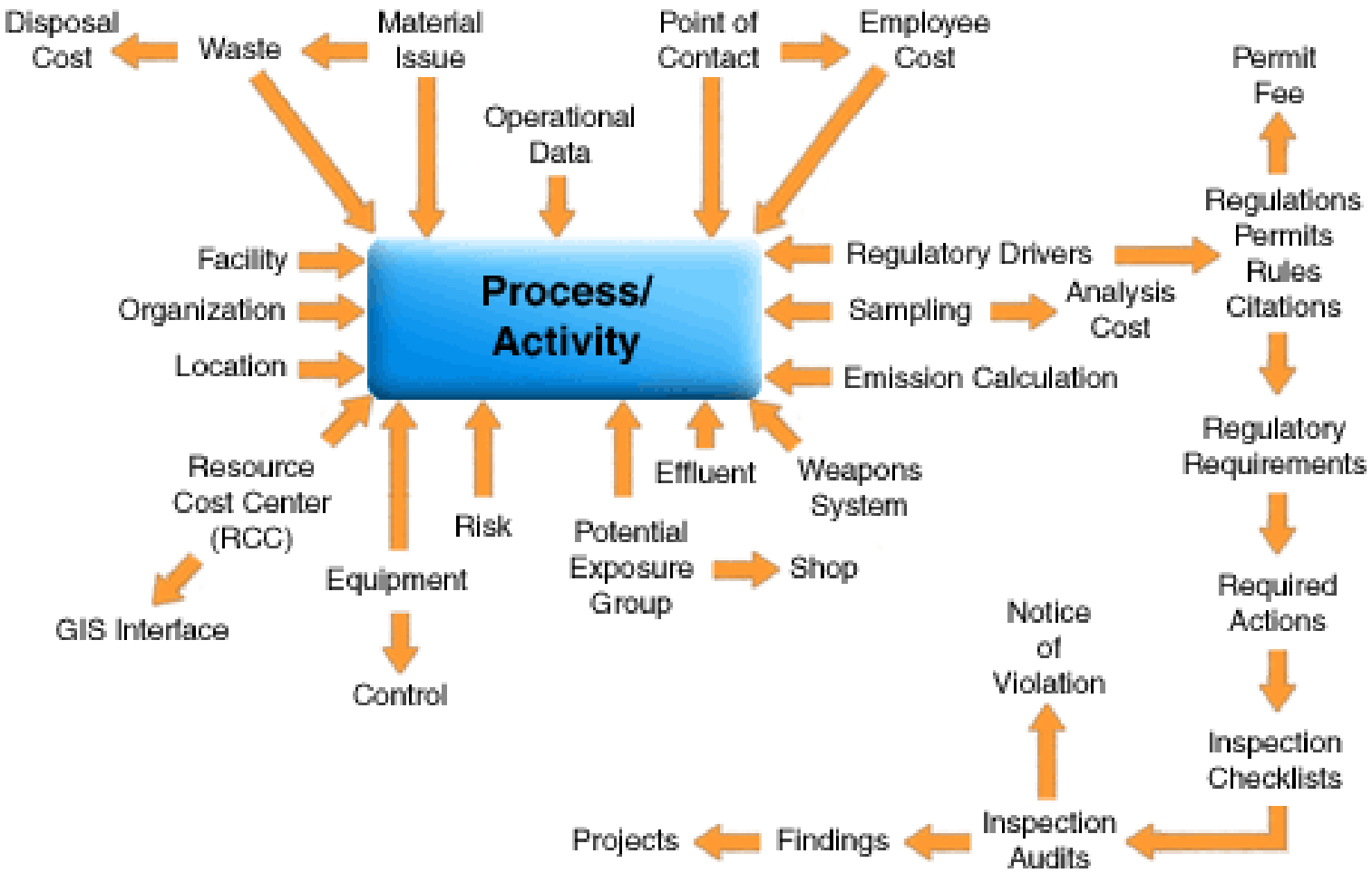
- Requirements to the institutionalization of Enterprise Integrated Safety Management (E-ISM).
  - Management Commitment
  - Policy Guidance
  - Financial Incentive
  - Taxonomy between functional areas (Common Language)
  - Data Stewardship (Provide the Data)
  - Business Practice/Work Control (Common as possible)
  - Sustainable Measureable Improvement
- Barriers Hindering ES&H Integration
  - Empires/Funding
  - Trust/Respect
  - Crisis Management

Using the ISM "Process Management" Approach

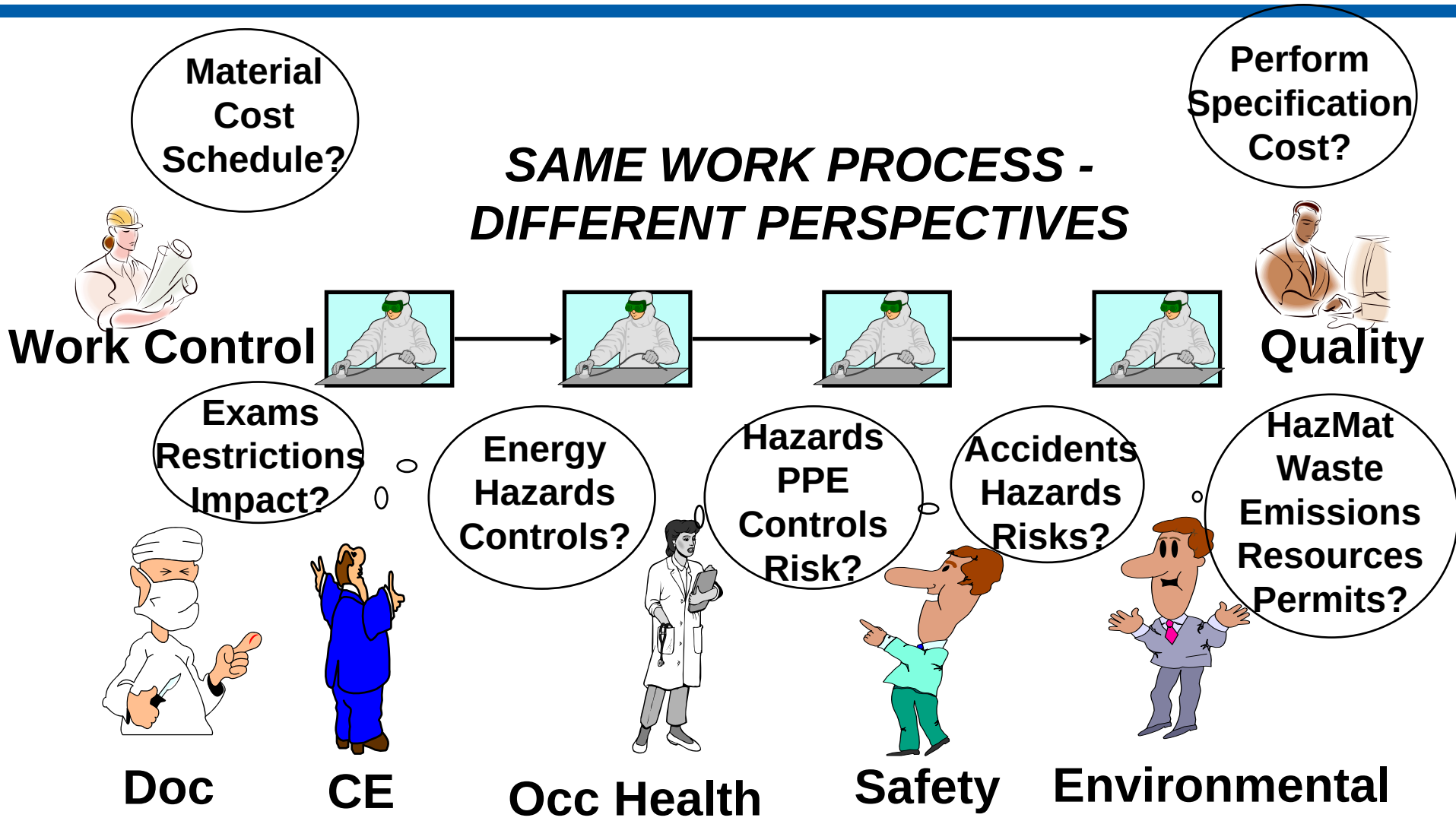


Control is the Part We Tend to Leave Out
"How do we keep the improved process from bouncing back"

Manage by the Business Process

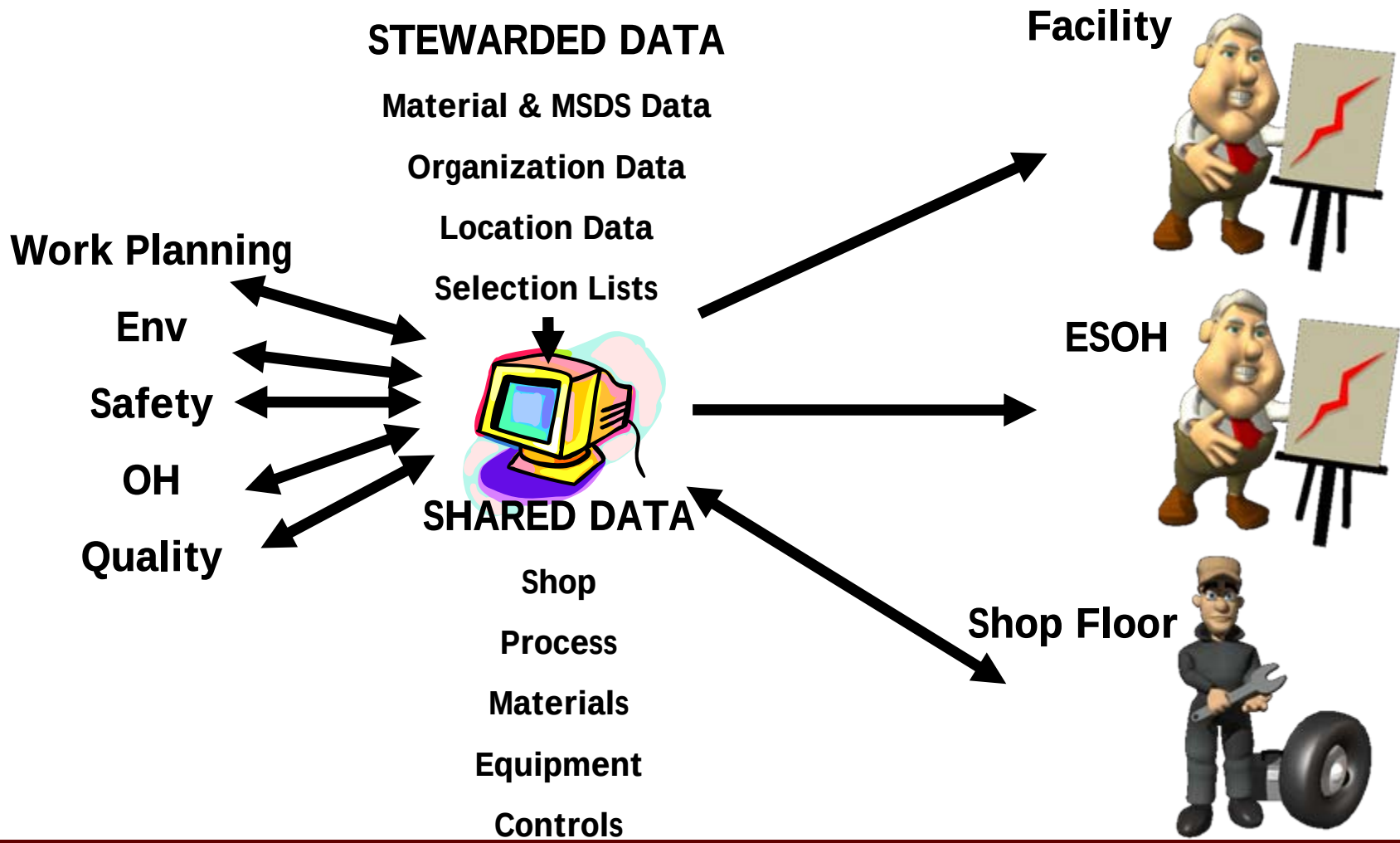


Taxonomy Between Functions
Common Language



The Work is the Same
Why Can't it Be Called the Same

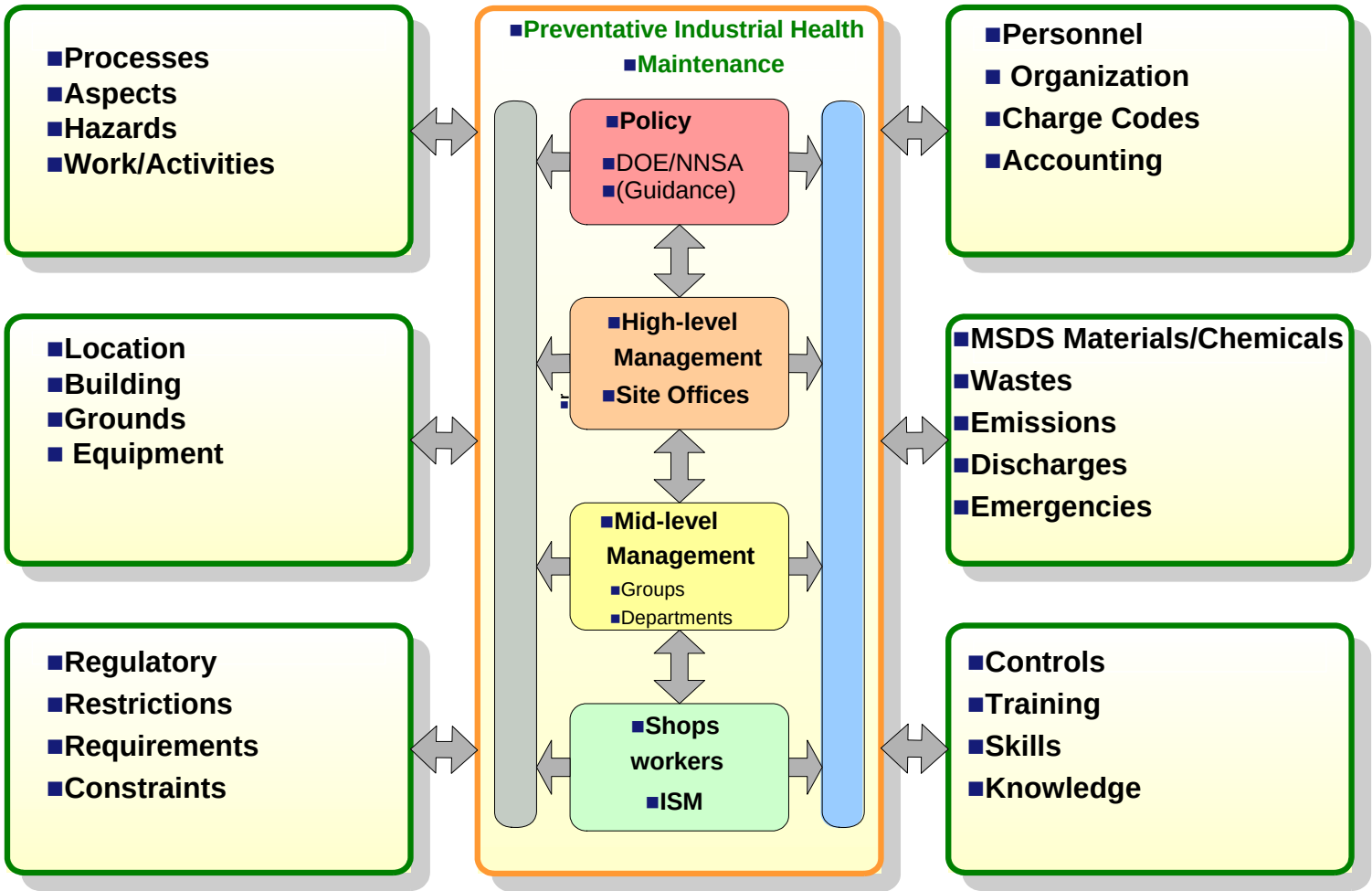
E-ISM - Stewarding Common Data Once for Use By All



The More Data Stewarding
The Lower the Life Cycle Cost and the Higher the Quality

Data Stewardship for E-ISM

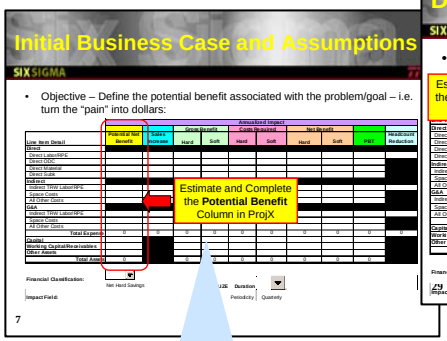
Who Really Owns the Data



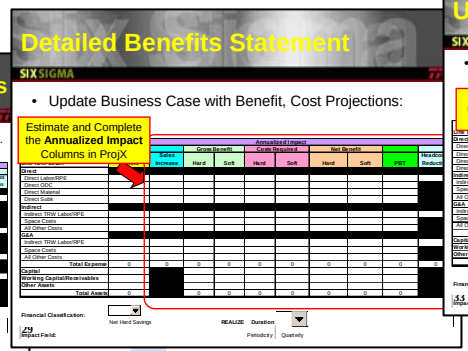
Owning the Data Must also Mean Paying for the Data's Integrity

Applying the Business Case to the Process

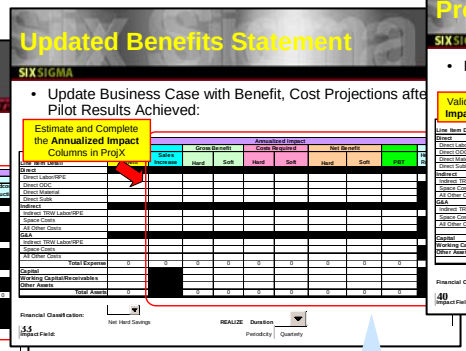
Process Data Collection



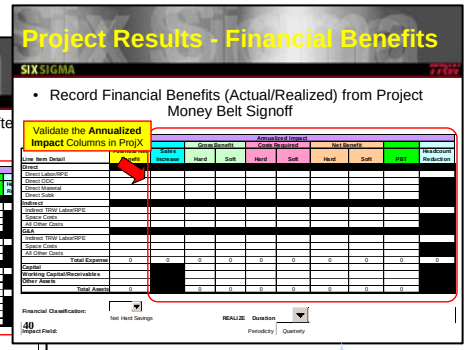
Functional Review



Metric Reporting



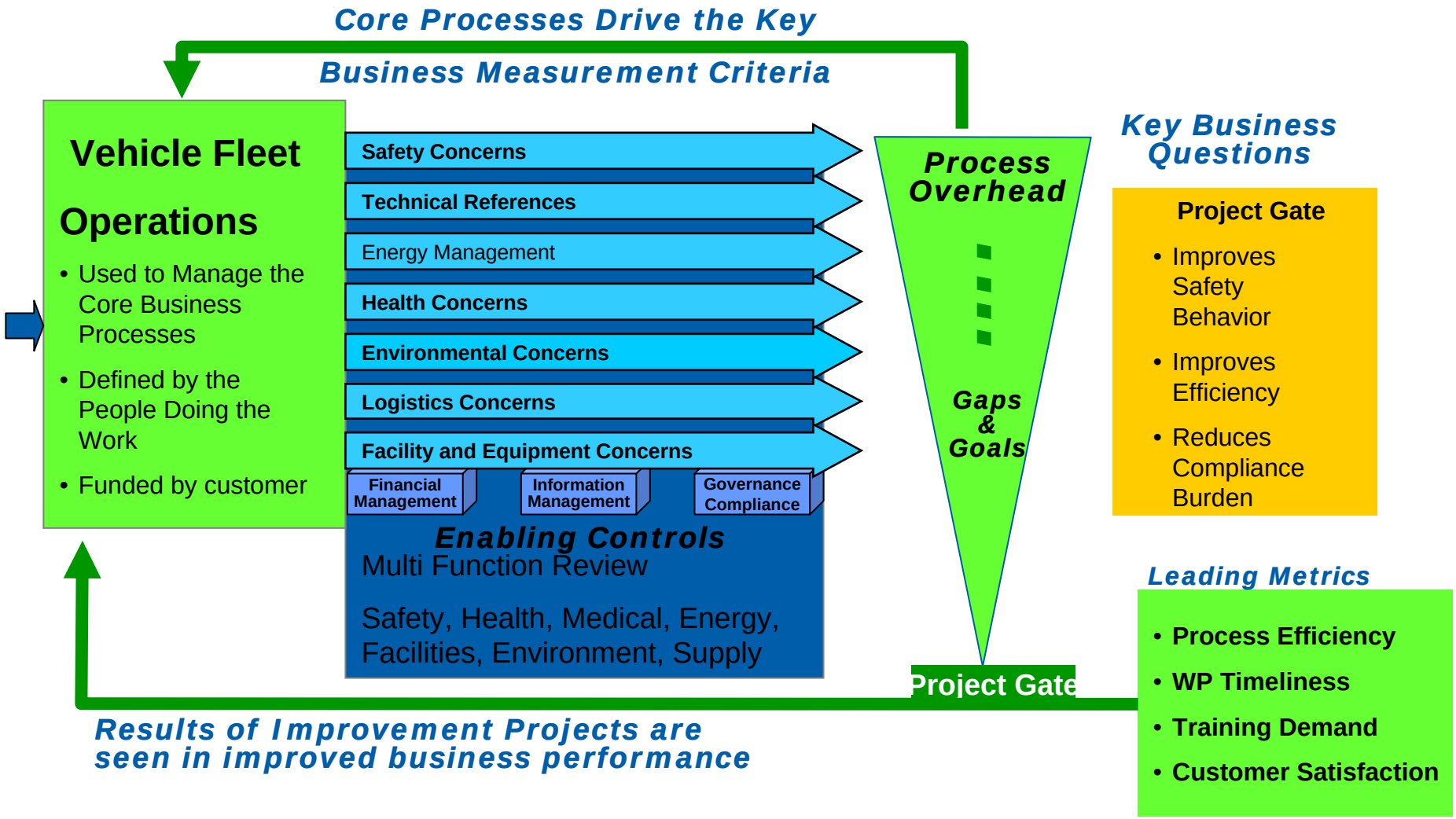
Process Improvement



	Define	Measure	Analyze	Improve	Control
Action	Define Processes	Multiple Function Input Controls and Risks Ided	Cross Function Metrics Combined To Inform Decisions	Focus on High Risks High Frequency Process	Information to the Worker Change Management
Result	Collect All E-ISM Data Once	Awareness of Functions Recommendations and Requirements	Number of intervals In Process Forecasted Process Units	Prioritize Efforts Reengineer to reduce risks Assess Cost Impact	Management Visibility Exception Management
Benefit	Simplified Impact Assessment Minimize E-ISM Footprint	Eliminate Redundant Controls and Paper Work Simplify Support Mission	Eliminate Redundancy Facilitate Collaboration	Well Defined Projects Well Justified Projects	Inspection Savings Incident Reduction Risk Mitigation

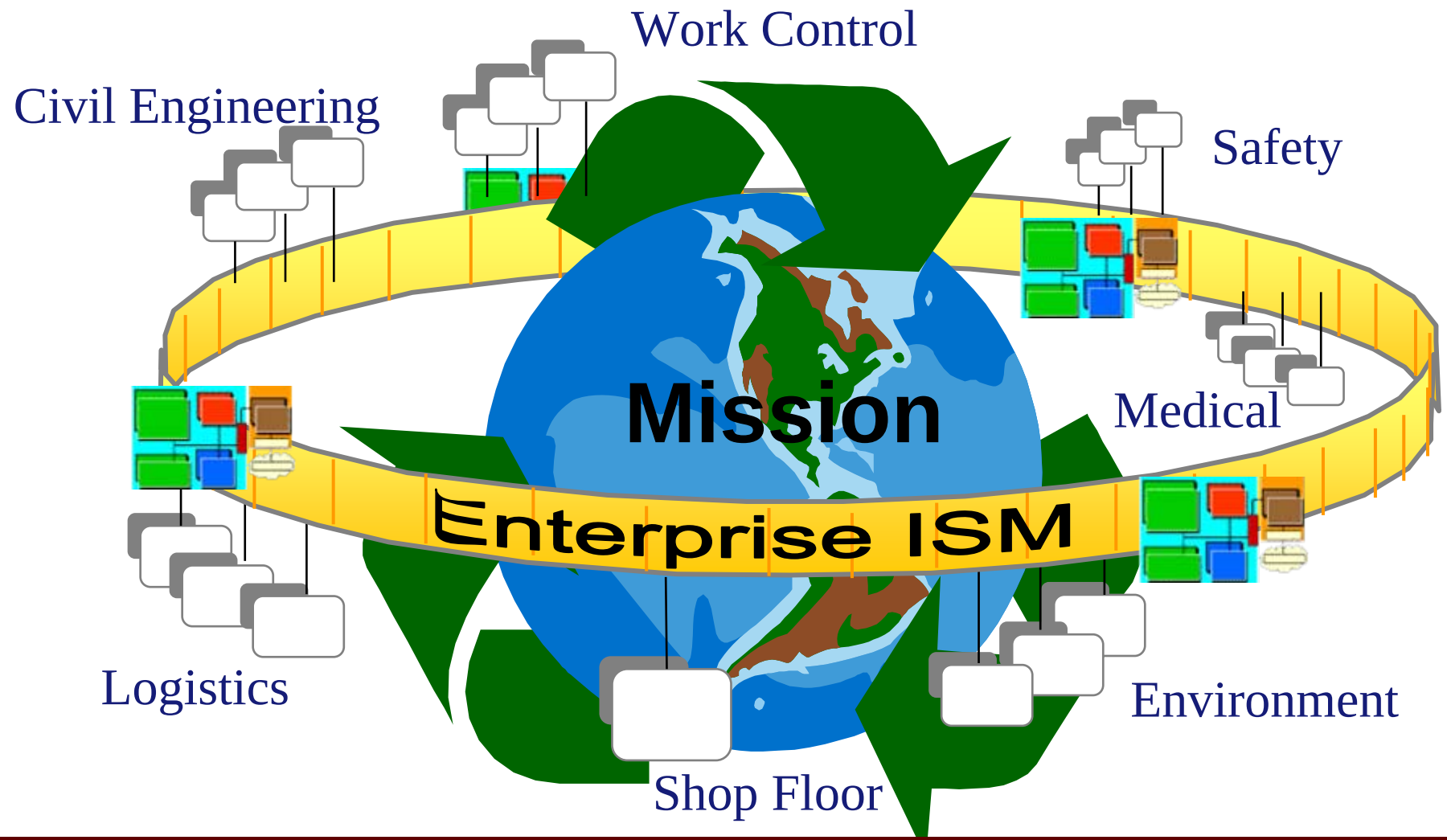
Each Process Change Impacts Others
Must have Big Vision for Success

Business Practice/Work Control



Evaluating the Work Package in the context of the end to end Processes with clear actionable objectives

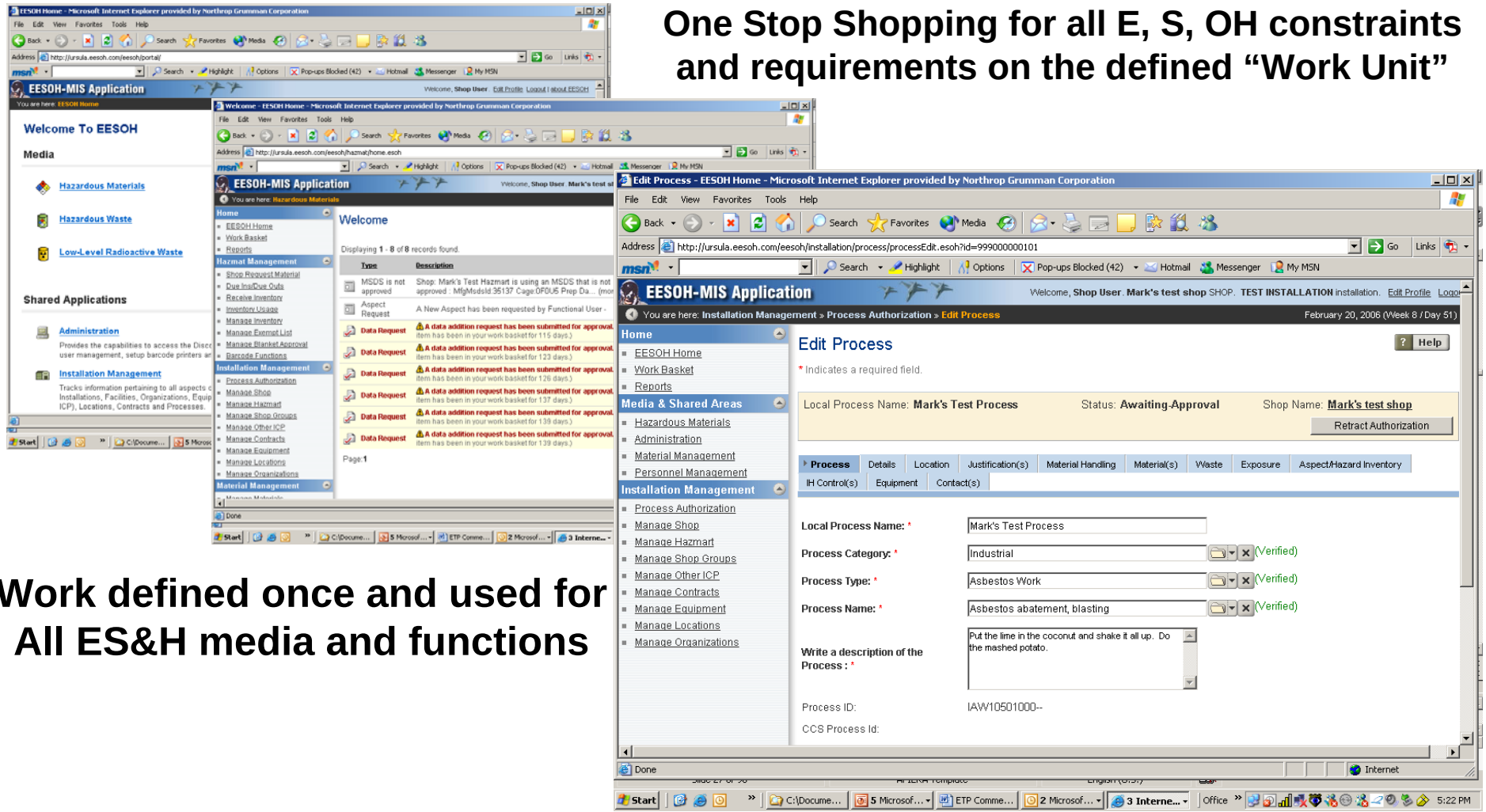
One View to a World of Information Through Common Definition and Data



Single Face to the Shop Floor
Person Doing the Work Must Have Authority and Responsibility

Single Face to the Shop Floor

One Stop Shopping for all E, S, OH constraints and requirements on the defined "Work Unit"



Work defined once and used for All ES&H media and functions

Work Flow to Eliminate Communication Errors
Most Errors Occur With Manual Processes

Business Case for E-ISM using a similar DOD ES&H Info. System to Establish the Baseline Model

- Used environmental, safety and occupational health factors for Hill Air Force Base, an Air Logics Center in the Air Force Materiel Command (AFMC)
  - Hill AFB is a 25,000 employee Air Logistics Center
    - 4 Major Laboratories
    - 4 Major Maintenance Production Facilities
    - 2 Ranges with Active Operations
- Occupational Medicine pillar is for the Hill's Medical Operations
  - 100 Bed Hospital
  - 2 Occupational Medical Clinics
- Budget numbers are from the FY2000 baseline

Environmental Pillar		SOH Pillar		OM Pillar	
Inventory	$4,000,000	Monitoring Samples	$3,000,000	Cost of Medical Services performed	$40,000,000
Waste	$6,000,000	Hours Closing Actions	$4,000,000	Hours away from Work	$7,000,000
Data Collection	$2,000,000	Hours Performing Analysis	$7,000,000	Return to Work Hours	$8,000,000
Reporting	$2,000,000	Hours Away from Work	$4,000,000	Reduction in Workers Compensation	$70,000,000
Permit Acquisition and Taxes	$7,000,000	Employees on Medical Surveillance	$20,000,000	Long Term Disability Compensation	$90,000,000
Environmental Prog. Budget	**$21,000,000**	**SOH Program Budget**	**$38,000,000**	**OM Program Budget**	**$215,000,000**

E-ISM Is a Means to Complex Transformation

Eliminate Redundancy, Establish Centers of Excellence

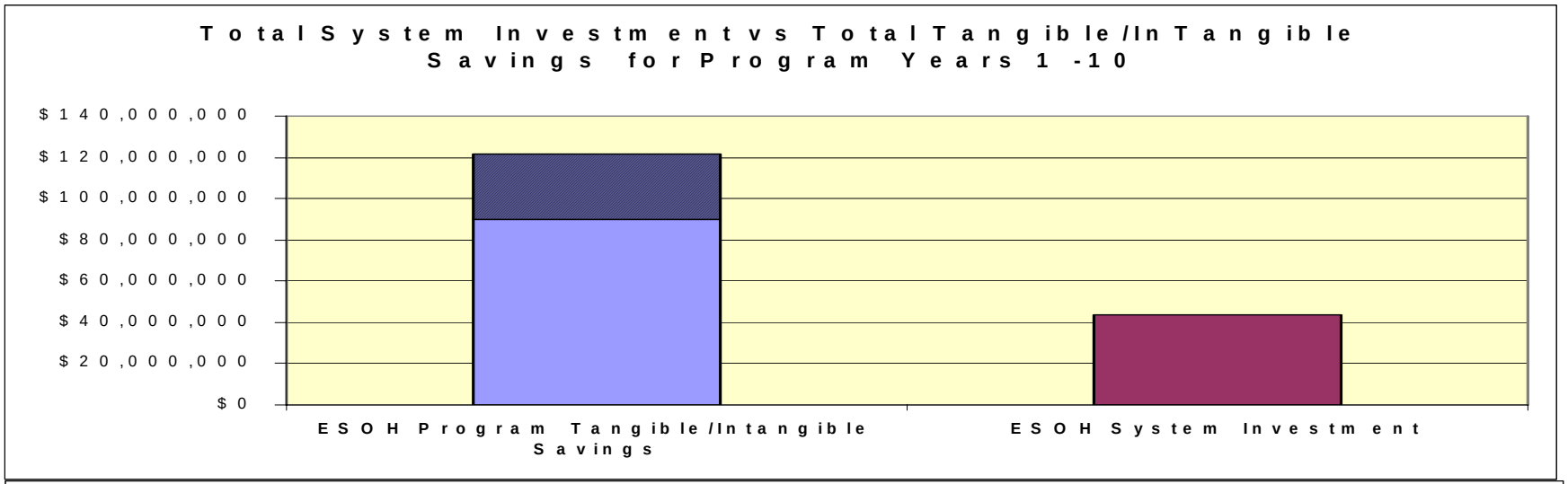
Business Case for E-ISM (continued)

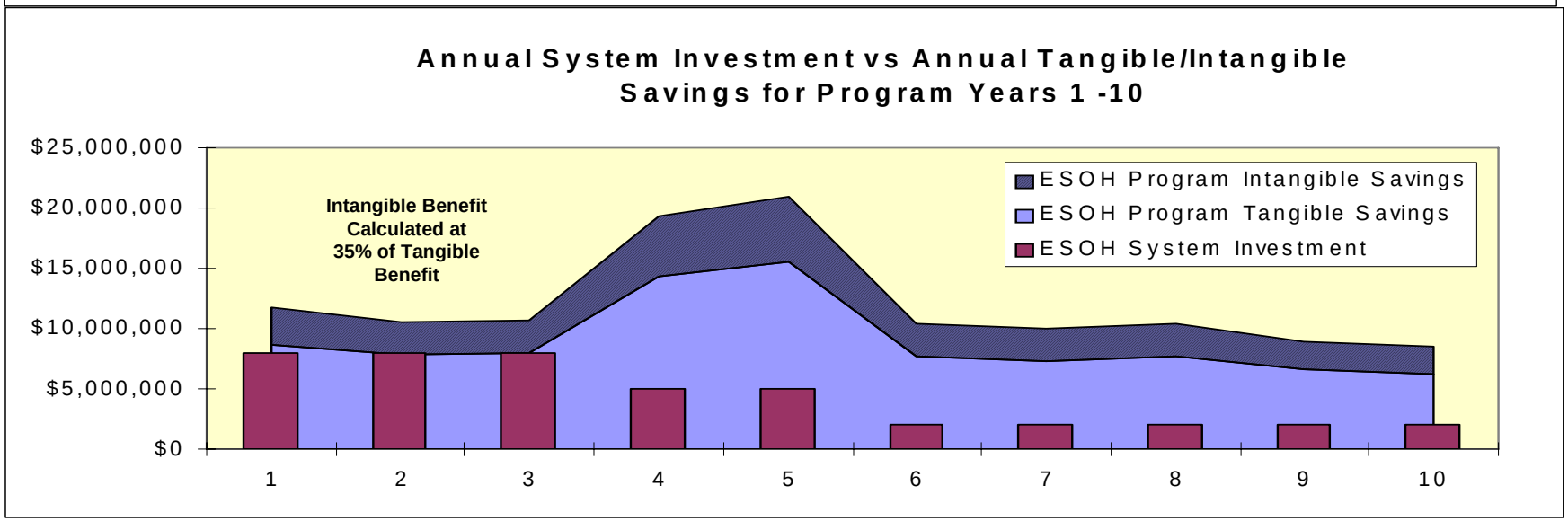
Composite View of Reductions by Factor by Yr.

Pillars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Environmental						
Inventory	10%	15%	5%	1%	0%	0%
Waste	10%	15%	5%	1%	0%	0%
Data Collection	10%	10%	2%	1%	0%	0%
Reporting	10%	10%	2%	1%	0%	0%
Permit Acquisition and Taxes	0%	0%	2%	0%	15%	5%
Safety and Occupational Health						
Monitoring Sampling	10%	20%	10%	5%	0%	0%
Hours Closing Actions	10%	20%	5%	5%	2%	0%
Hours Performing Analysis	10%	15%	5%	5%	0%	0%
Hours Away from Work	10%	10%	20%	5%	0%	0%
Employees on Medical Surveillance	0%	0%	2%	5%	5%	5%
Occupational Medicine						
Cost of Medical Services Performed	10%	5%	2%	0%	0%	0%
Hours Away from Work	10%	10%	10%	10%	2%	0%
Return to Work Hours	10%	15%	15%	5%	5%	0%
Reduction in Workers Compensation	0%	0%	5%	10%	15%	5%
Long Term Disability Compensation	0%	0%	0%	5%	5%	5%

- Reductions for Each Pillar Effect Reductions in the Others
  - Process Approval Reduction Not Factored (Not Current Practice)
  - Stewarded Data Not Factored (Not Current Practice)
  - Adding These Two Factors Increases Payback Significantly

Business Case for E-ISM (continued)
Composite View of Factors Over Life Cycle





E-ISM Returns From the Start and Continues To Deliver Value

Global Near Real Time ESOH Data for U.S. Air Force

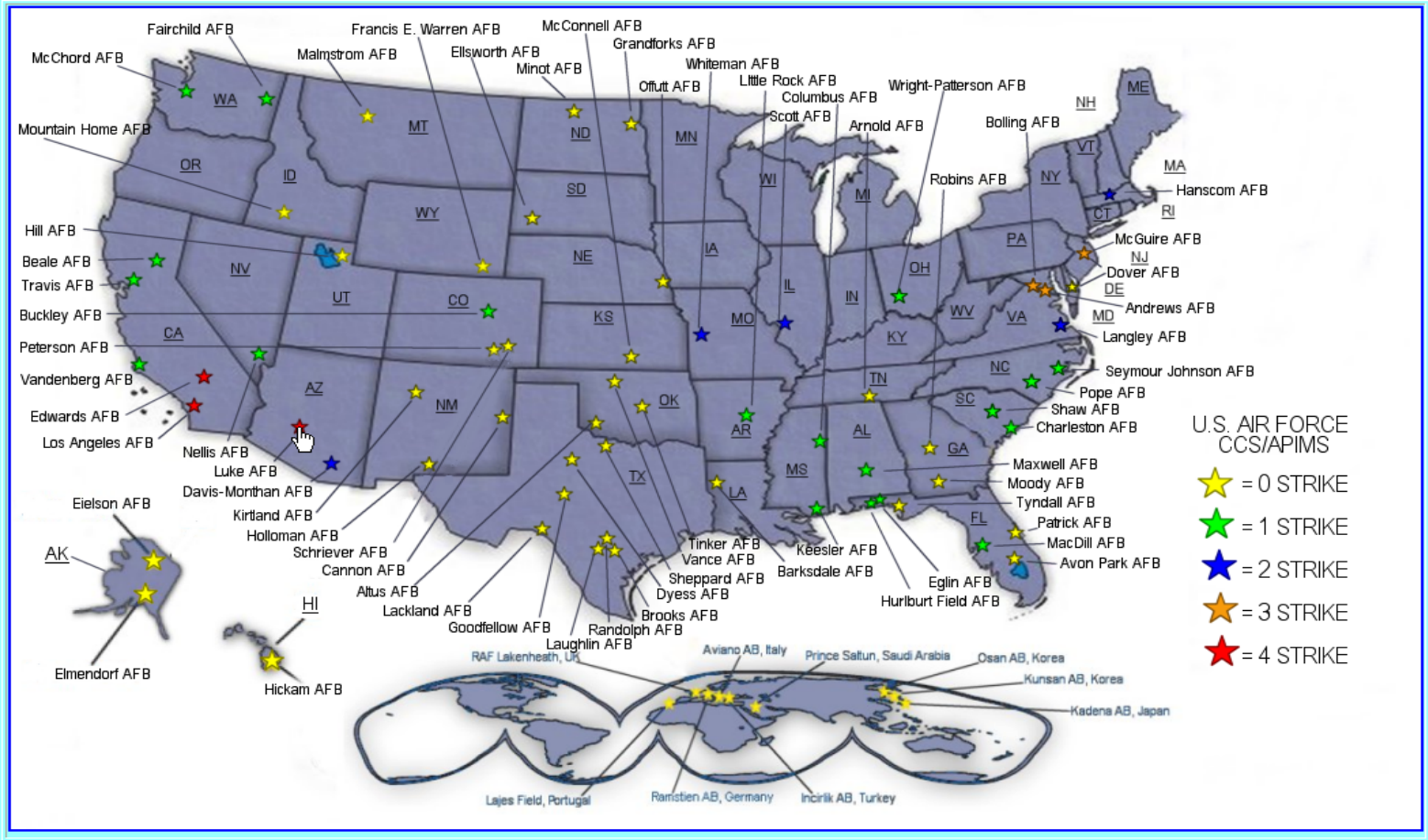
Home

Base Activity by MAJCOM:

ACC
AETC
AFMC
AFSPC
AFSOC
AMC
DRU
PACAF
USAFE

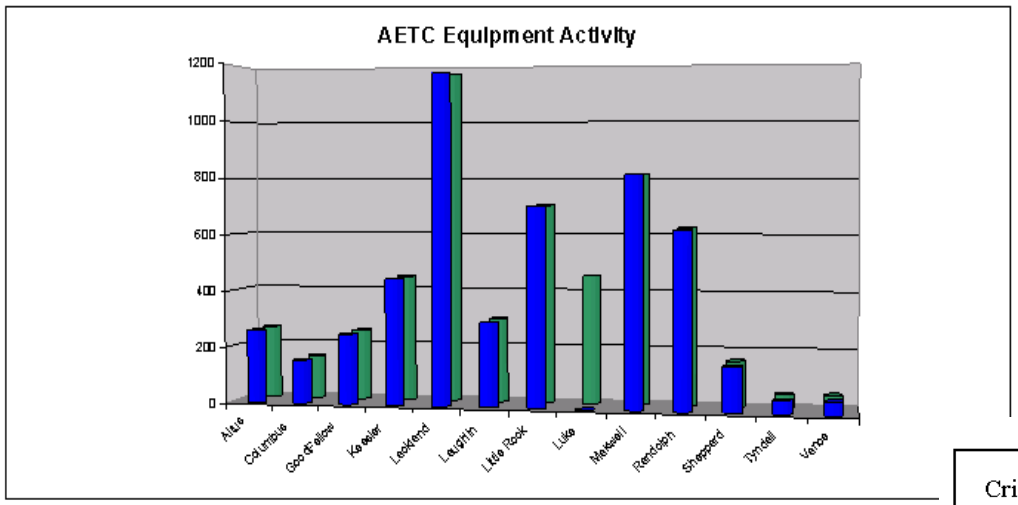
GeoBase Maps:

GEO Base Aerial View
Map View 1
Map View 2

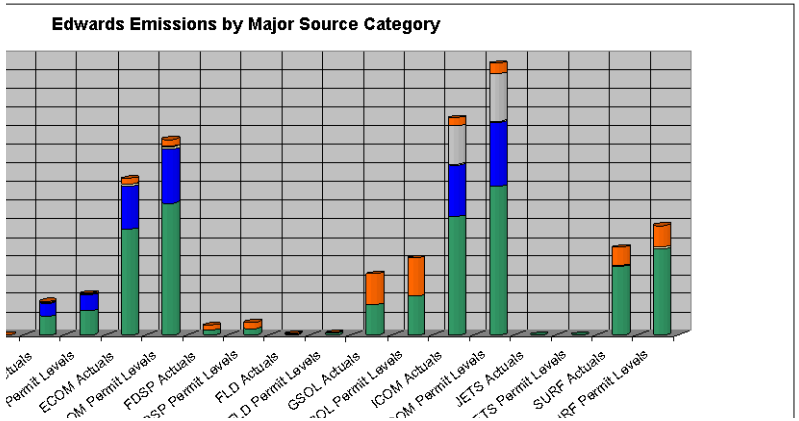


Integrating ESOH Data with in a Base – No Way?
Integrating ESOH across Installations- Impossible?

Corporate Wide Metric Reporting – U.S. Air Force



	Altus	Columbus	GoodFellow	Keesler	Lackland	Laughlin	Little Rock	Luke	Maxwell	Randolph	Sheppard	Tyn
Equipment	256	152	248	444	1169	297	702	0	814	625	160	
Total Equipment	256	152	248	444	1169	297	702	452	814	625	160	
Average Usage Since Imp	100	100	100	100	100	100	100	0	100	100	100	
Dates as of Final Imp Training	9/1/01	8/4/01	5/3/01	6/15/01	4/5/02	2/28/01	6/17/00	10/2/02	4/20/01	2/9/01	12/22/00	8/
Source Cat linked to Equipment	AST, ECOM, ICOM, WOOD	ABCL, AGE, CELL, ECOM, FIRE, FLD, ICOM, JET, SPRL, SURF, WOOD	ABCL, AST, DEGR, ECOM, FDSP, FIRE, ICOM, SURF, UST, WOOD	ABCL, AGE, ECOM, FLD, ICOM, INCN, JET, SURF, WOOD	ABCL, AST, CHEM, COOL, DEGR, ECOM, GSOL, HEAT, ICOM, INCN, LAB, SURF, UST, WELD, WOOD	ABCL, CELL, CHEM, DEGR, ECOM, FDSP, ICOM, JET, SURF, WELD, WOOD	ABCL, AST, DEGR, ECOM, FDSP, ICOM, JET, SPRL, SURF, UST	ABCL, AST, CELL, CHEM, DEGR, ECOM, FDSP, FLD, ICOM, JET, OBOD, RDL, SEAD, SURF, UST, WOOD	ABCL, AGE, AST, DEGR, ECOM, ICOM, SURF, UST, WOOD	ABCL, AST, COOL, DEGR, ECOM, FDSP, FLD, ICOM, JET, SURF, UST, WOOD	ABCL, AGE, AST, COOL, DEGR, ECOM, ICOM, JET, STER, SURF, UST	ABCL AST, ECO FLD, ICOM SURF



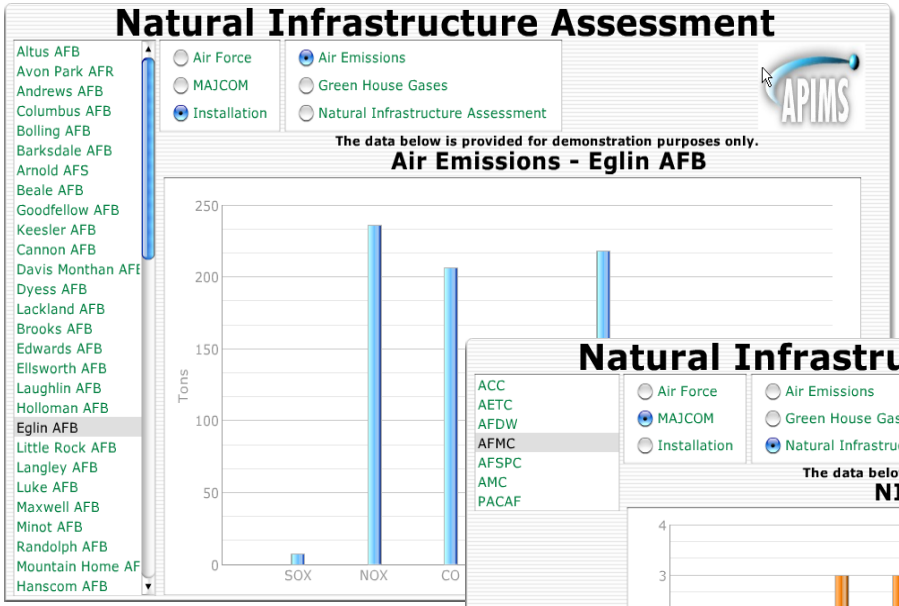
Criteria Pollutant	Emissions from Significant Sources (TPY)	Threshold Limitations ** (TPY)	Percent Availability	Resource Readiness Rating
NOx *	4.5308	50	1,104	RO3
SO_2	0.027185	70	367,850	RO3
PM_{10}	2.010345	50	3,482	RO3
VOCs *	6.402133	50	781	RO3
HAPs	0.239045	25	20,917	RO3
CO	0.964195	50	5,186	RO3

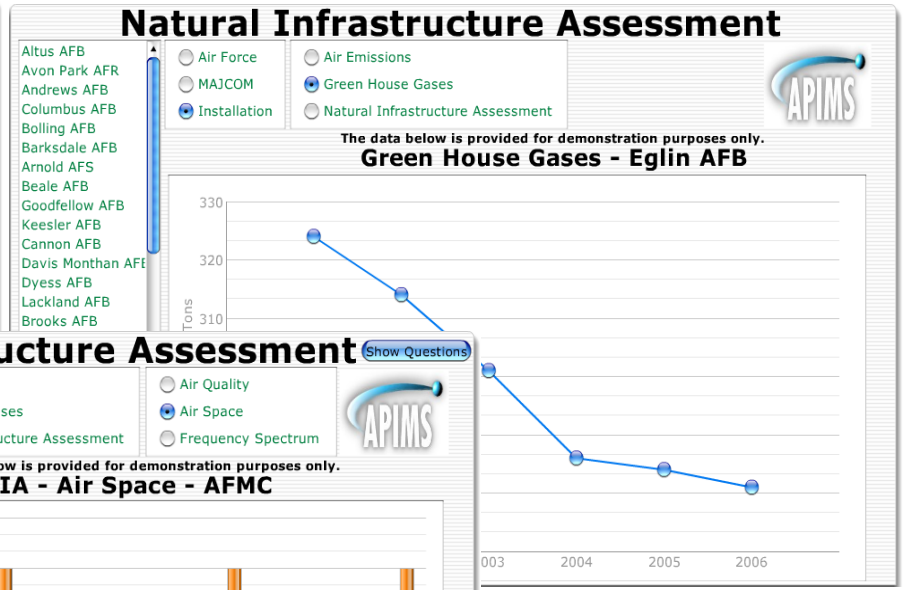
* - Most important pollutants for air emission readiness determination. Data taken from most recent annual air emission inventory

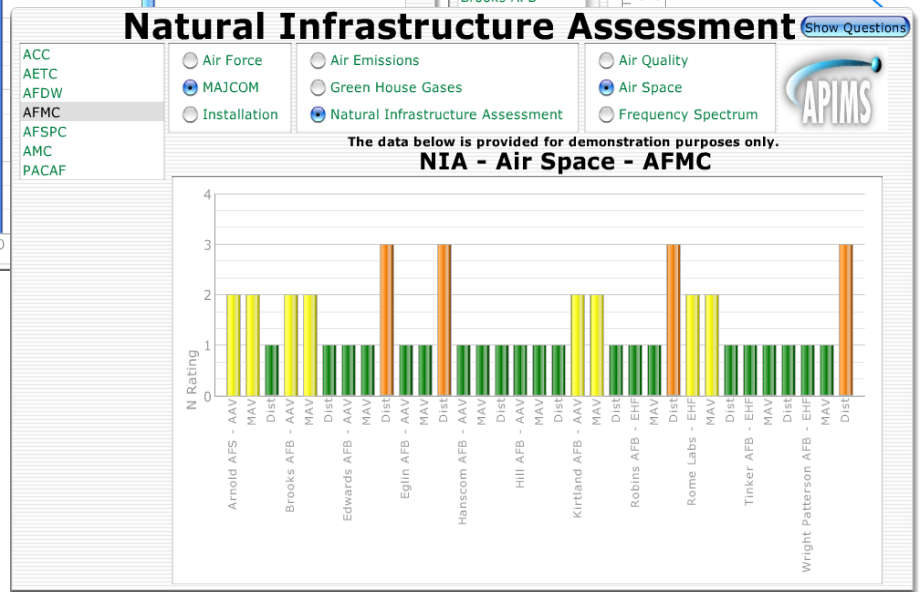
** - Threshold limitations as defined by Maricopa County Environmental Services Department, Division of Air Pollution Control

One Can Only Manage What One Can Measure

Natural Infrastructure Assessment – U.S. Air Force





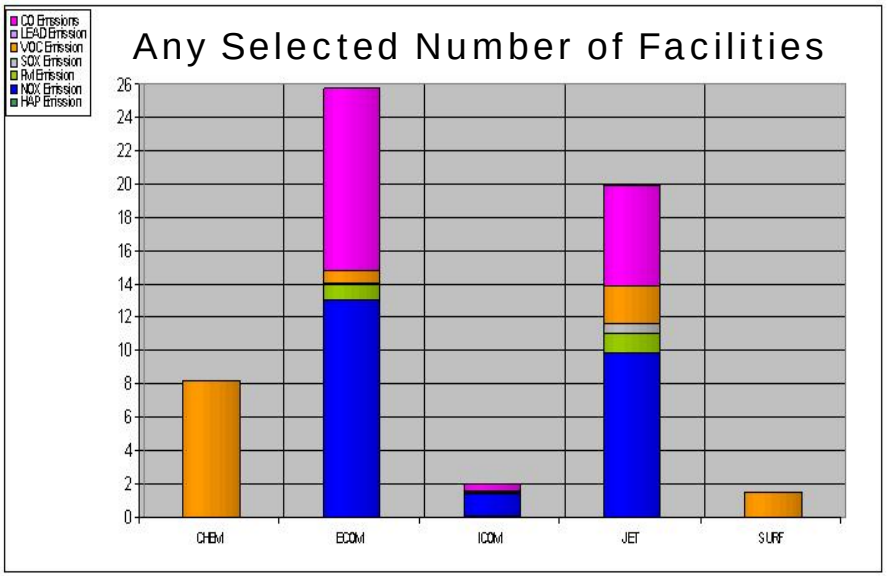


Data – Information – Knowledge

Mission Assured Success

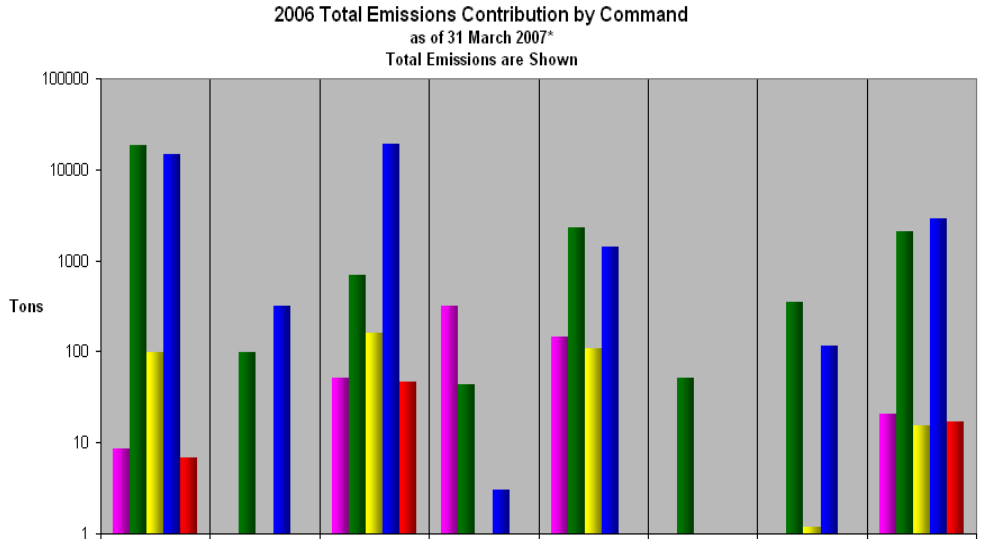
Enterprise Visibility and Value

- Benefits to Air Force and Major Commands
  - Multi-facility Cumulative Totals for Local/Regional/National Regulatory Negotiation



	HAP Emission	NOX Emission	PM Emission	SOX Emission	VOC Emission	LEAD Emission	CO Emssions	Total Emission
CHEM	0.0000064	0	0	0	8.180395	0	0	8.1804014
ECOM	0	12.9966	0.987742	0.07798	0.714813	0	10.917144	25.694279
ICOM	0.00096	1.352349	0.064048	0.060443	0.082242	0	0.402778	1.96282
JET	0	9.898062	1.102774	0.551712	2.354932	0	6.016308	19.923788
SURF	0	0	0	0	1.463388	0	0	1.463388

Only Source Categories with Emission Greater than 1 Ton are Displayed. Totals are in Tons

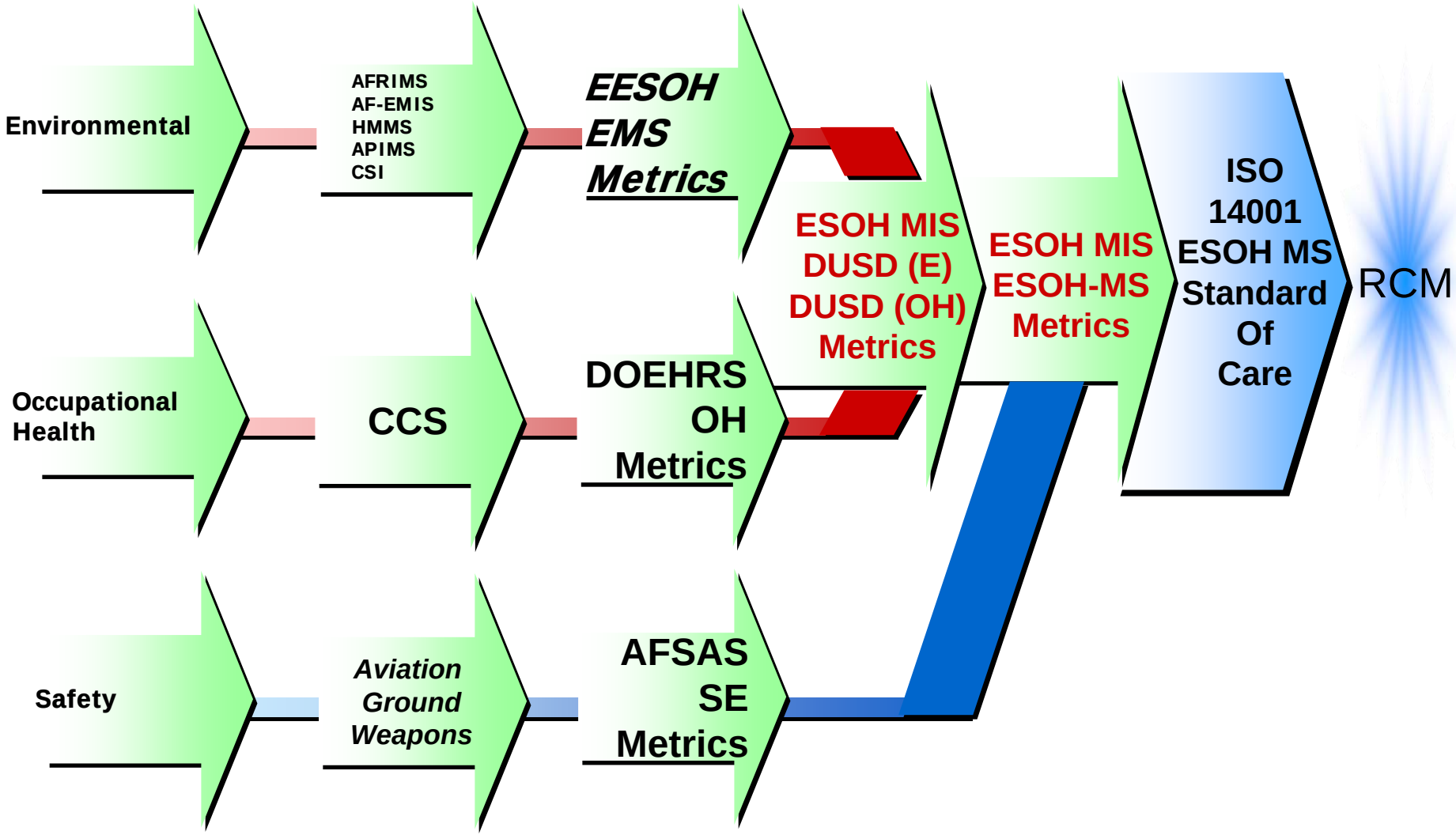


	630080	HAP	NOX	PM	PM10	PM2.5	SOX	VOC
AFSPC	8.6385	0.0000	50.9206	317.9880	143.0946	0.0000	0.0000	20.8422
AFMC	18396.8748	99.0352	690.3225	43.5326	2286.3314	51.5093	350.9961	2064.0612
ACC	98.6703	0.0000	157.8764	0.0000	108.8014	0.0000	1.1705	15.6009
AETC	14764.4699	311.9091	18975.8105	3.0161	1429.5318	0.0000	115.9484	2844.9890
AMC	6.7317	0.0000	46.6926	0.0000	0.0000	0.0000	0.0000	16.9468

*Total emissions do not necessarily reflect "Actual" emissions reported for the time period, due to variations in the types of calculations performed at each facility.

Knowledge Is a Powerful Management Tool

Migration to E-ISM using the DOD model as a basis



Integrated E-ISM Solution Features and Benefits

- Features
  - Compliance with 10CFR851 in accordance with EO 13423 requirements
  - Electronic Chemical Hazard Record Compliance (10CFR851)
  - Visibility to Procurement, Inspection, Inventory, Delivery, Use, Disposal During the Chemical Life Cycle
  - Reduced Inventories and Cycle Time
  - Reduce Waste and Better Shelf Life Management
  - Leverages DOE 10CFR851 compliance strategy to reduce costs and inventory Cycle Time
- Benefits
  - Mobility for Research and Innovation
  - Internal and External Material Reductions
  - Healthy and Productive Workforce
  - Immediate information resource for emergency response

Summary of Message

- Requirements for institutionalization E-ISM.
  - Management Commitment (ISM successful program with strong commitment)
  - Policy Guidance (Detailed guidance and Evolving Metrics)
  - Financial Incentive (Complex Transformation)
  - Taxonomy between functional areas (Common Language)
  - Data Stewardship (Provide the Data)
  - Business Practice/Work Control (Common as possible)
  - Sustainable Measureable Improvement
- Barriers Hindering ES&H Integration
  - Empires and spot Funding (Program must be sustainable)
  - Trust/Respect (Complexes must learn to trust others capability)
  - Crisis Management (Must keep the vision and incrementally improve)