



Measuring IT Program Outcomes

Brad Clark (SMI)

Betsy Clark (SMI)

Kevin Mooney (Robbins-Gioia)



Topics

IT Outcome Measurement Approach

Case Study:

Automated Commercial Environment (ACE)

- Example measures
- Managing Outcome Measures

Conclusions



Measuring IT Program Outcomes

A different application of measurement

- Contribution to the **enterprise** (outcomes) versus **project** monitoring and control

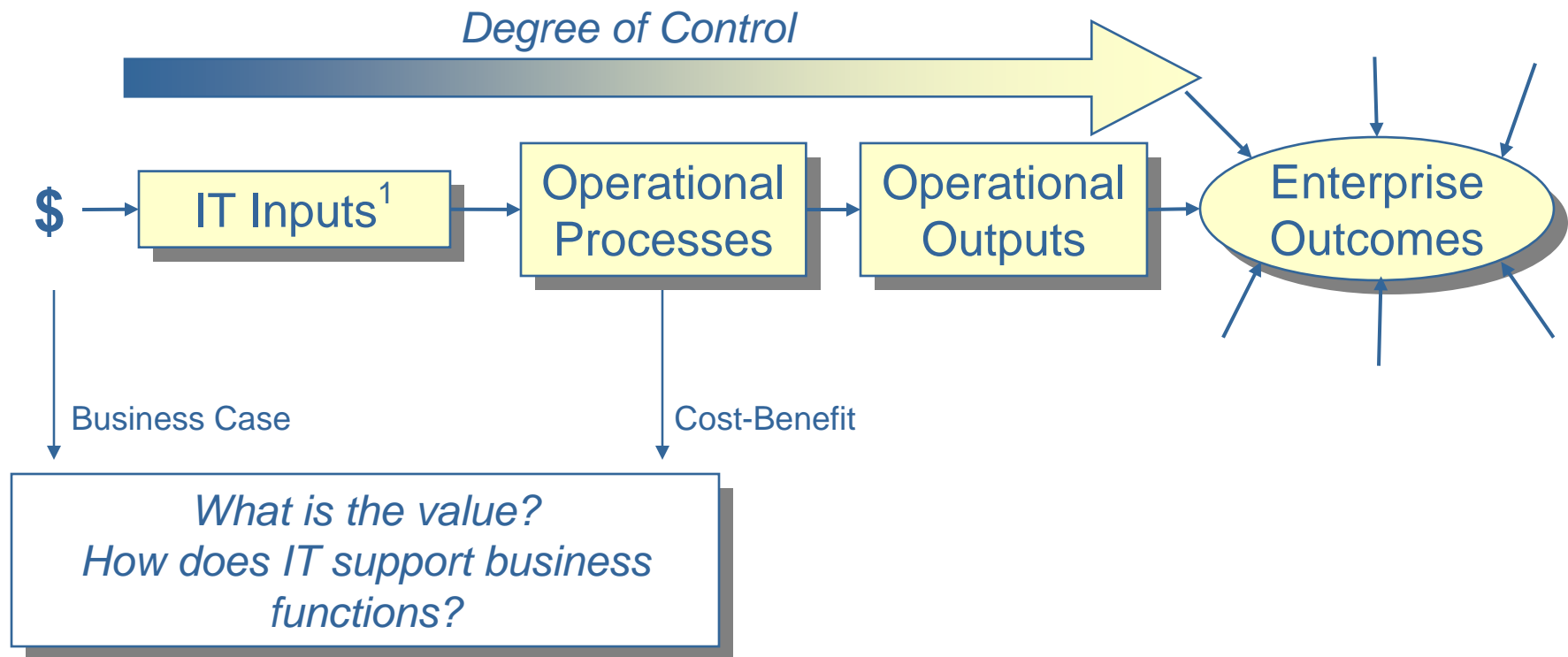
Large IT programs under pressure to show benefits from investment

- In the commercial world: show how IT supports business goals
- In the government world: show how IT supports the mission or fulfills policy/regulations

Showing benefits cannot always be expressed in dollars saved



IT Outcome Measurement Approach: *Cause and Effect Model*



Note:

1. IT Inputs consist of Enabling Technologies, People, Facilities, ...



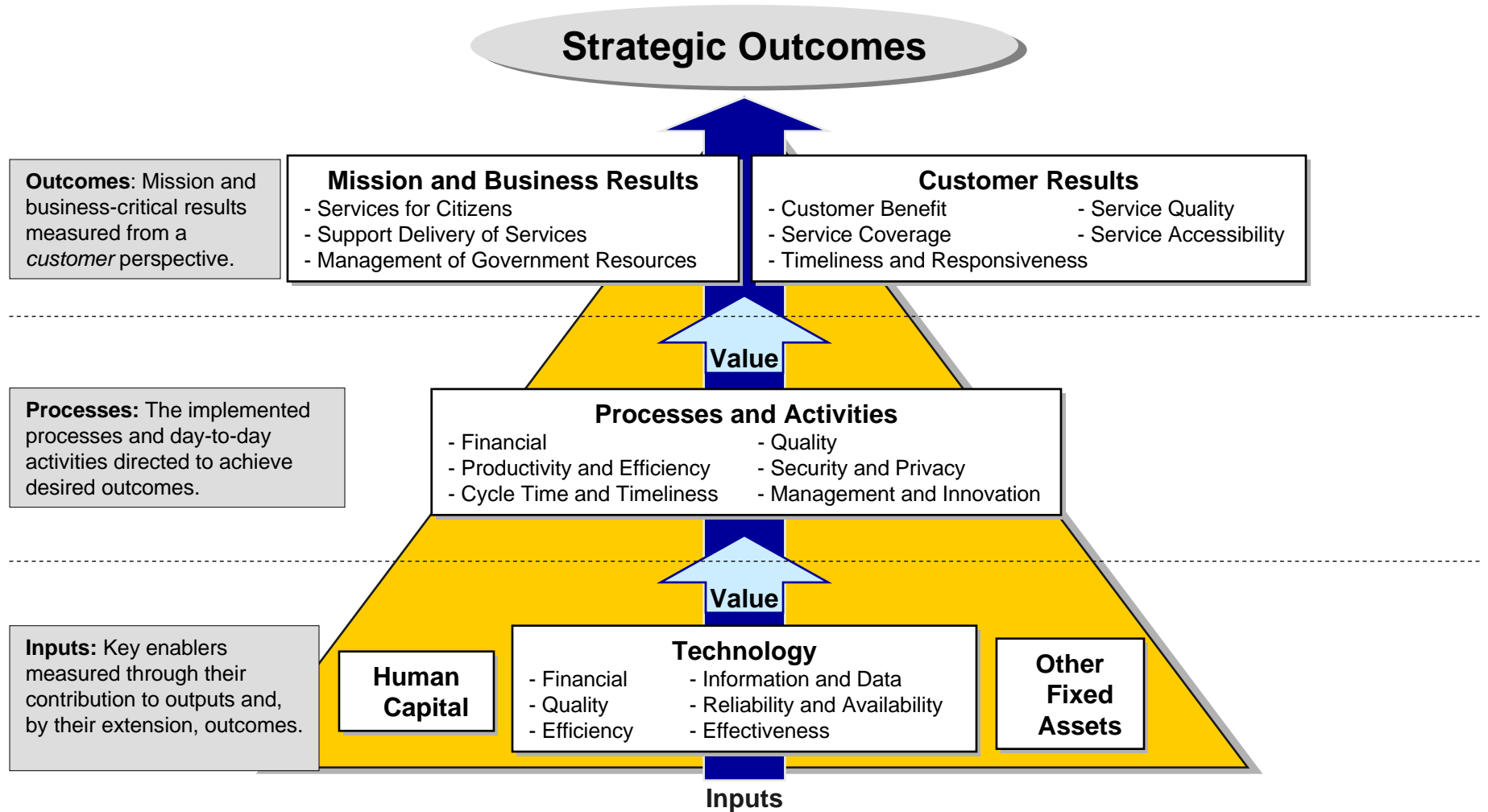
IT Outcome Measurement Approach -2

Measuring Outcomes

- Impact application is having on the business or mission goals
- Should be a line of sight (cause and effect) from outcome back to technology input
 - Cause and effect should tell a “story”
- Potential sources of data
 - Application generated
 - End-user surveys
 - Manually collected process data
 - Other



OMB's Performance Reference Model for IT



OMB: Office of Management and Budget
 Source: <http://www.whitehouse.gov/omb/egov/a-2-prm.html>



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Customs and Border Protection Modernization Program

Customs Modernization Act

- In 1993, Congress passed an act to modernize and simplify the administration of the customs laws

Automated Commercial Environment (ACE)

- Modernizes legacy cargo processing system and operational processes
- The legacy system being replaced currently has one of the highest volume of data transactions in the world (16 million/day)
- \$3B budgeted over its ten-year development and deployment cycle (2000 - 2010)

Trade Act of 2002

- Requires advanced filing of an electronic manifest for all cargo
- New requirement for trucking industry



Customs and Border Protection Modernization Program

Need to show benefits being obtained for the investment

Government Accountability Office recommended improvements to performance measurement program

- to demonstrate clearer alignment with agency goals

A set of performance measures were identified using the Performance Reference Model (PRM) as a framework

- March through June 2006

These measures went through an extensive review and approval cycle through CBP and DHS

- July 2006



Outcome Measures

Cargo Systems Program Office manages ACE development and deployment

- Foundation Business Outcomes Team (7 FTEs) is responsible for the definition, collection and reporting of outcome measures
- Set of measures are referred to as: **PRM Measures**
- There are currently 44 PRM measures across eight releases

Three sources of data

- ACE System supplied data
- Surveys of CBP Officers and Trade
- Other:
 - Office of Trade - compliance data



ACE Release 4 – Truck e-Manifest

At least one hour prior to crossing the US border, trucking companies must file an electronic manifest

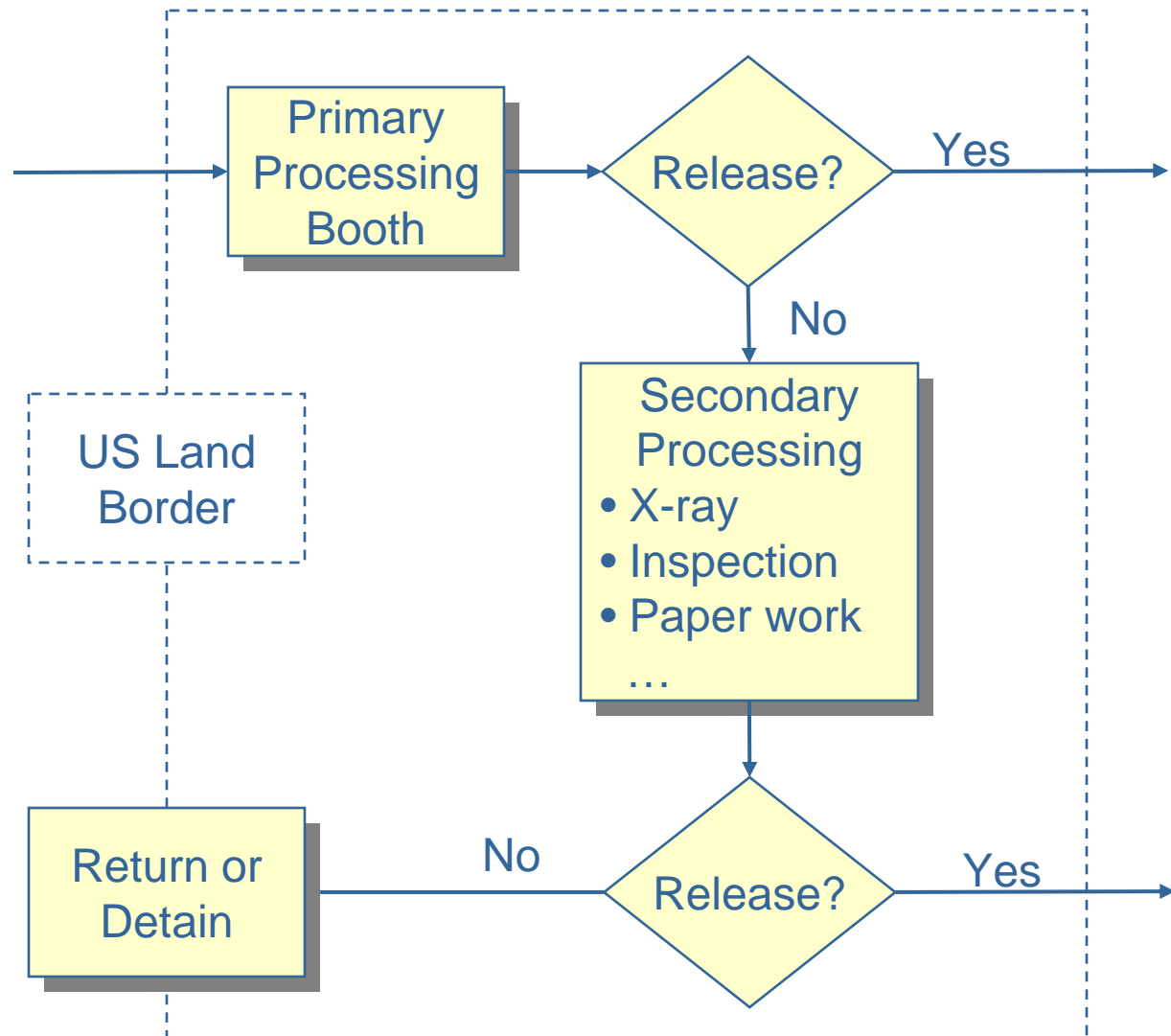
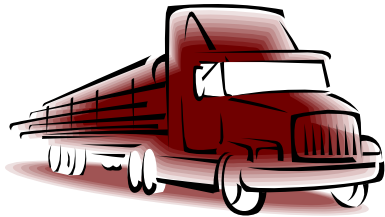
- Driver
- Passengers
- Information on tractor and trailer
- Cargo being transported

This requirement is being rolled out incrementally (six groups)

- Group 1 (Washington State, Arizona, North Dakota)



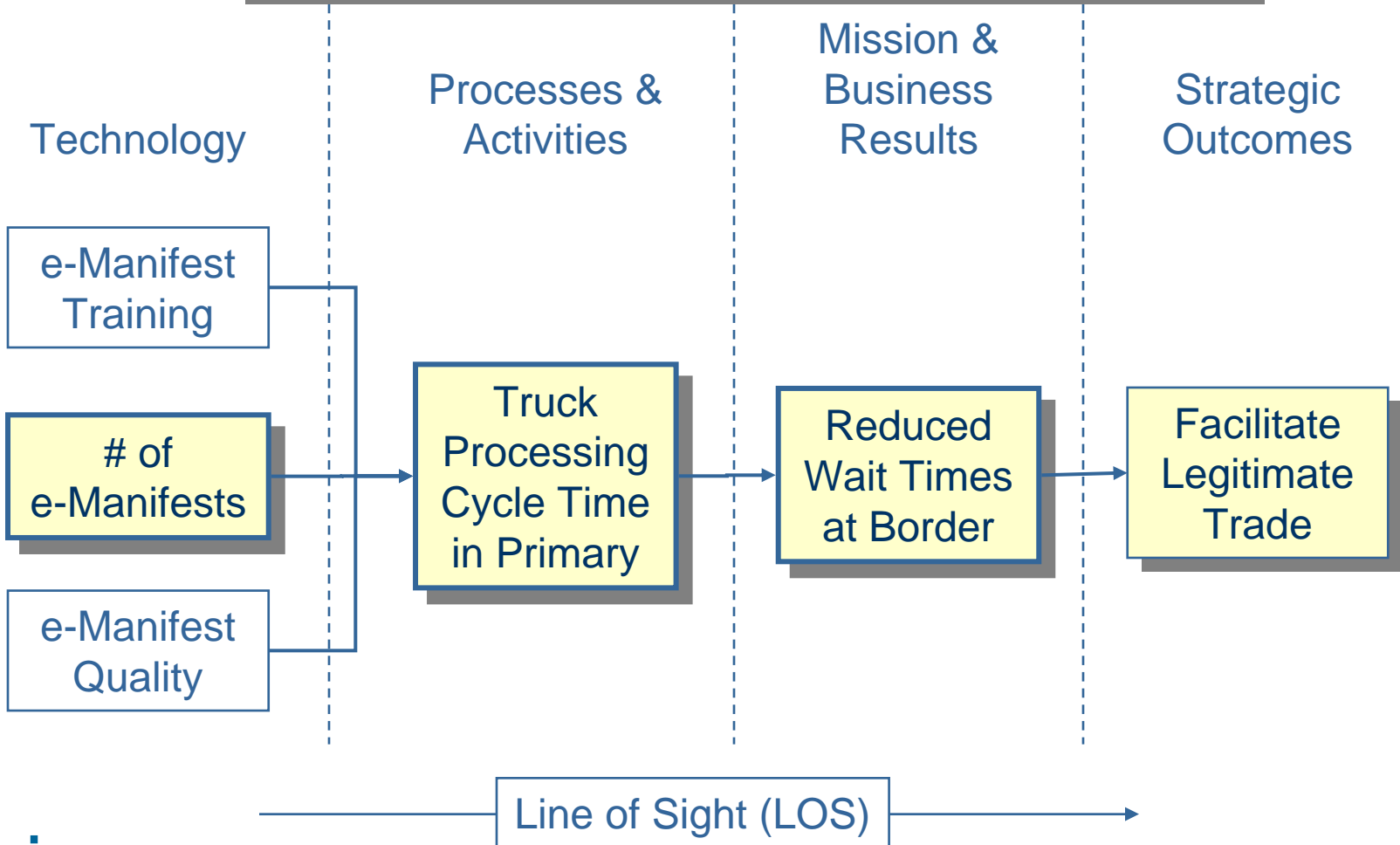
Cargo Processing at a Land Border





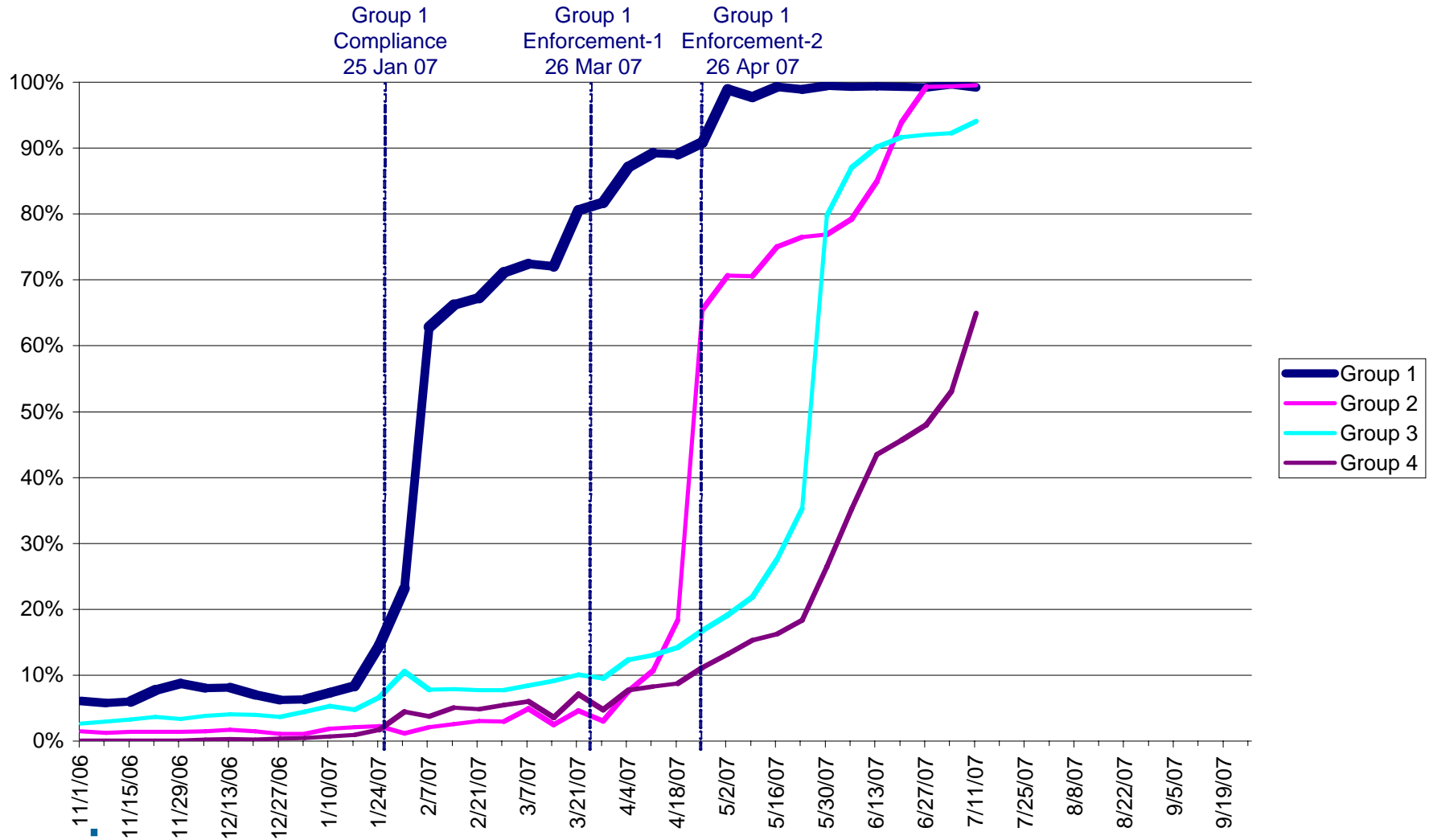
Example of an ACE “Story”

Telling a *cause and effect* based story is a powerful communication tool





Technology: e-Manifest Compliance Report - June 07





Process: Primary Processing Time Report

Processing Times for Group 1 Ports for June 2007

Manifest Type	Number of Trucks	Average Truck Processing Time (Seconds)
Electronic	82,530	33.5
Paper	34,515	58.8



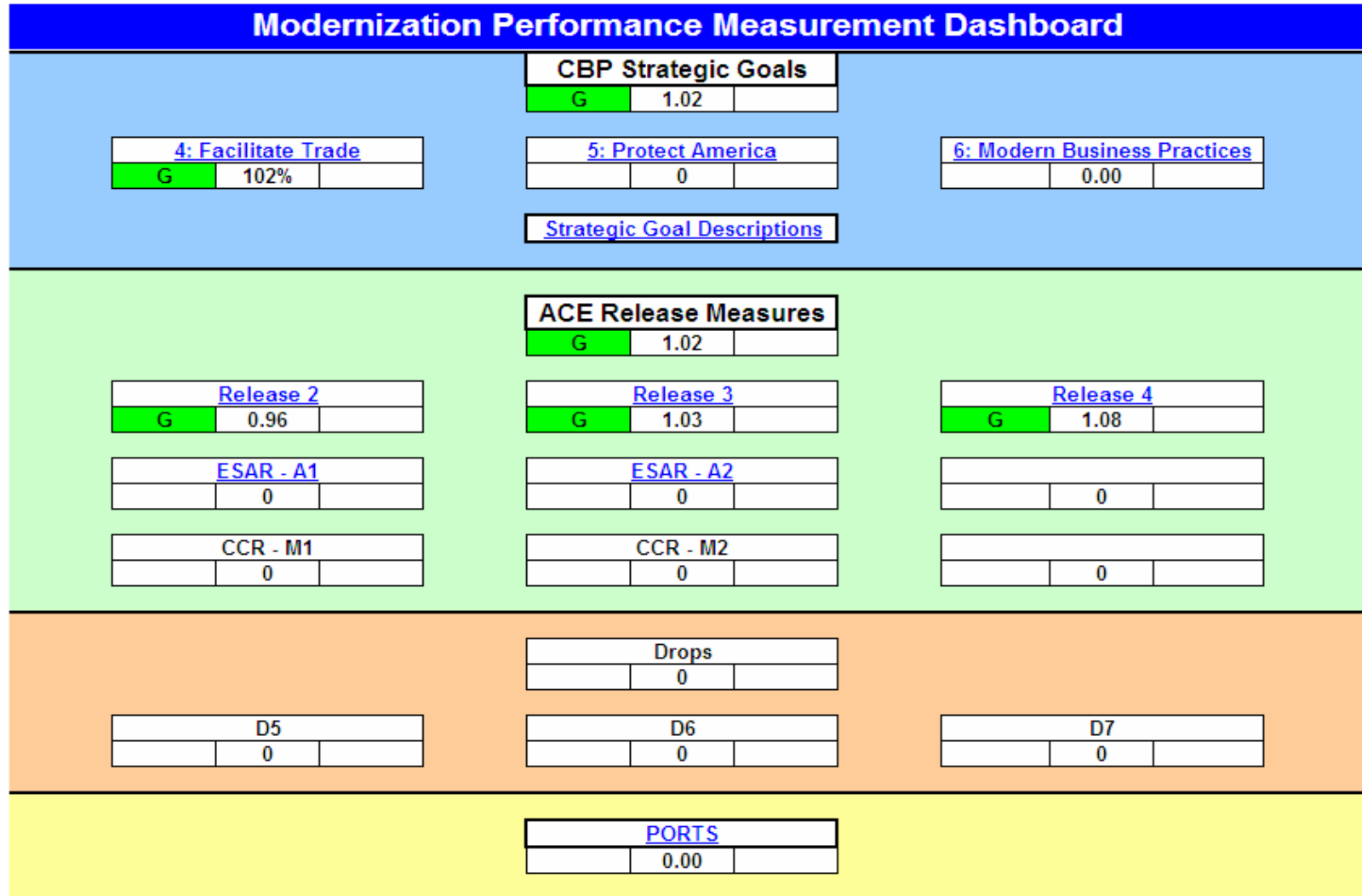
Mission Result: Border Wait Times, Canadian Border

Port Name Crossing Name	HOURS	Max Lanes	STANDARD
Alexandria Bay Thousand Islands Bridge	24 hrs/day 7/14/2007	3	At 1pm EDT 5 min delay 2 lanes open
Blaine Pacific Highway	24 hrs/day 7/14/2007	3	At 11am PDT 30 min delay 1 lane open
Buffalo/Niagara Falls Lewiston Bridge	24 hrs/day 7/14/2007	4	At 2pm EDT no delay 4 lanes open
Buffalo/Niagara Falls Peace Bridge	24 hrs/day 7/14/2007	7	At 2pm EDT 1 hr delay 6 lanes open

Source: CBP Website: <http://apps.cbp.gov/bwt/>

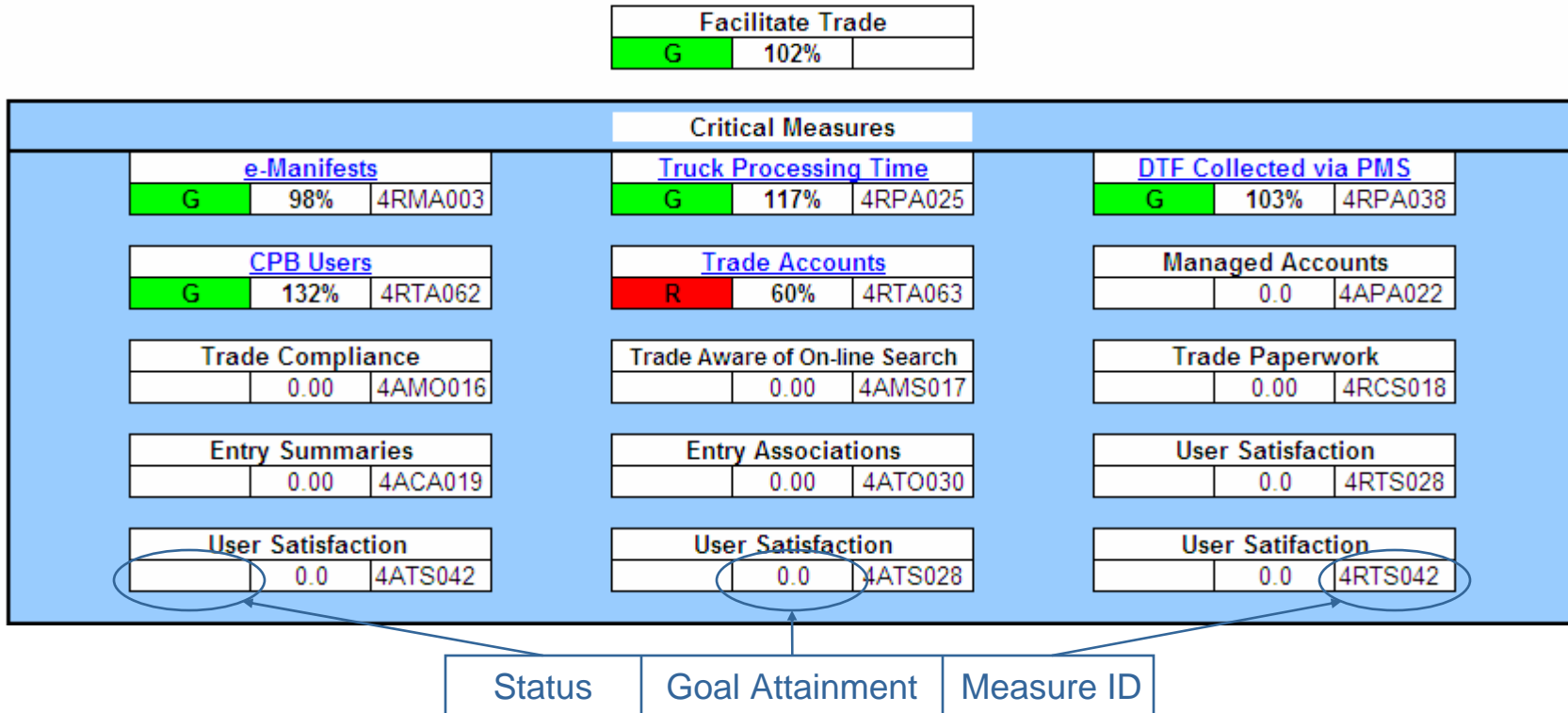


Dashboard -1





Dashboard -2

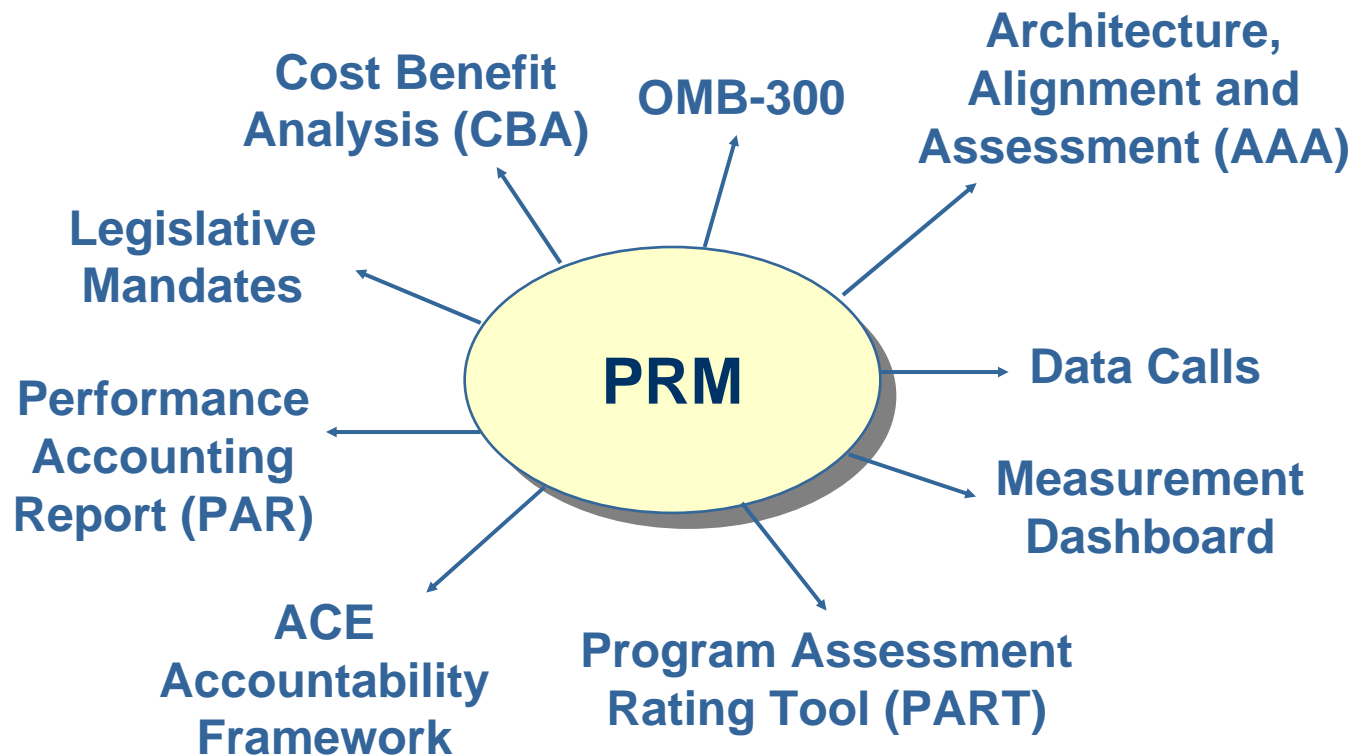


Facilitate Trade: consists of multiple measures covering various aspects of trade from the percentage of e-manifest filed to the Duties and Fees collected through Periodic Monthly Statement. We have set goals for each measure and then look at the percentage achievement of that goal. As seen above, we are currently slightly above our current goal in the area of Facilitating trade. We are at 98% of our goal in the area of e-manifests, and we are exceeding our goal by 17% in the reduction of Truck Processing Time. Each of these measures is further broken down into individual discreet measures.



PRM Serves Multiple Stakeholders

Supports collecting measures once for multiple purposes





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- ***Managing Outcome Measures***

Conclusions



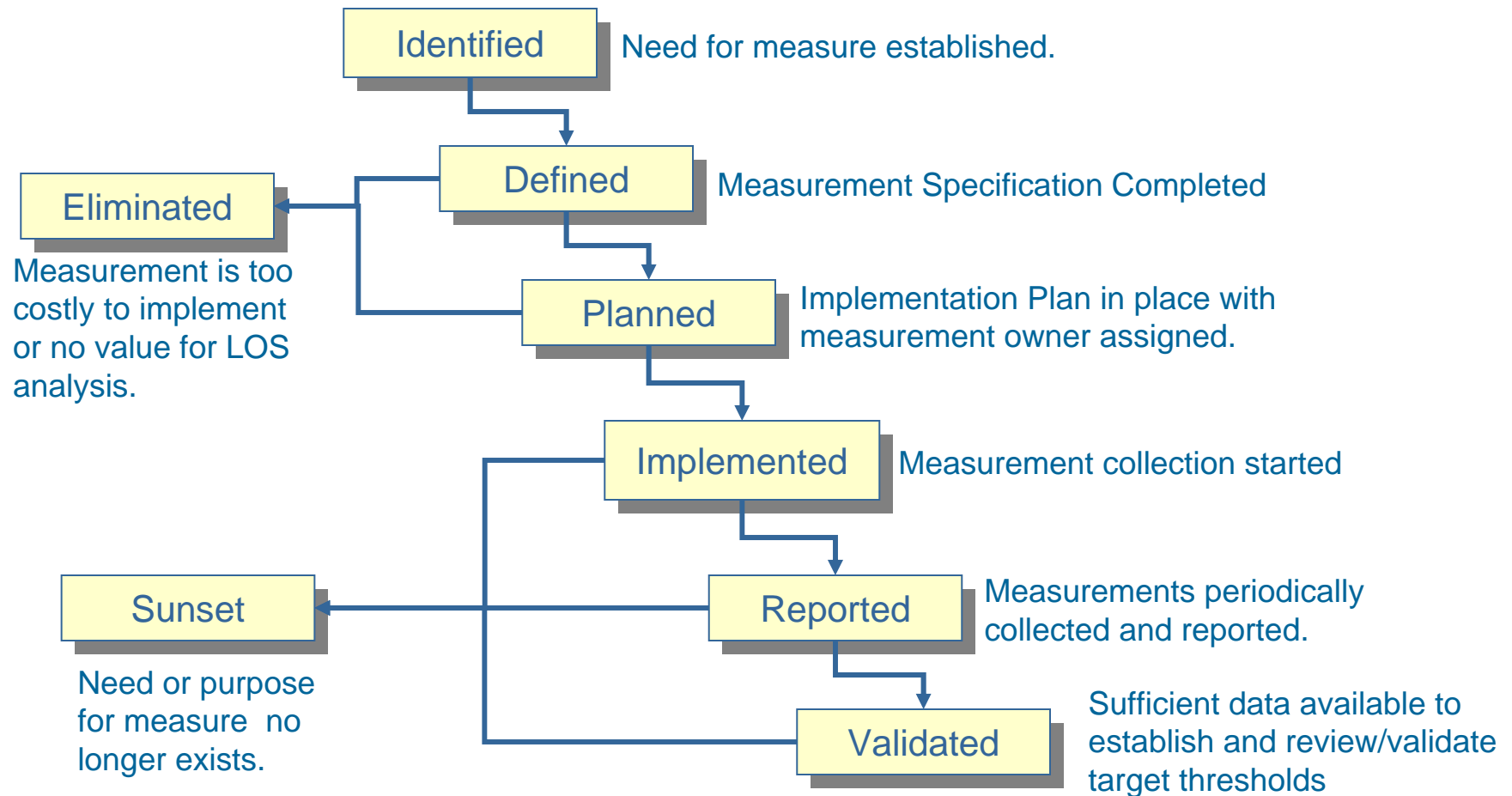
ACE Measures By Release

Performance Measures	R2	R3	R4	A1	A2	M1
Percent users satisfied with system usability (data presentation, entry and extraction; intuitive user interface, etc.)	X	X	X	X	X	X
Population of CBP workforce using ACE to manage trade information	X					
Number of Trade accounts	X					
Percent Trade in compliance (measured thru CM program)		X	X	X	X	
Percent total duties and fees paid by Periodic Monthly Statement (PMS)		X				
Percentage paperwork for the Trade			X	X	X	
Number of eManifests (truck)			X			
Time to process at primary (truck)			X			
Percent customer satisfaction with the seamless filing of Multi-Modal Manifest (air)						X
Percent use of commercial control numbers for in-bond movement tracking (air)						X
.....						

There are 44 measures to track but not all at once



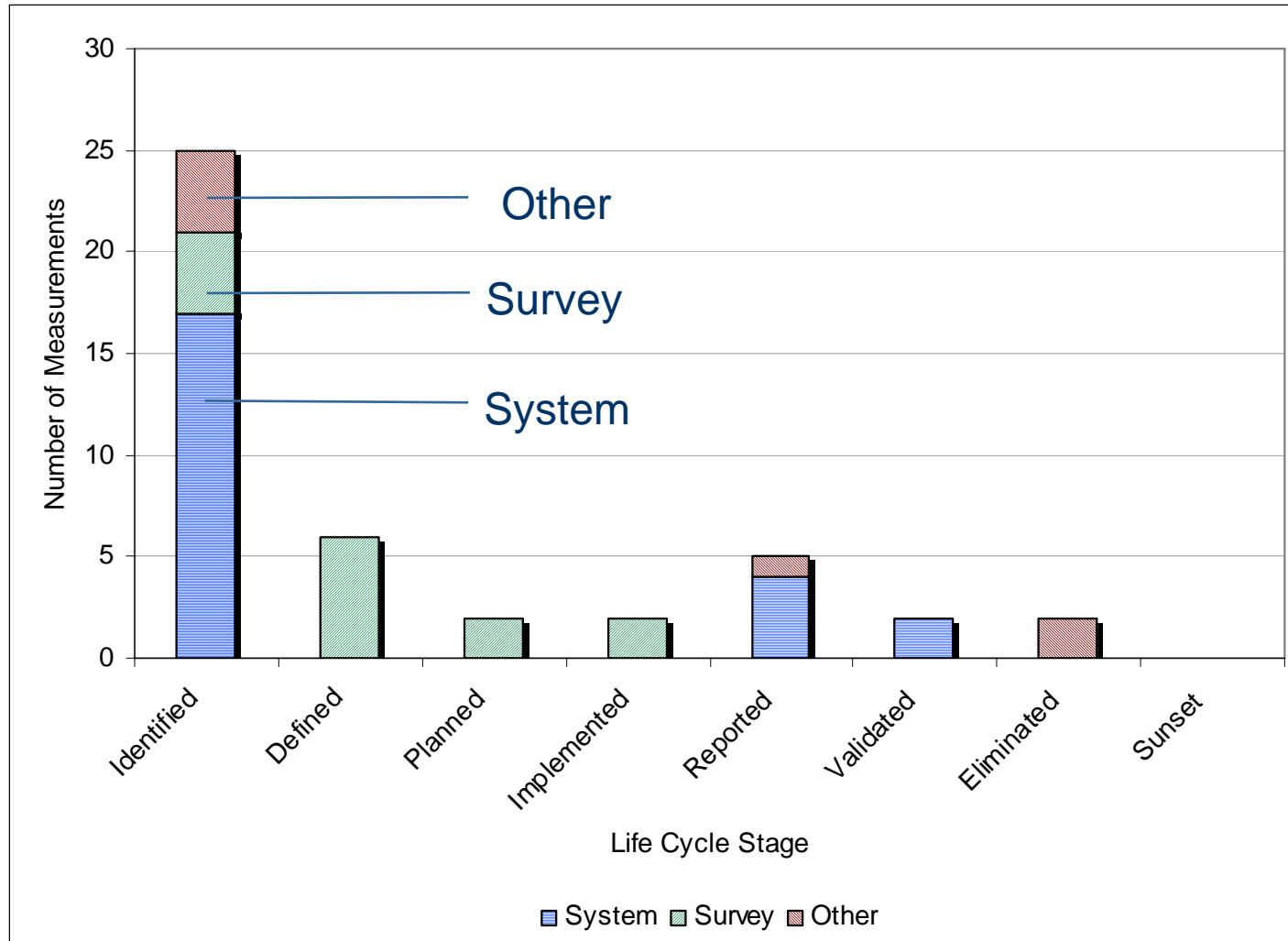
Measurement Lifecycle



Source: ACE Foundation Business Outcomes (FBO) Team



Measurement Status



Source: ACE Foundation Business Outcomes (FBO) Team



Measurement Definition

Tailored version of the PSM specification template
 Measurement Specification completed for all measures
 Fully Defines Measure

Measurement Specification Template

Measure ID	1RMA003	ACE Release	R4	Lifecycle	Defined
Measure Name	(Increase) Number of eManifest (truck)				
CBP Strategic Goals	1: Preventing Terrorism at Ports of Entry: Preventing terrorists and terrorist weapons, including weapons of mass destruction and weapons of mass effect, from entering the United States				
Objective	1.2: Improve information and targeting				
CBP Strategy	1.2.1: Use advanced passenger and cargo information to pre-screen, target and identify potential terrorists and terrorist shipments and any related activity.				
Measurement Area	Mission and Business - Mode of Delivery	Measurement Category	Regulatory Compliance and Enforcement	Measurement Grouping	Inspections and Auditing
Beginning FY	FY05	Ending FY	FY11		
Planned Improvement to Baseline	N/A				
Actual Results	FY05: 0.3% FY06: 2%				
CBP Desired Result	1.2: Increase use of targeting				
Purpose	See definition and rationale				
Measurement Type	Derived Measure	Priority	CF		
Baseline Pre-Deployment	N/A	Baseline Post-Deployment	0.3%		
Data Source	System	ACE Portal Report Number	PM002		
Unit of Measurement	Trip Count				
Attributes	Port Number, Arrival Date, Number of trips, Trip Source ID - Paper/ eManifest				
Formula	B001/B002				
Supporting	B001 (Number of eManifest), B002 (Total Number of Manifest)				



Measurement Definition

CBP Goal/Objective/Strategy supported

ACE Release

Measurement Owner

Type: Base / Derived

Data Source

Unit of Measure

Attributes

Formula

Beginning FY

Baseline

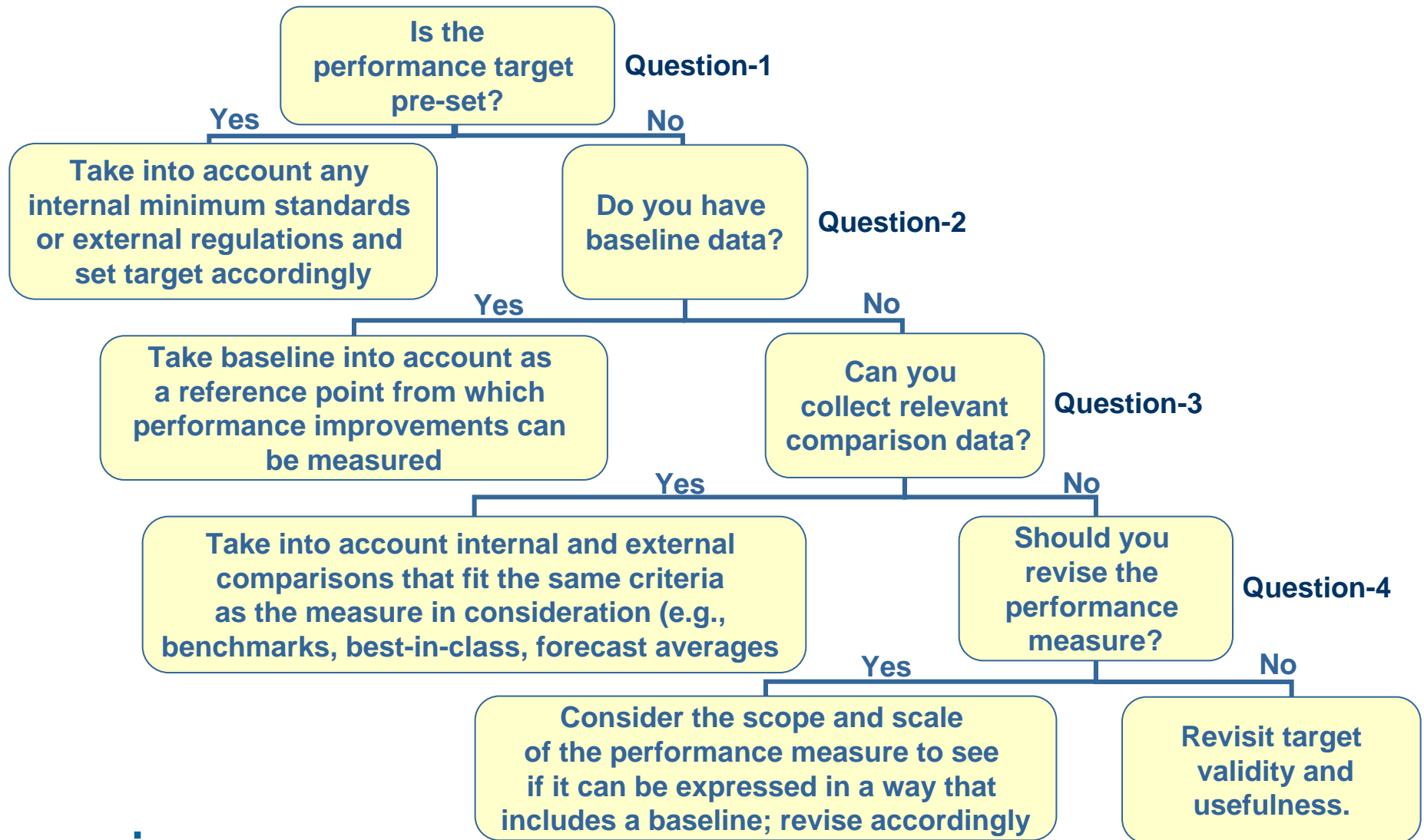
Target (by year)

Actual Results

We use the PSM distinction between *Base* and *Derived* measure.
– *Base* measure template and *Derived* measure template

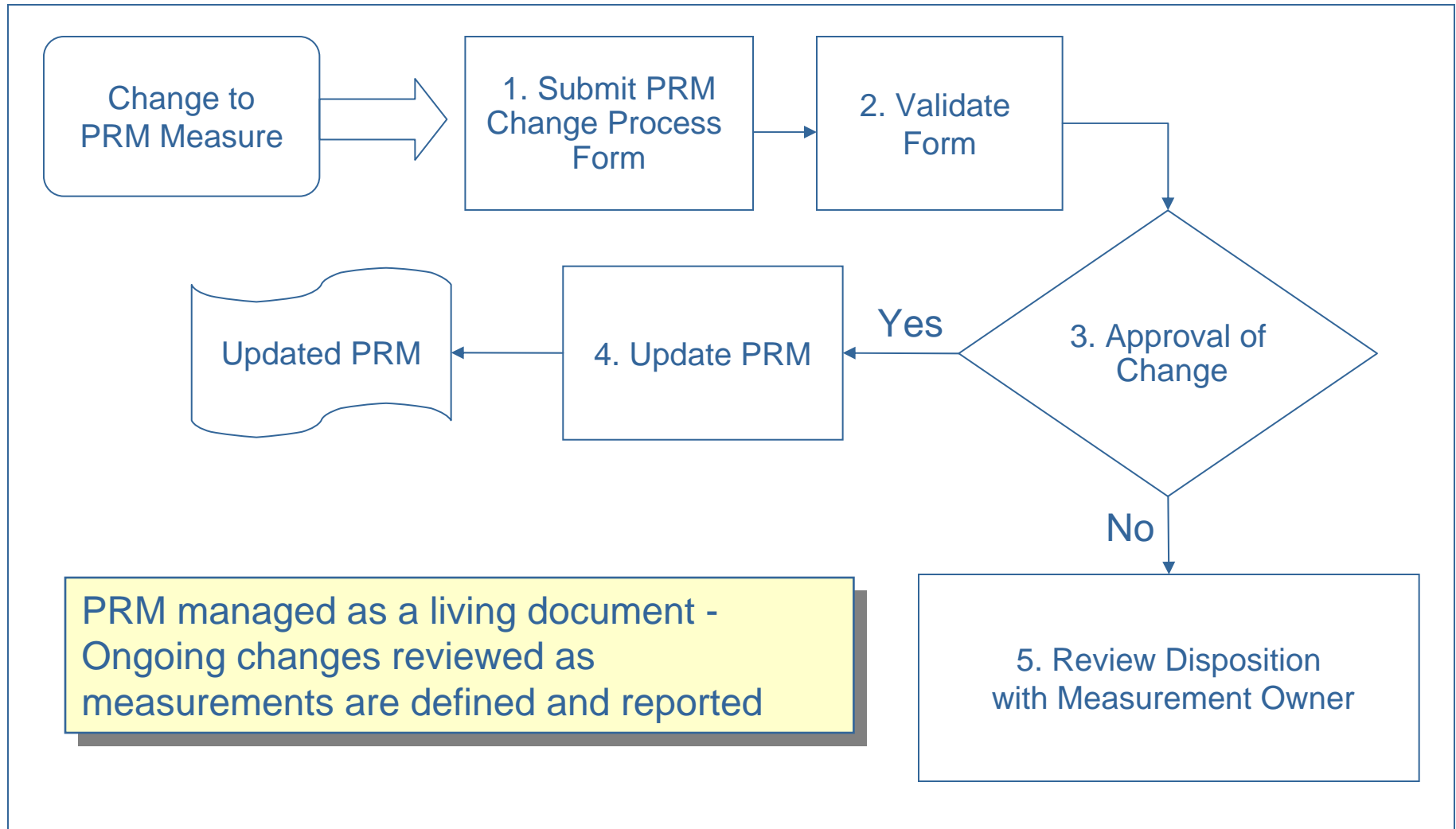


Target Setting





Measurement Change Process





Conclusions

- The ACE program has a single set of approved measures that
 - Are aligned to agency strategic goals
 - Have executive interest
- Cause and effect model provides the framework for explaining how ACE contributes to agency goals
- Comparison of current performance with the targets shows
 - Benefits obtained
 - Where improvements are needed



For Additional Information



Contact

Betsy Clark or Brad Clark
Betsy@software-metrics.com
Brad@software-metrics.com
(703) 754-0115
or
Kevin Mooney
Kevin.Mooney@associates.dhs.gov
(703) 650-3234