11th National Conference on Transportation Asset Management

First Steps to Integrated Asset Management Information Technology to Leverage Your Data Sets

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Does this sound like IT Systems at your agency?

"A disparate collection of corporate enterprise asset information technology systems, local departmental solutions, personal spreadsheets and datasets, limited system connectivity, data duplication and poor overall governance."

Data Rich and Information Poor

- How do we measure data wealth and poverty?
- What is the benefit of information over data?
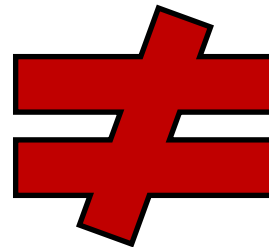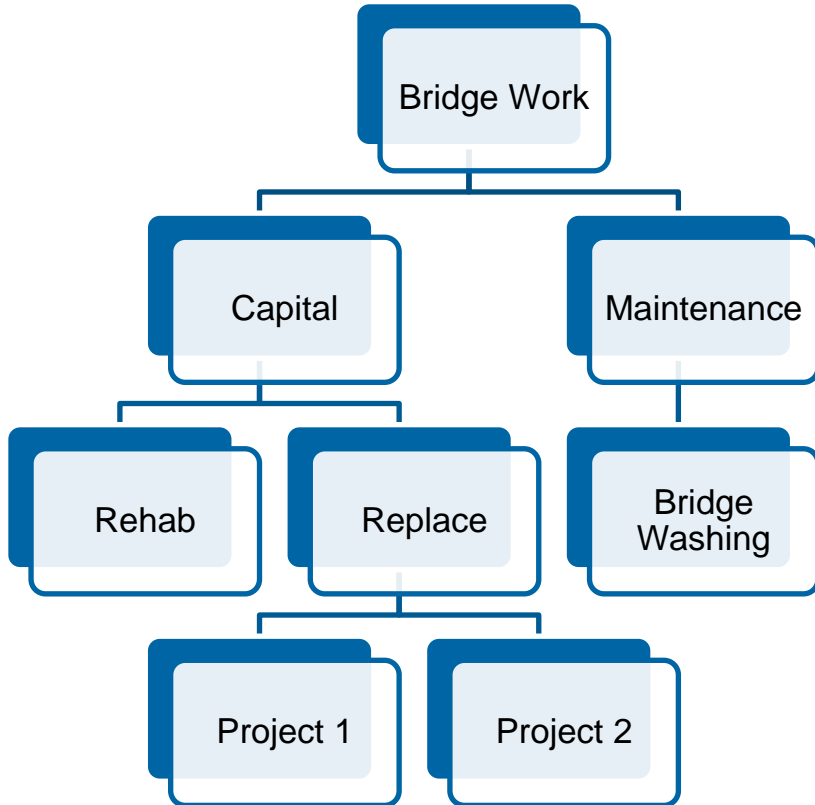- When and how does data become information?

Information

Data

- Incomplete
- Inaccurate
- Unreliable
- Unverifiable
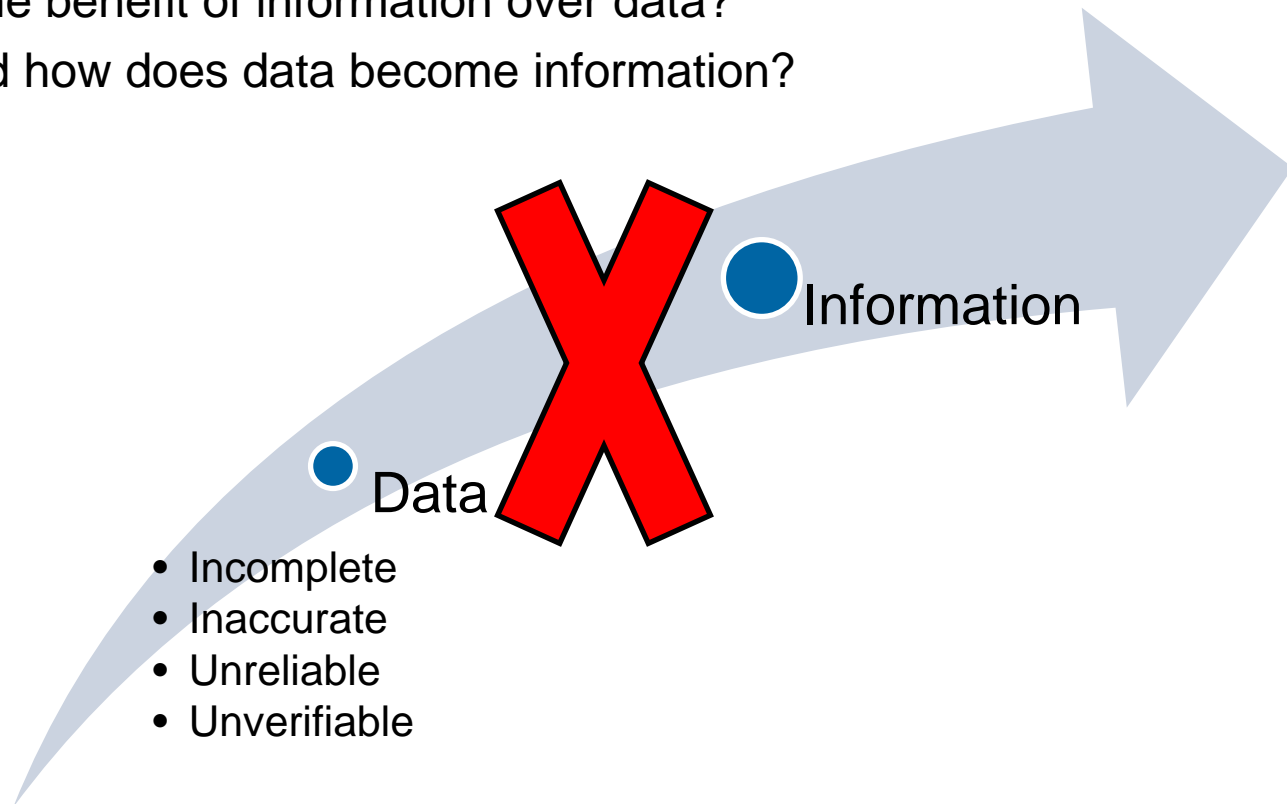
Core Problem with IT Systems

IT systems are typically developed on an "as-required" basis which causes many instances where data is irreconcilable across systems for decision making purposes
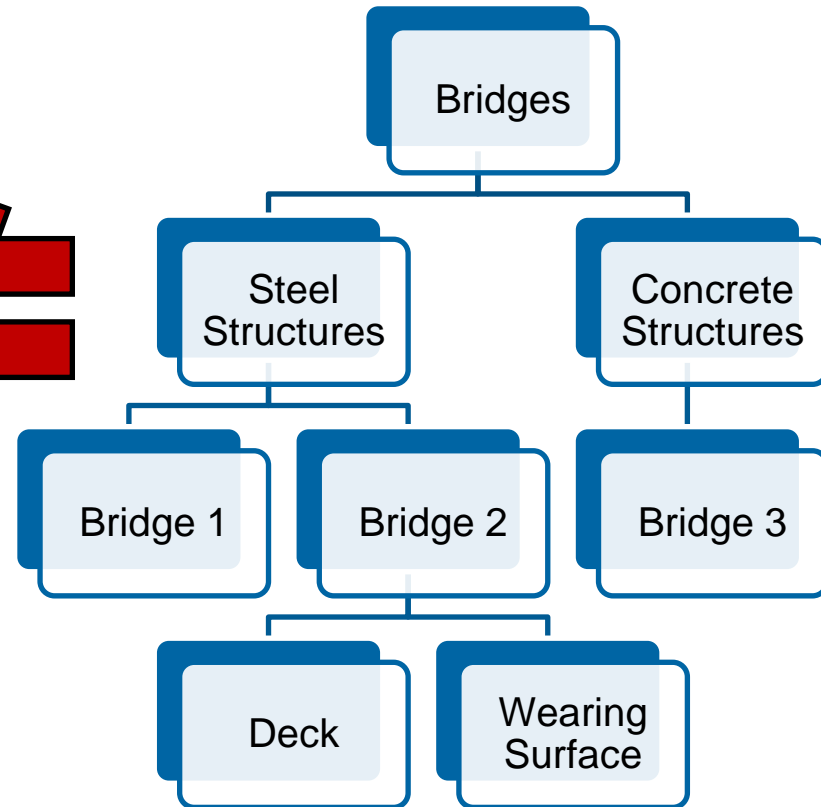
This is the root cause of having data that is incomplete, conflicting, unverifiable and inaccurate. Overcoming this problem is the key to data rich agencies into information rich agencies.

# Example: Work Breakdown Structure (WBS) vs Asset Breakdown Structure (ABS)

WBS

- Bridge Work
  - Capital
    - Rehab
    - Replace
      - Project 1
      - Project 2
  - Maintenance
    - Bridge Washing

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ABS

- Bridges
  - Steel Structures
    - Bridge 1
    - Bridge 2
      - Deck
      - Wearing Surface
  - Concrete Structures
    - Bridge 3

Business Drivers and Asset Management System Governance

Agency Business Drivers

Asset Management System Governance

Staffing
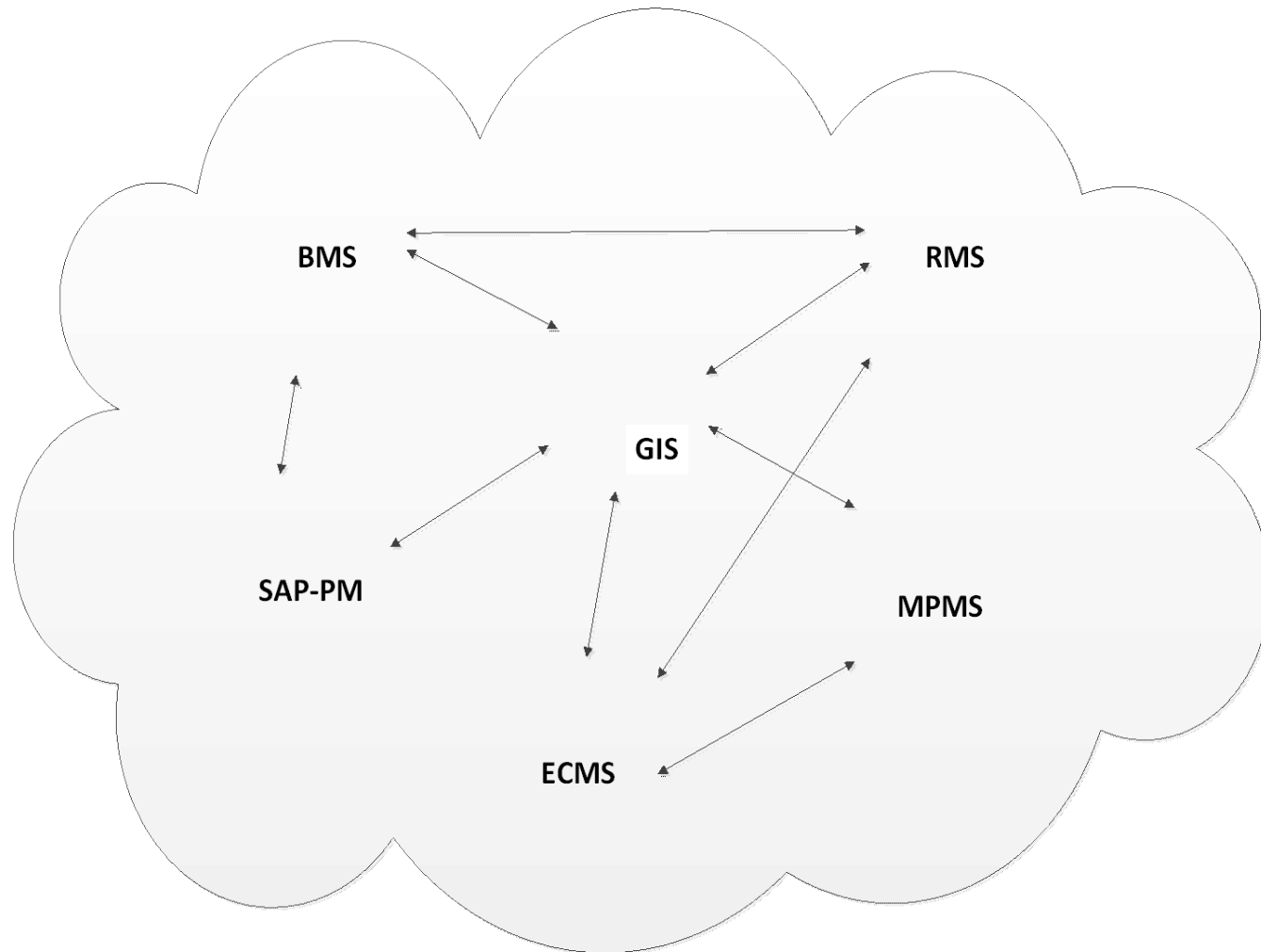
Business Processes

Asset Information Systems
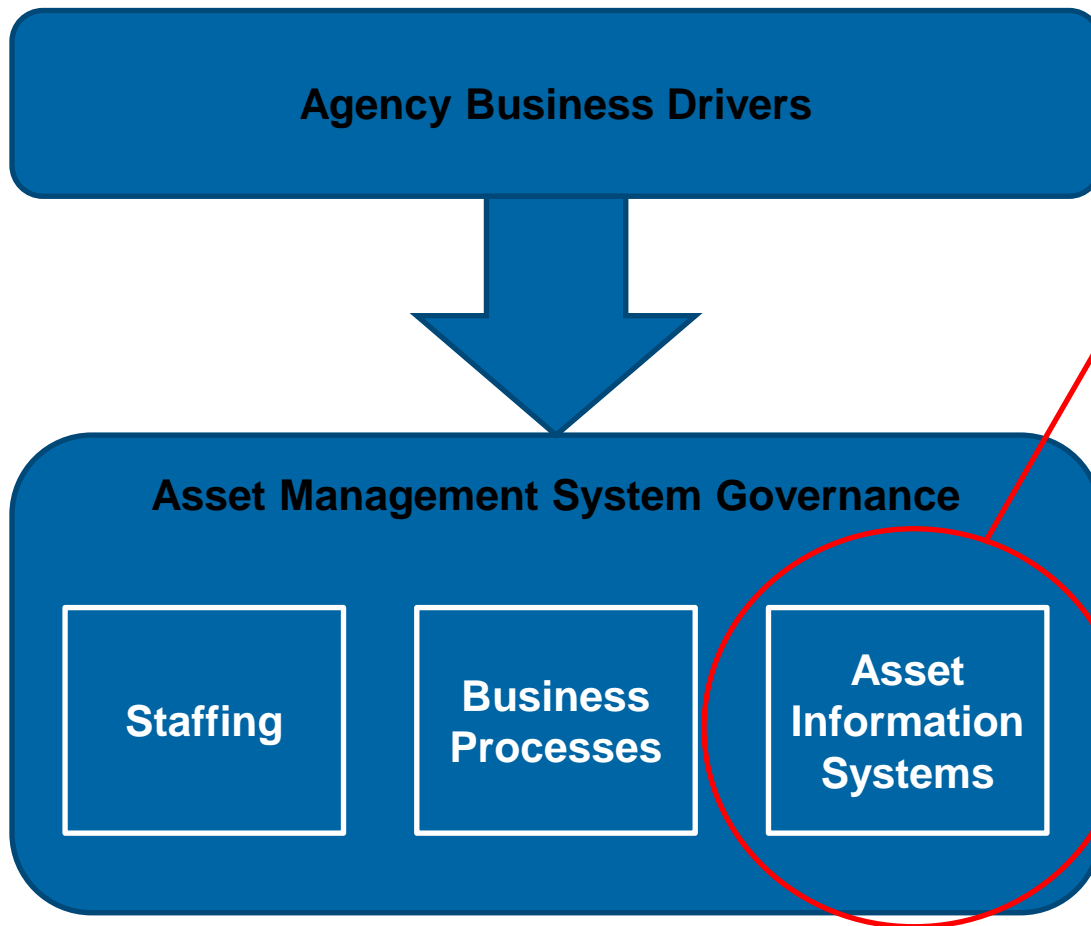
Our Information Systems are part of the larger system we use to manage our assets (Asset Management System Governance.) Their value can be measured by how the information provided supports an infrastructure agencies business drivers
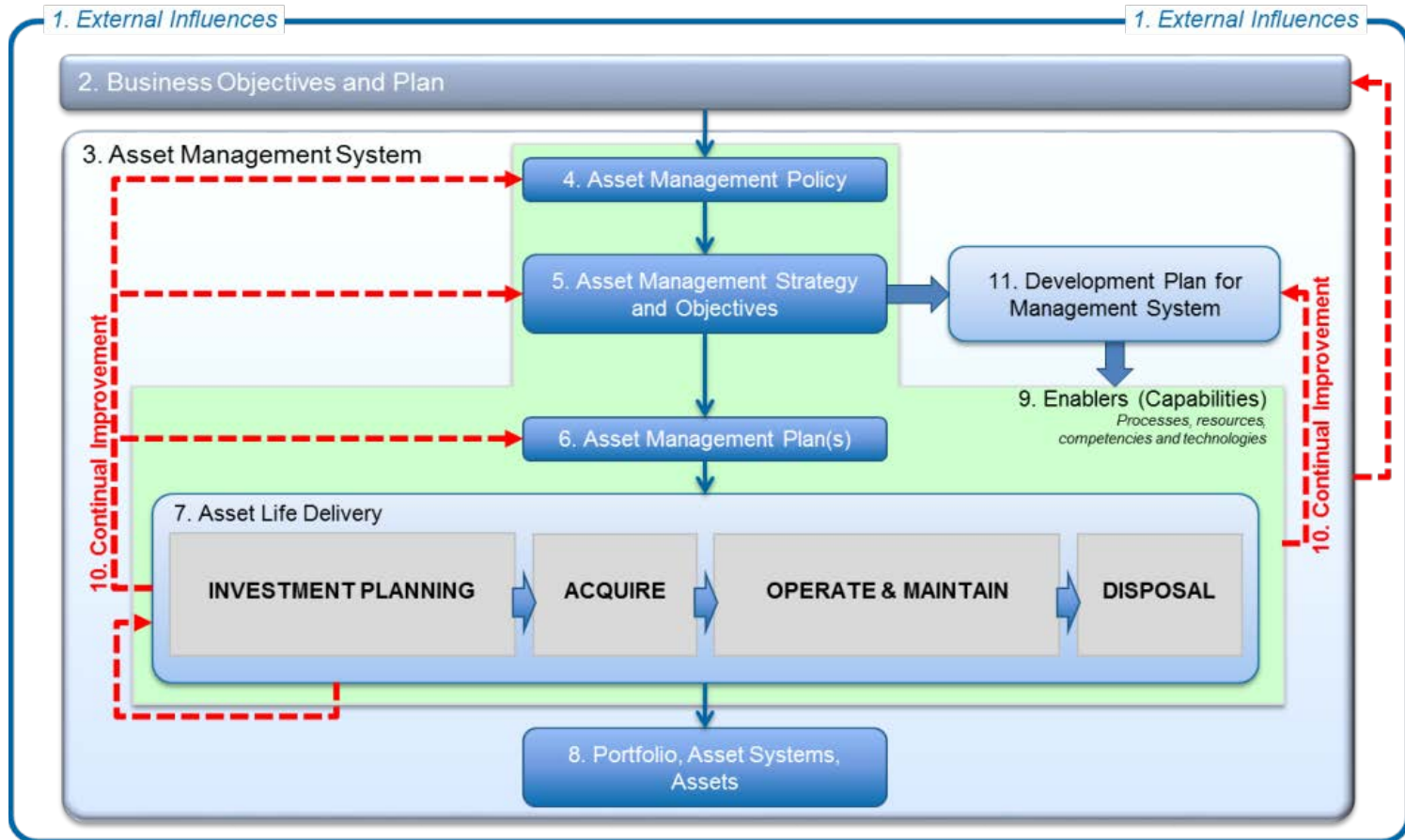
How Data Systems Interact

- Which system is the source of truth?

- Which systems can write to other systems?

- What user permissions are required?
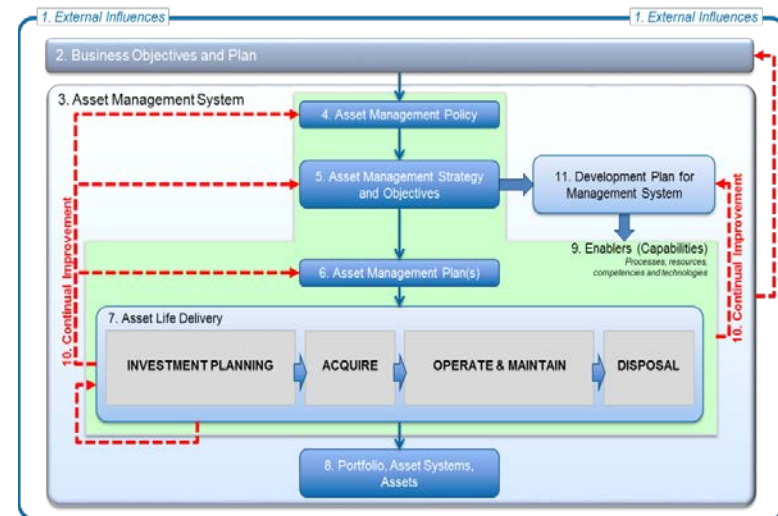
- How are changes to data documented?

Where to Start

Define an Asset Management Model

Map IT Systems Against the Model

- Which systems support each area of the Asset Management Model
- Where are the current gaps in the process?
- Where do those gaps fall?
  - Staffing
  - Business Processes
  - Asset Information Systems

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Develop Enterprise Architecture Systems Map

- Documents the system of record for each Asset Class (asset breakdown structure)
- Notes where key asset attribute data is developed/captured
- How data gets to the system of record reliably
- What are the rules about what systems can do to the data in terms of changes that get sent back to the system of record
- Maintain the map as business process and systems change

We can get so wrapped up in the data that we forget that turning that into information of value is an enabler for effective management of our assets, and in turn the provision of services to our customers.
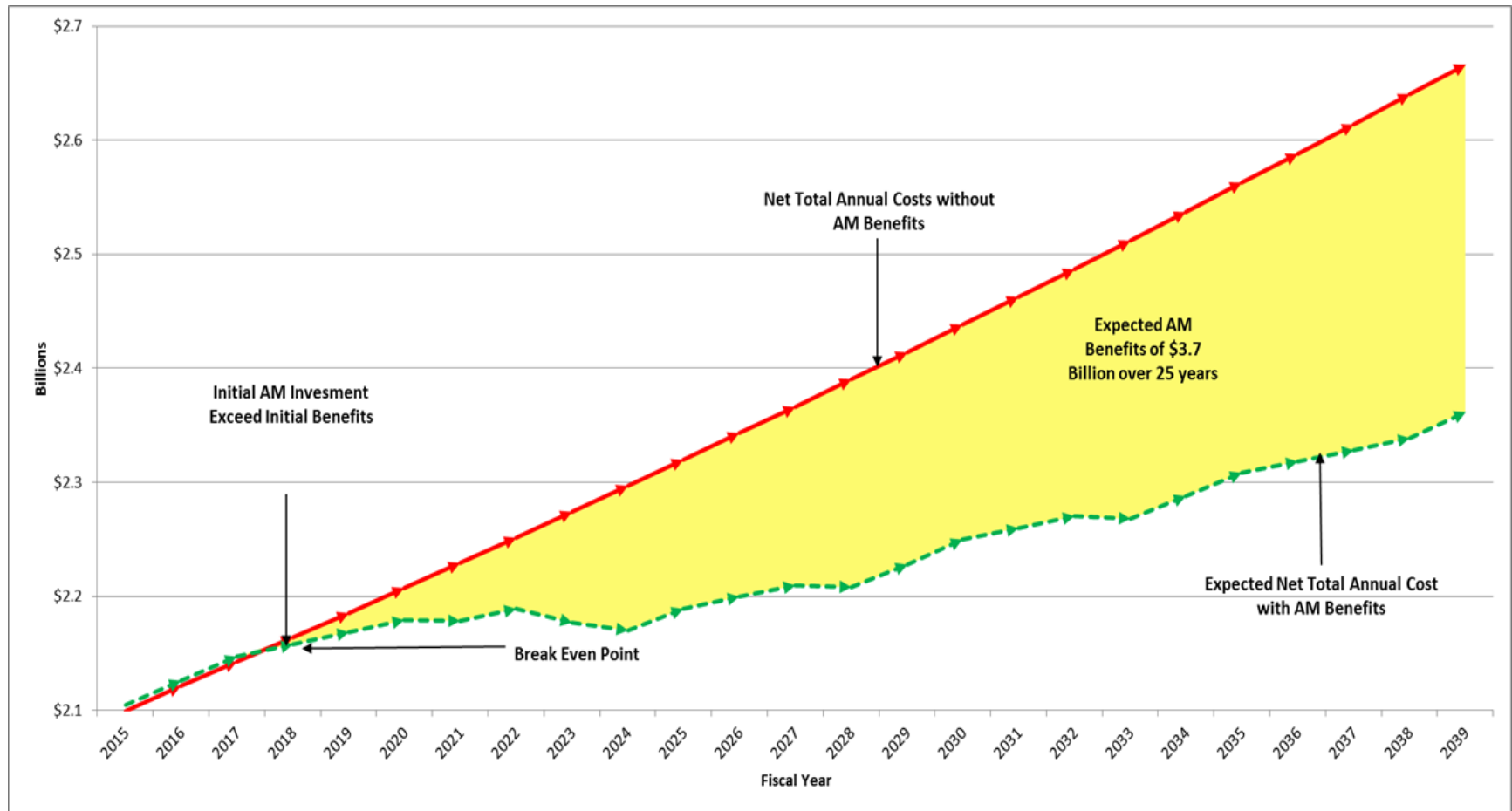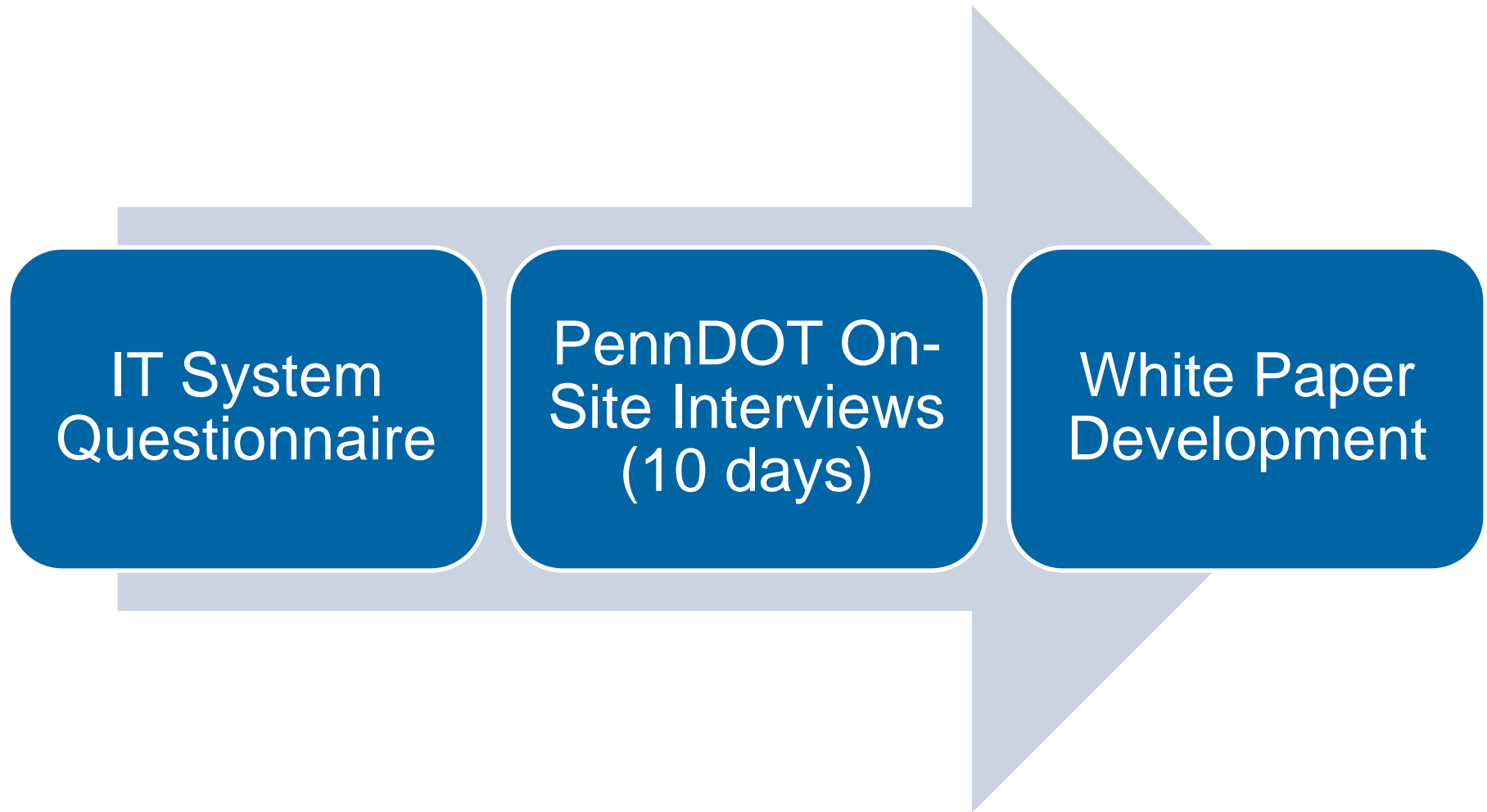
Prioritize

- What is the cost and benefit of filling the gaps identified?
- Where will a simple fix suffice and where is an overhaul required?
- What small wins can you achieve to start building momentum?

Measuring the Effect Over Time

Case Study: PennDOT IT Assessment Approach

IT System Questionnaire → PennDOT On-Site Interviews (10 days) → White Paper Development

IT System Questionnaire

System Users

Primary Functions of IT System

Information Quality

System Interactions

System Improvements and Aspirations

Onsite PennDOT Interviews

- 10 business days on site to consult with PennDOT staff to document PennDOT's current IT practice as it relates to asset management

27 IT Systems were documented

- 3 PennDOT AM members at each interview
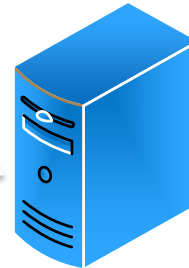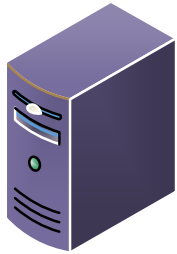- 33 Stakeholders interviewed

'Quick Win' projects were identified as well as longer term intiatives

Example: Bridge Management System

Users: PennDOT Staff, Consultants, Asset Owners

System Name: SAP-PM

Data Transferred:
- Maintenance Cost Data

System Name: BMS2
(Bridge Management System)

Primary Functions:
- Database to inventory structures
- Track the inspection of those structures

System Improvements:
- Predictive modeling (deterioration curves)
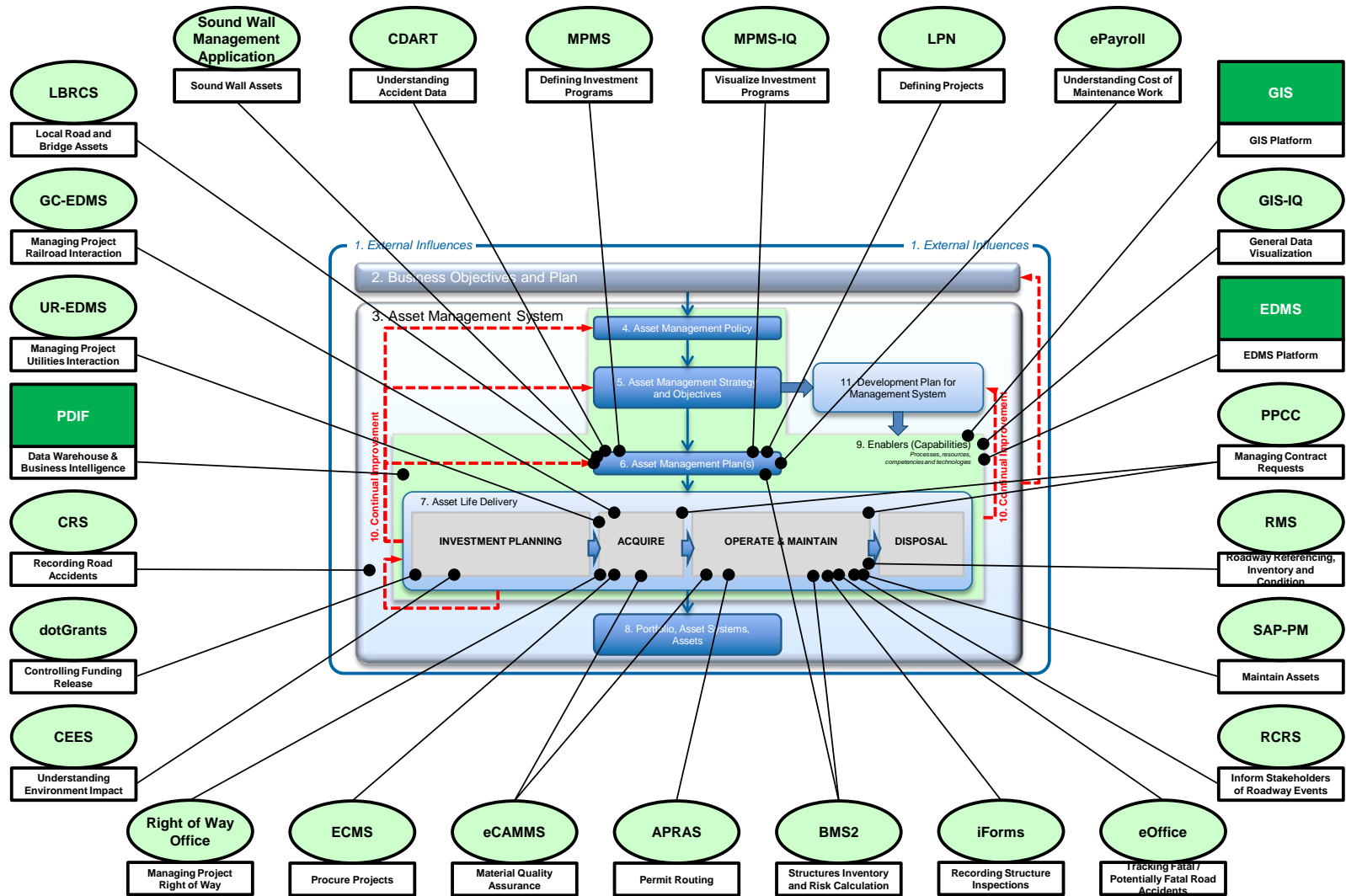- Additional asset inclusion (tunnels)

System Name: GIS

Data Transferred:
- Bridge location and attribute data

PennDOT IT Systems Map

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Final Considerations

- Identifying what needs to be done may be relatively straightforward – actually guiding your organization through the change process may not be

- Having support from key stakeholders is essential. In particular:

    - Upper Management

    - Information Technology Department

    - General users

- Can be relatively easy to gain agreement to fix large problems that cost the organization a lot but actually getting that change implemented is much harder

- Remember that governance helps guide you to do the right thing long term rather than the easy thing

Questions?

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