1

Utility Analysis & Improvement Methodology

Thursday February 6, 2020
1:00 – 2:30 PM ET

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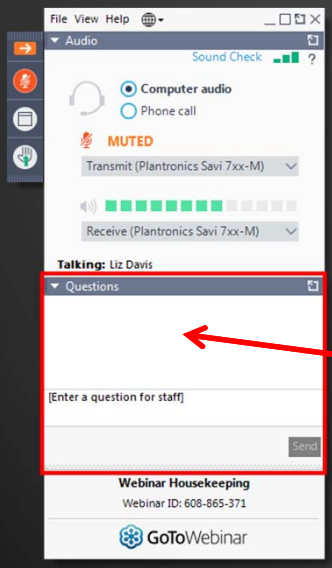
How to Participate Today



- **Audio Modes**
  - Listen using Mic & Speakers
  - Or, select "Use Telephone" and dial the conference (please remember long distance phone charges apply).
- **Submit your questions using the Questions pane.**
- **A recording will be available for replay shortly after this webcast.**

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LIFT For Management
Utility Analysis and Improvement Methodology

THE Water Research FOUNDATION

	Speaker	Topic	time
1	Mark Poling	Introduction	6
2	Scott Haskins	Topics and Deliverables for Collaborative Efforts	10
3	Craig Edlund	Documenting "As Is" Processes	10
4	Getachew Melsew	Analysis of Business Processes	10
5	Mert Muftugil	Designing Desired ("To Be") Processes	10
6	Cello Vitasovic	Next Steps and Participation	14
7	Scott Haskins	Facilitating Q&A	30

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Mark Poling
Clean Water Services
Craig Edlund
MCES
Scott Haskins
Jacobs Engineering
Mert Muftugil
Portland Water
Getachew Melsew
DC Water
Cello Vitasovic
9D Analytics
Water Environment Federation

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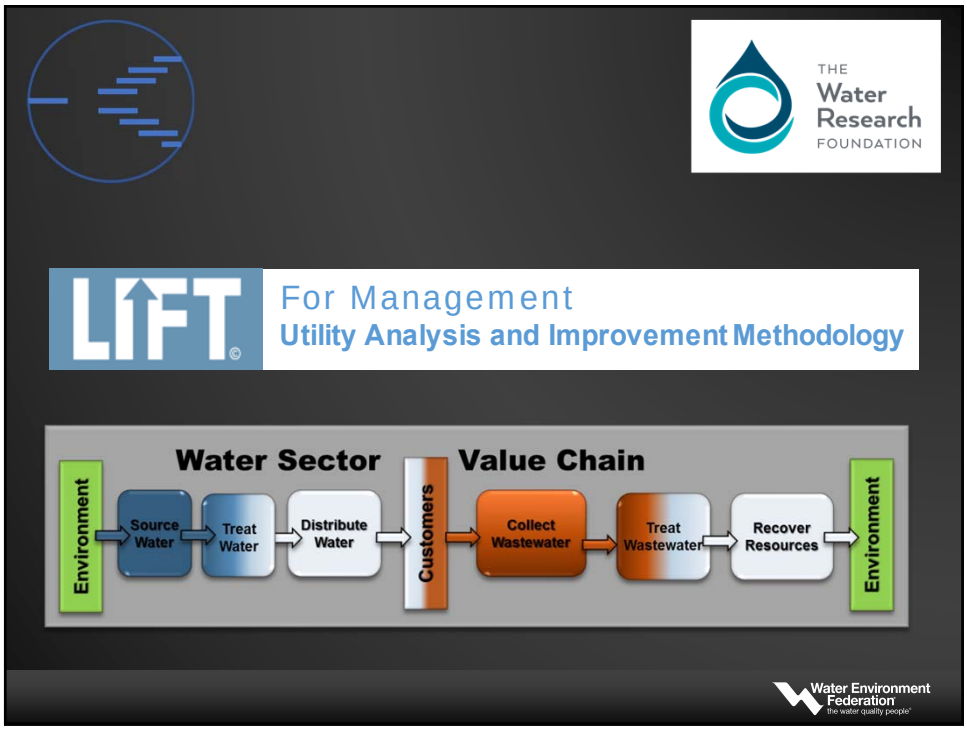
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LIFT©
For Management
Utility Analysis and Improvement Methodology
Water Sector Value Chain
Environment
Source Water
Treat Water
Distribute Water
Customers
Collect Wastewater
Treat Wastewater
Recover Resources
Environment
Water Environment Federation

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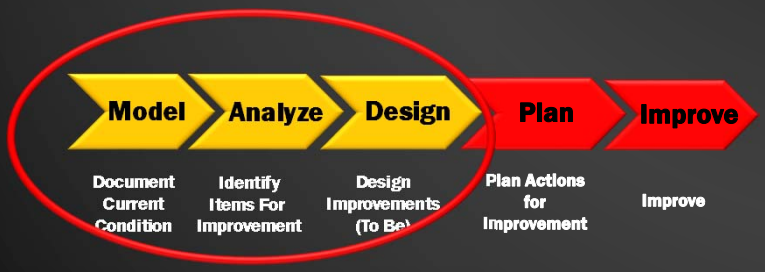
Key UAIM Goals

- Provide a value-based **methodology** for improving management of water sector utilities
- Enable effective peer to peer collaboration between water sector utilities
- Develop, grow, and strengthen the network of water sector organizations and professionals engaged in UAIM



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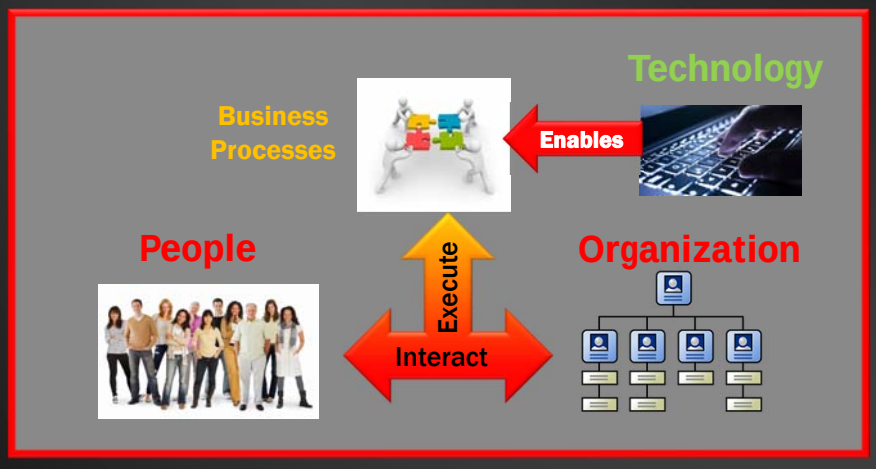
People Interact Within the Organization to Execute Business Processes



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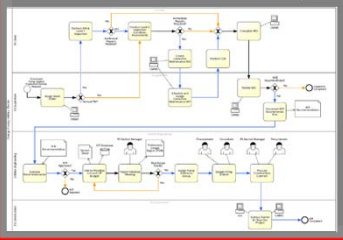
Current Focus: Improving Business Processes

Business Processes

Enables

Technology



Organization

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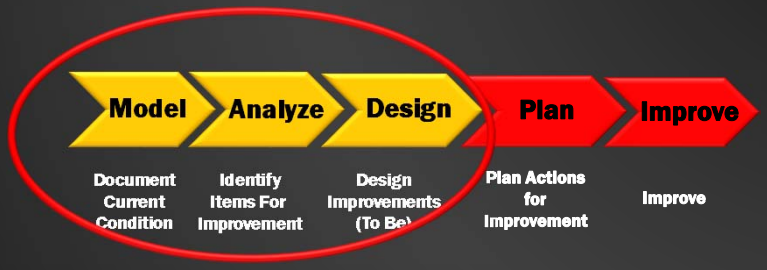
Collaborative Work: Modeling, Analysis, Design



- **Capital Project Delivery**
- **Developing Asset Management Plans**
- **Enterprise Risk Management**
- **Business Case Evaluation and Prioritization of CIP Projects**

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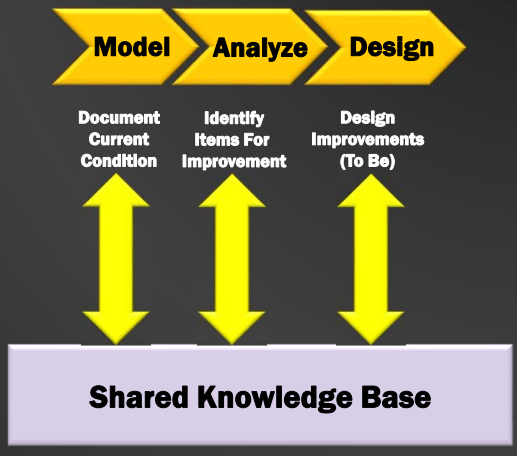
Utilities Share Knowledge, Peer-to-Peer Collaboration

UAIM Utility Partners

San Francisco PUC (CA)
Metro Vancouver (Canada)
DC Water
MCES (Minneapolis)
Clean Water Services (OR)
Charlotte NC
Louisville MSD (KY)
City of Grand Rapids MI
VCS (Denmark)
Great Lakes Water Authority (MI)
Toho Water (FL)
Orange County FL
UK Environment Agency
Portland Water (OR)
Tacoma Water (WA)
Kansas City Water (MO)
Washington Suburban - WSSC (MD)



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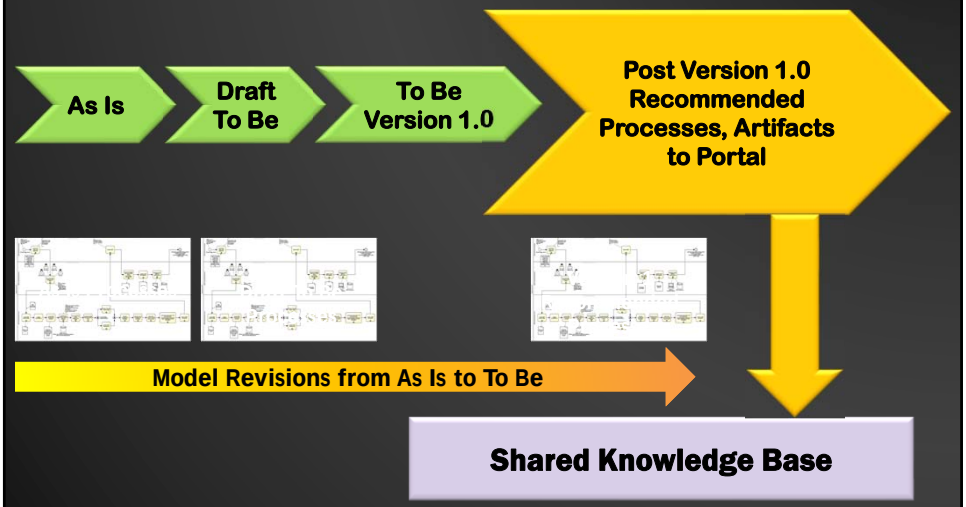
Deliverables: Year 1



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Benefits for Utility Partners

- Exchange of ideas/experiences with peers from different utilities
- In-depth examination of important topics/business areas
- Access to knowledge base (models, artifacts)
- Defined best practices that can be applied within a utility
- Adopted standards for:
  - Metrics associated with specific business processes
  - Documentation of business processes (e.g. format, notation, hierarchy)

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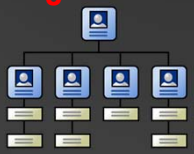
Modeling Business Processes

Enables

Technology

Organization



Model → Analyze → Design

Document Current Condition

Identify Items For Improvement

Design Improvements (To Be)

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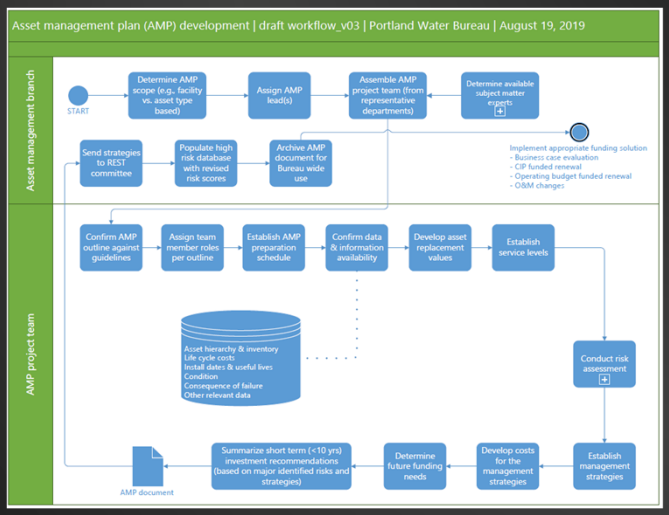
Detailed Models of Specific Processes



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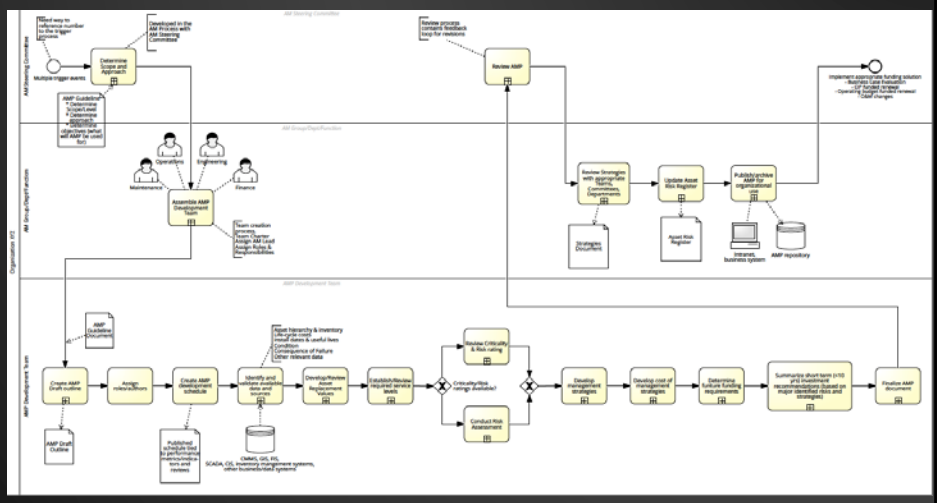
Detailed Models of Specific Processes



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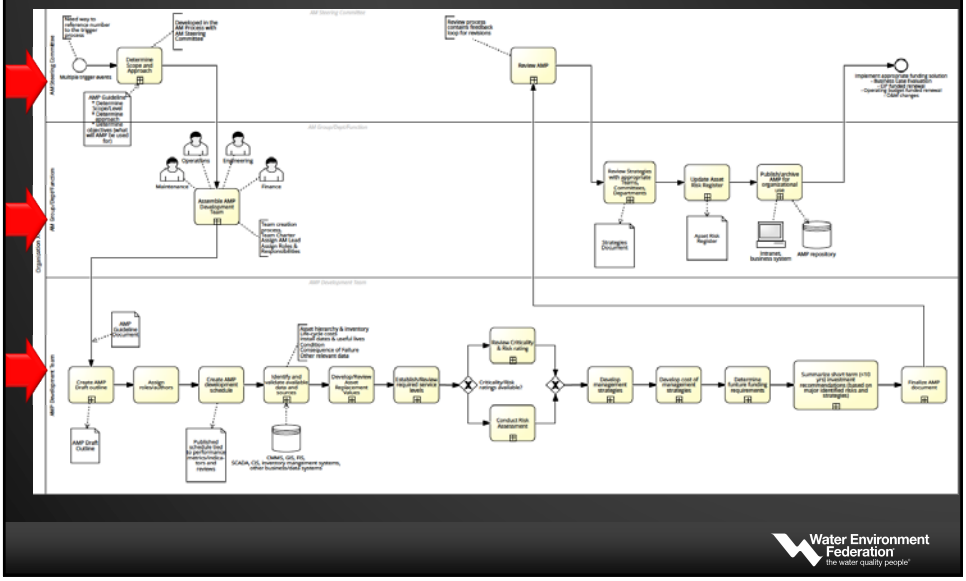
"Swim Lanes" Indicate Business Units



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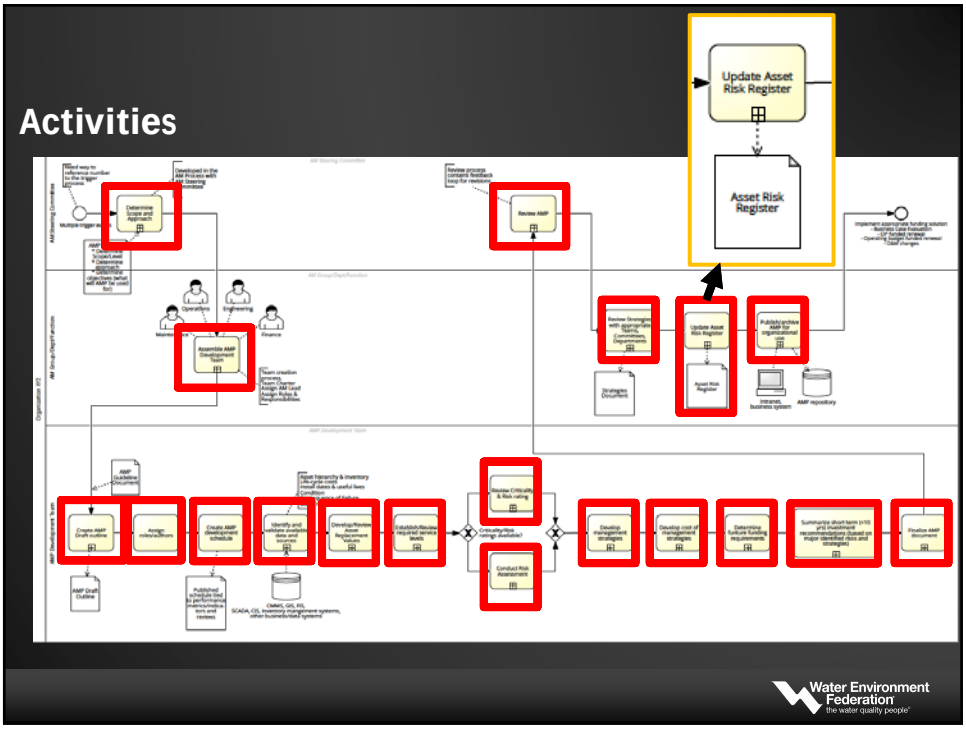
Activities



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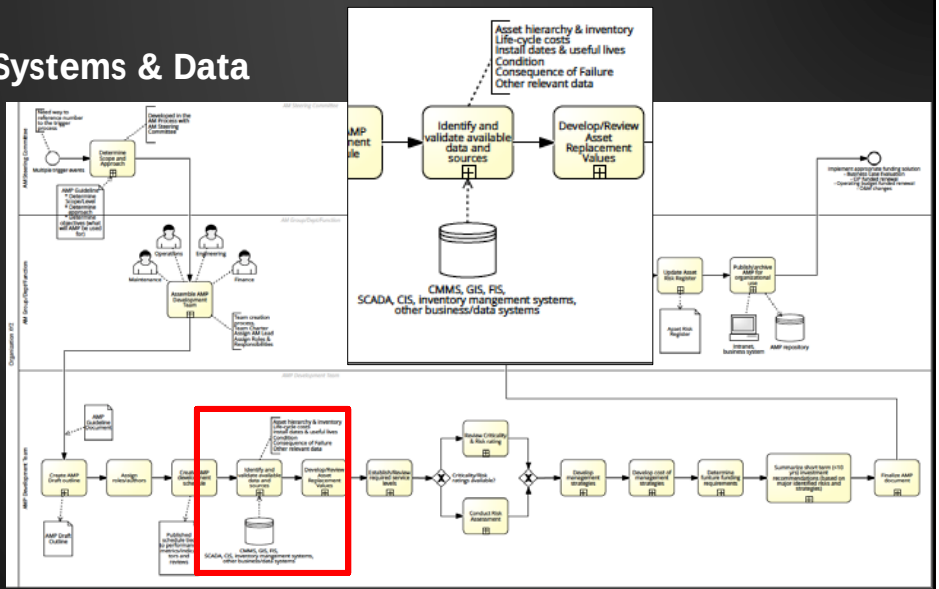
Systems & Data



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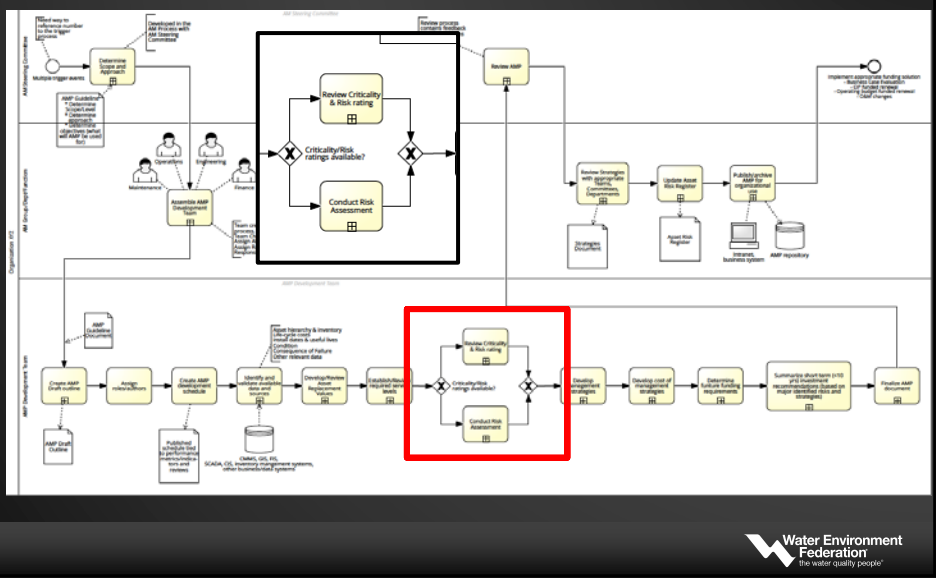
Decisions



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BP Models Describe…

- Who is involved in the business process (swim lanes)
- Work flow (sequence paths of activities)
- What decisions need to be made (and by whom)
- What resources (e.g. time, staff, equipment) are needed
- The metrics impacted by the process
- What data is required to execute work (and make decisions)
- Where (in what systems) the required data resides

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Water Sector Value Model

UAIM Utility Partners

San Francisco PUC (CA)
Metro Vancouver (Canada)
DC Water
MCES (Minneapolis)
Clean Water Services (OR)
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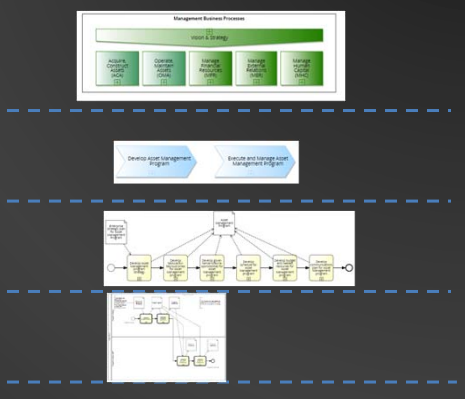

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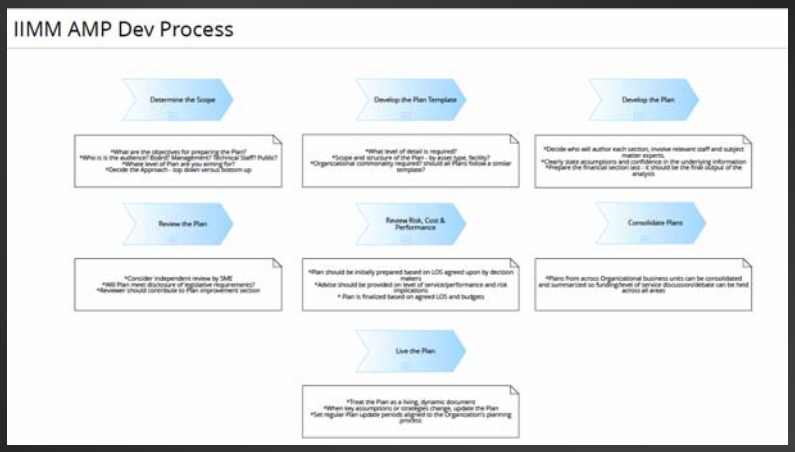
Value Chain Elements



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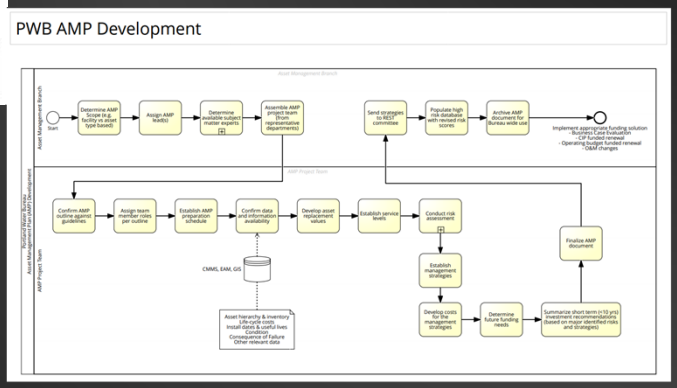
As Is Process for Developing AMPs



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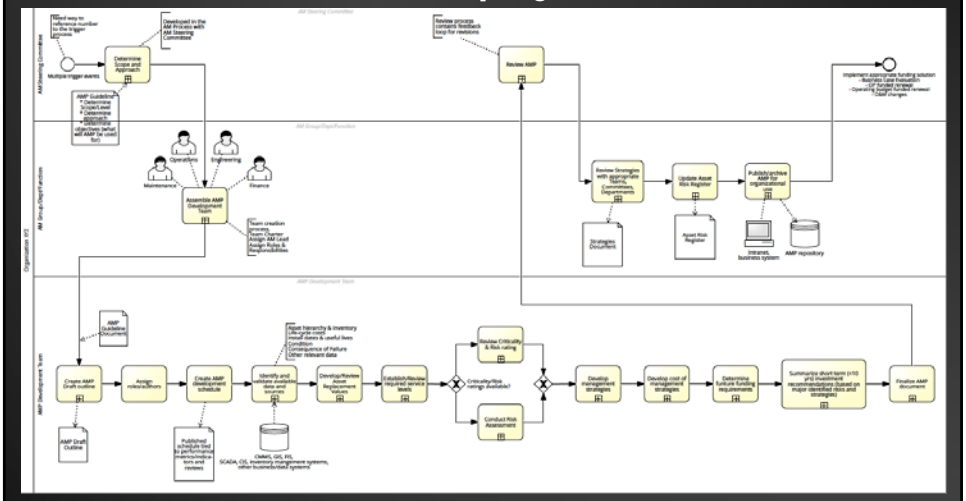
Revised Process for Developing AMPs



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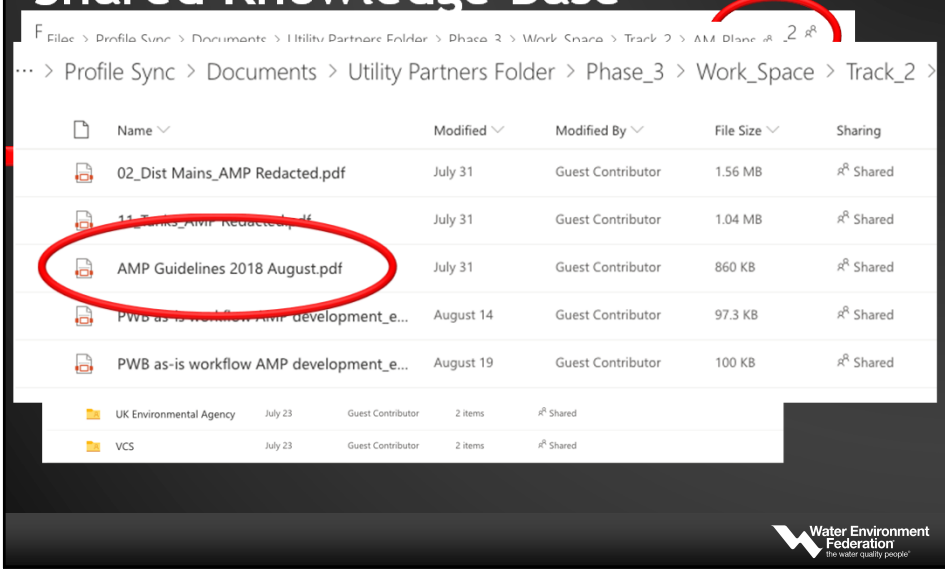
Shared Knowledge Base



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Context and Explanation

This workshop lasted four days: Monday through Thursday. It covered four topics in parallel sessions, with two days dedicated to each topic:

Topic	Schedule	Utility/Topic Lead
CIP Delivery	Monday and Tuesday	Team 2100 UK Environmental Agency
Managing Enterprise Risk		Portland Water
Business Case Evaluation	Wednesday and Thursday	DC Water
Developing Asset Management Plans		Minneapolis Council of Environmental Services

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Preparing for Workshop: As Is Models

1.4

Straw Man
As Is business process models for the topic specific to a utility

Document/model the As Is processes:
For each of the four topics,
for a specific topic

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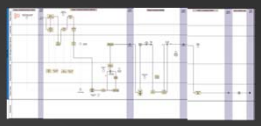
"As Is" Models Prepared for Each of the Four Topics

Managing Enterprise Risk

Developing Asset Management Plans

Business Case Evaluation

CIP Delivery



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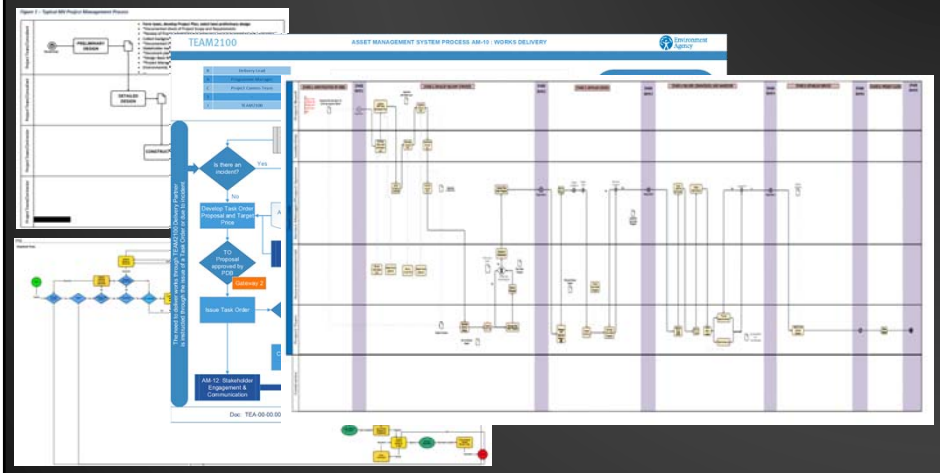
CIP Delivery As Is Models from Different Utility Partners



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Summary of input from others for a specific topic

- Utilities posted related 129 artifacts in 5 weeks
- Content included:
  - Business process models
  - Guidance documents (e.g. for Developing Asset Management Plans)
  - Finished products (e.g. Asset Management Plans)

Category	Who	What
CIP Delivery	DC Water	CIP Planning Process
CIP Delivery	MCES	Project Delivery Analysis
CIP Delivery	MCES	Project Delivery Analysis Milestones
CIP Delivery	MCES	Project Delivery Analysis Flowchart
CIP Delivery	Metro VC	MVC - PM Guidelines
CIP Delivery	Metro VC	CIP Investment Planning
CIP Delivery	Metro VC	Collated Pinch Points
CIP Delivery	Toho Water Authority	CIP Project Summary Sheet
CIP Delivery	UK	Team 2100 Capital Delivery
CIP Delivery	UK	Team 2100 Process Overview
CIP Delivery	UK	PR - OM -0002

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Open discussion - Editing "straw man"

Participants present their views, ideas, on this topic. Identify which processes may need to be added to the Straw Man to make it more generic, check if other utilities may have additional processes included in this topic. Add sticky notes to the Straw Man hierarchy, try to make the model more universal and/or complete

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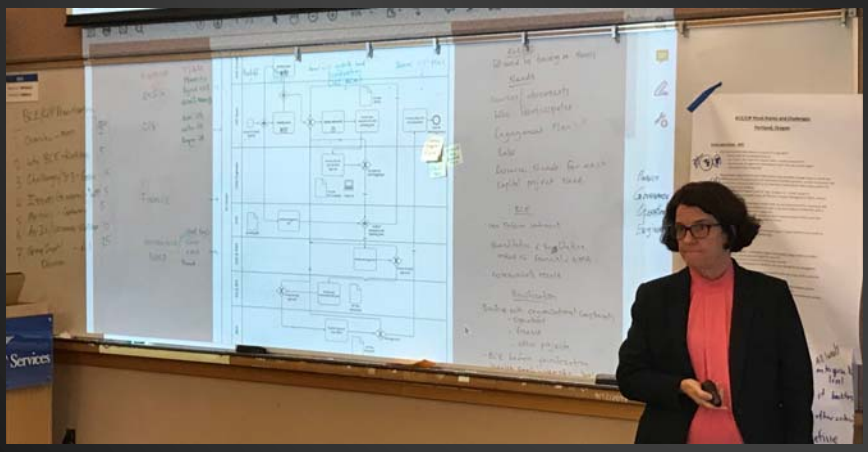
Business Case Evaluation



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Identifying Challenges

Participants identified challenges in managing the topic (their perspectives), create a list

Revised Straw Man
As Is business process models for the topic

Challenges in
As Is business processes for the topic
specific to a utility

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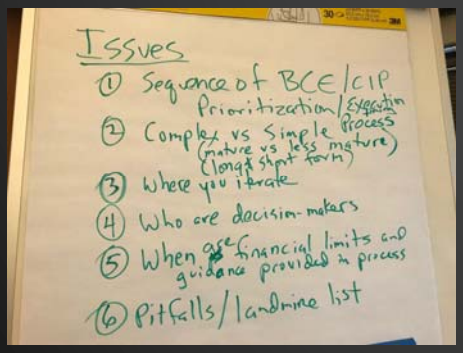
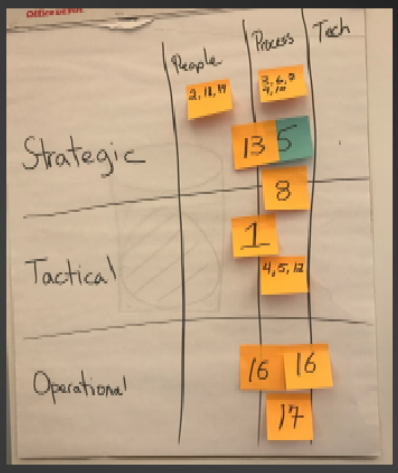
BCE Challenges

	People	Process	Technology
Strategic	4	8	1
Tactical	1	5	0
Operational	1	2	0





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Identifying Business Goals

Participants identified key business goals for the topic (their perspectives), create a list

Revised Straw Man
As Is business process models for the topic

Business goals associated with the topic

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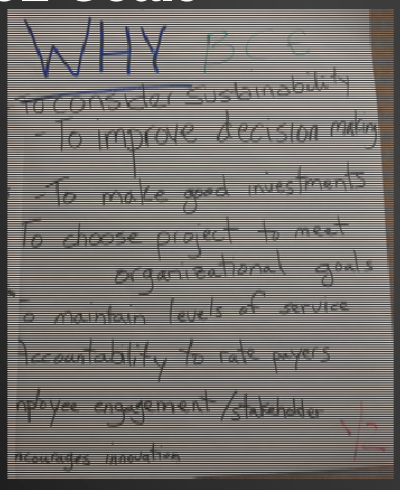
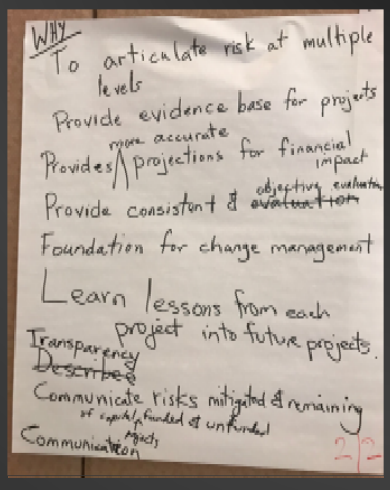
BCE Goals





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Identifying Performance Metrics

Participants identified performance metrics for the topic (their perspectives), create a list

Revised Straw Man
As Is business process models for the topic

Performance metrics associated with the topic

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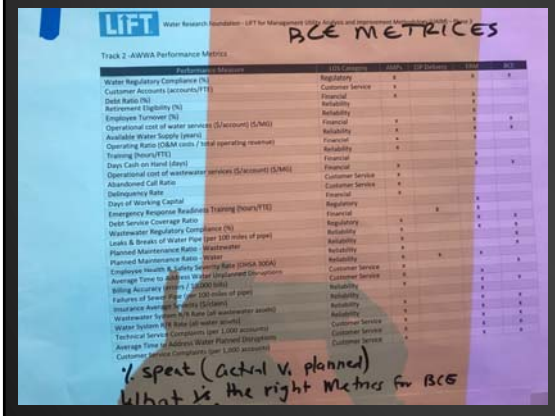
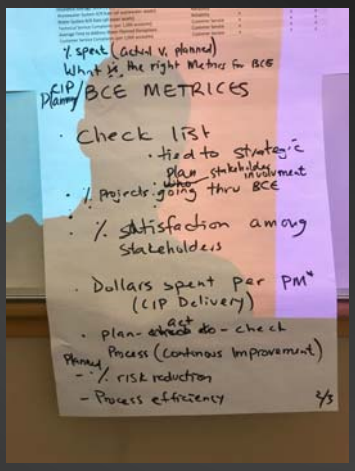
BCE Metrics





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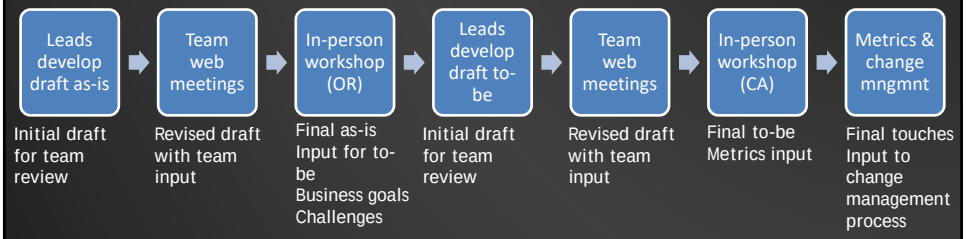
To-Be workflow development – main steps



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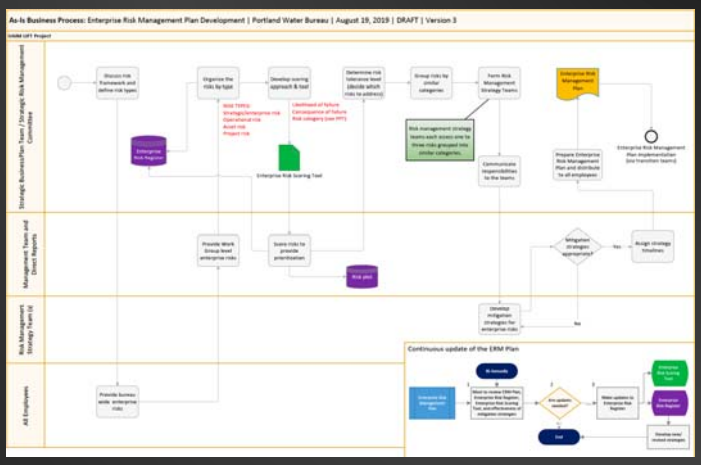
Draft Model for Managing Enterprise Risk



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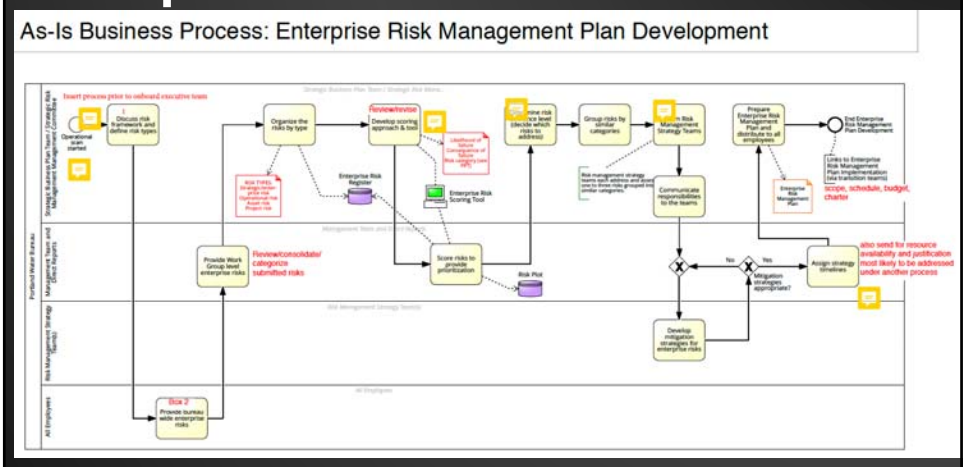
Revised Model for Managing Enterprise Risk



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Business goals help shape the major to-be workflow steps

Risk identification (category and ranking)	Grow view of risk management
Define risk tolerance	Rationalize enterprise wide decision making
Improve employee engagement	Enterprise-wide agreement on priorities - path forward
Lower risk profile	Enable business continuity
Improve corporate sustainability	Compliance with risk management standards
Transparency - reduce complexity	Greater integration/cohesion across the organization
Ensure corporate goals are met	Minimize surprises: What should I have known?
Support risk-based decisions	Resilience across staff changes

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Challenges for utilities to achieve the To-Be workflow were identified

- **Subjectivity in assigning consequence of failure ratings to strategic risks**
- **Difficulty in judging the relative likelihood of identified risk events**
- **Setting the risk tolerance/appetite level between coming up with an actionable list (due to resource availability) and not overlooking important risk**
- **Assigning risks to risk management teams not suitable to manage them due to skills and/or resource availability**
- **Disconnect between Management and Risk Management Strategy teams in interpreting what "appropriate" mitigation strategies are**
- **Timeline assigned to a mitigation strategy not attainable by the executors**
- **Scheduling a periodic update of strategic risk status and assigning new risks outside a strategic plan process**
- **Agreement on the consequence of failure scoring matrix**
- **Management Team engagement, support, and securing funding**
- **Change management and accountability**

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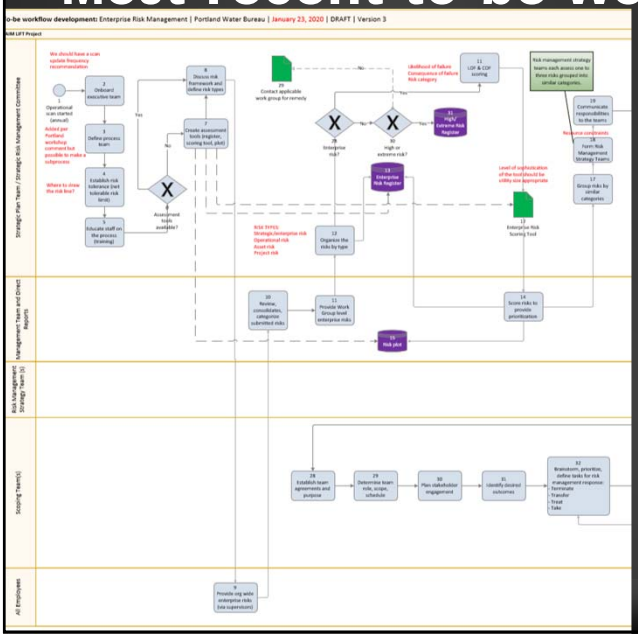
Most recent to-be workflow



This zoomed out view is included to illustrate the level of detail and not for review of its content.

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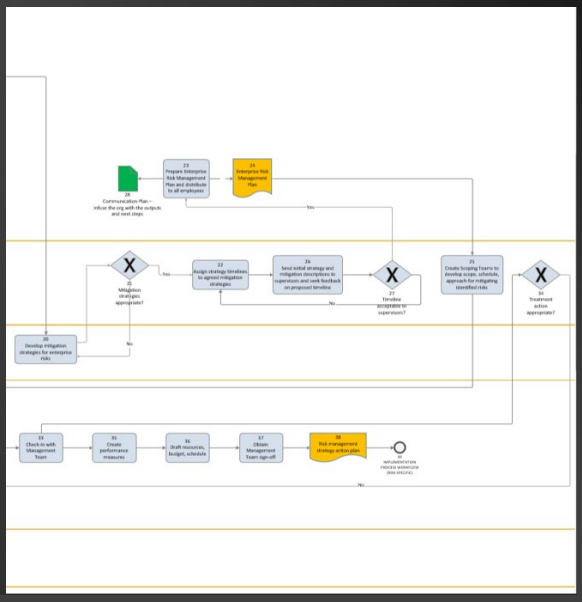
Most recent to-be workflow (continued)



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Agenda

	Speaker	Topic	time
1	Mark Poling	Introduction	6
2	Scott Haskins	Topics and Deliverables for Collaborative Efforts	10
3	Craig Edlund	Documenting "As Is" Processes	10
4	Getachew Melsew	Analysis of Business Processes	10
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Overview of scope for Year 2

- Track 1
  - WSVM curation
  - Guidelines
  - Independent BP modeling, case studies
  - Training
- Track 2
  - New topics
  - Case studies on existing topics

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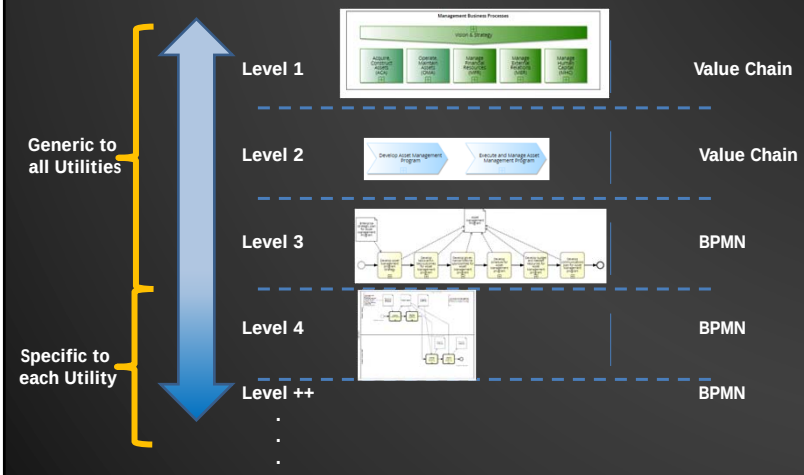
Track 1: Water Sector Value Model



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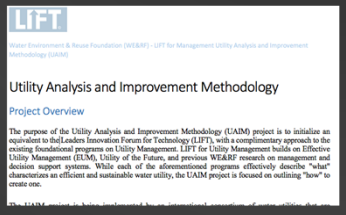
Case Studies: Utilities Apply the Methodology

- Private development warranty inspection
- One Water shared services
- CROMERR processes
- Industrial Waste Permittee Report
- Pump station R/R process
- DIP Construction Inspection
- Tracking & Managing Private Development



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Metrics: Simulated 53 cases over 365 days, 2 FTE From: City of Grand Rapids

As-Is Model

- Cost: $102,410
- Percent Complete: 100%
- Utility Hours of Review: ~515 hours
- Industry Hours for reporting: ~300 hours

To-Be Model

- Cost: $70,143
- Percent Complete: 100%
- Utility Hours of Review: ~93 hours
- Industry Hours for reporting: ~ 10 hours

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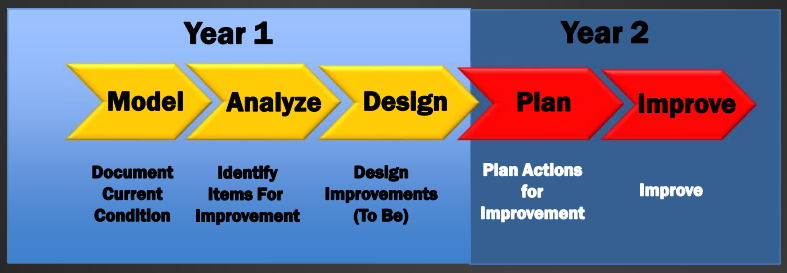
Track 2: Collaborative Work on Selected Topics



- **Capital Project Delivery**
- **Developing Asset Management Plans**
- **Enterprise Risk Management**
- **Business Case Evaluation and Prioritization of CIP Projects**

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Results from Oregon Workshop

Managing Enterprise Risk

	People	Process	Technology
Strategic	8	5	0
Tactical	3	1	0
Operational	0	0	0

CIP Delivery

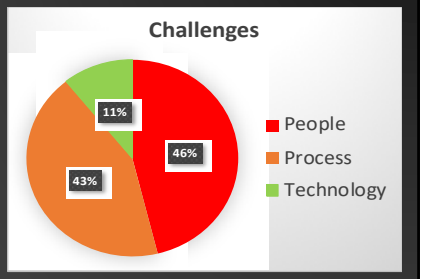
	People	Process	Technology
Strategic	6	9	0
Tactical	4	4	0
Operational	5	3	3

Developing Asset Management Plans

	People	Process	Technology
Strategic	15	12	4
Tactical	6	4	3
Operational	7	3	3

Business Case Evaluations

	People	Process	Technology
Strategic	4	8	1
Tactical	1	5	0
Operational	1	2	0



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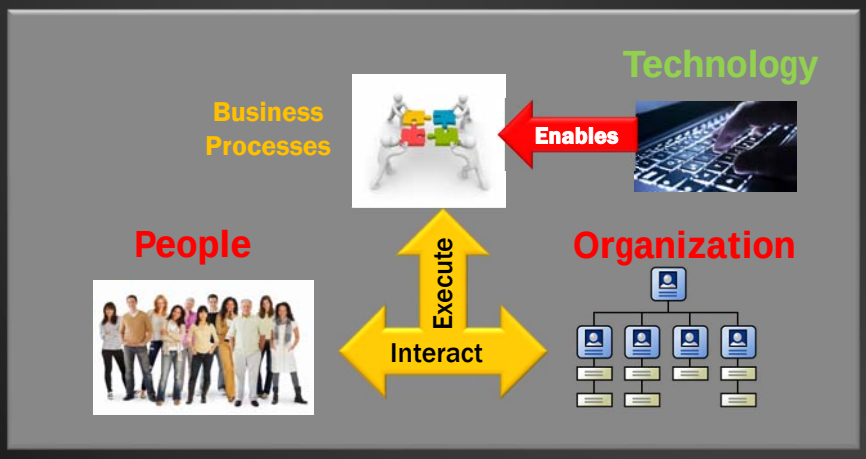
Value Creation



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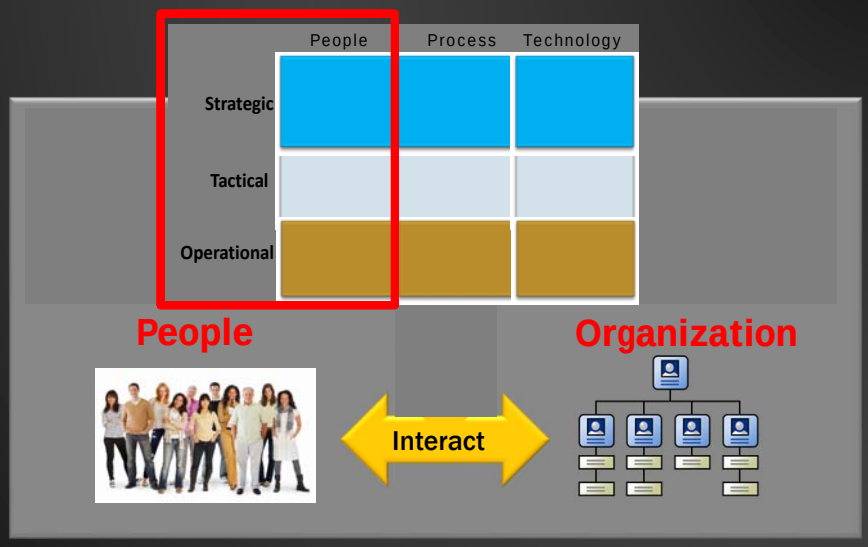
New Topic: Focus on "People"



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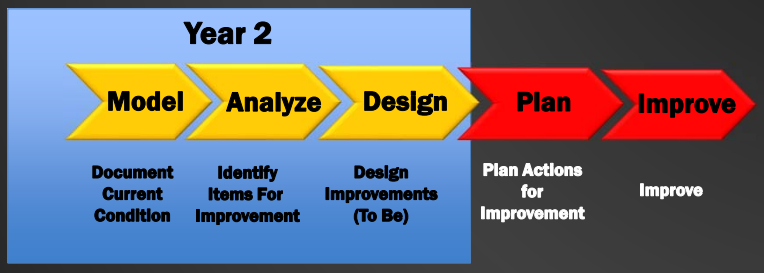
Year 2 Topics for Collaborative Efforts



- **Organization & Workforce**
  - **Workforce**
  - **Organizational Culture and Governance**
  - **Change Management**
- **TBD**

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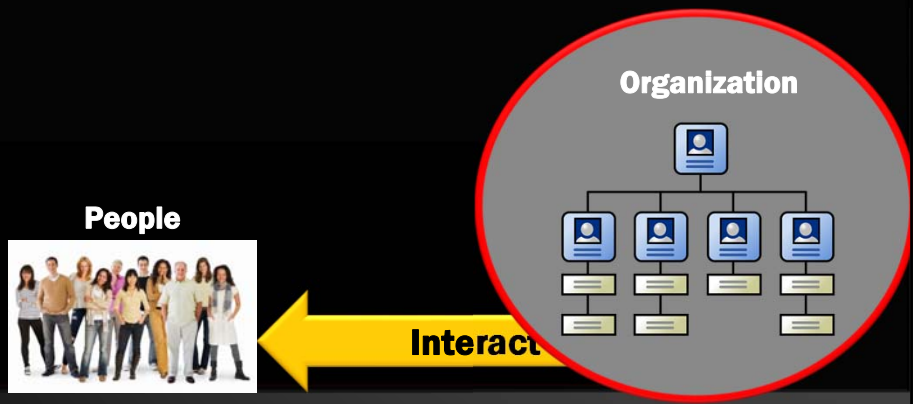
Subtopic 1: Organization (Culture, Governance)



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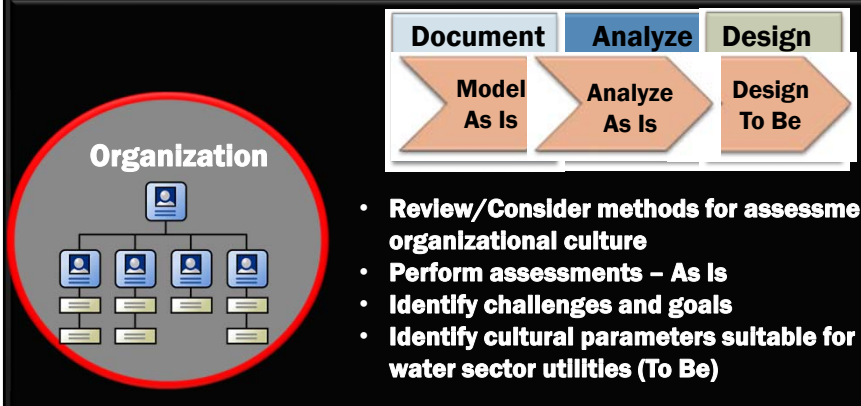
Scope for "Organizational Culture" Topic



- Review/Consider methods for assessment of organizational culture
- Perform assessments – As Is
- Identify challenges and goals
- Identify cultural parameters suitable for water sector utilities (To Be)

Schein, E.H. (2017) Organizational Culture and Leadership, 5th Edition, Willey

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Subtopic 2: Workforce

People

Interact

Organization

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Scope for Subtopic 2: Workforce

Document | Analyze | Design

Model As Is → Analyze As Is → Design To Be

People

- Review/Consider methods for assessment of workforce
- Perform assessment (As Is)
- Identify challenges and goals
- Define characteristics of a "great" workforce
- Explore Methods for improvement (motivation, engagement, collaboration)

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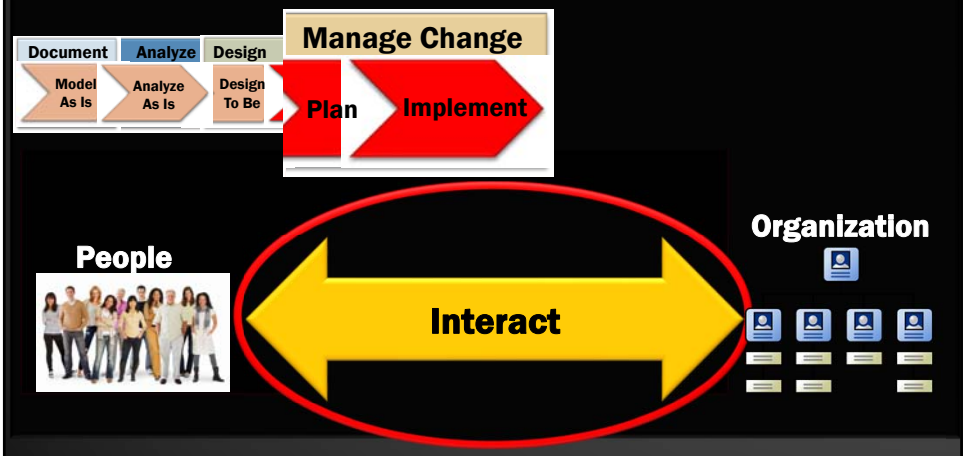
Subtopic 3: Change Management



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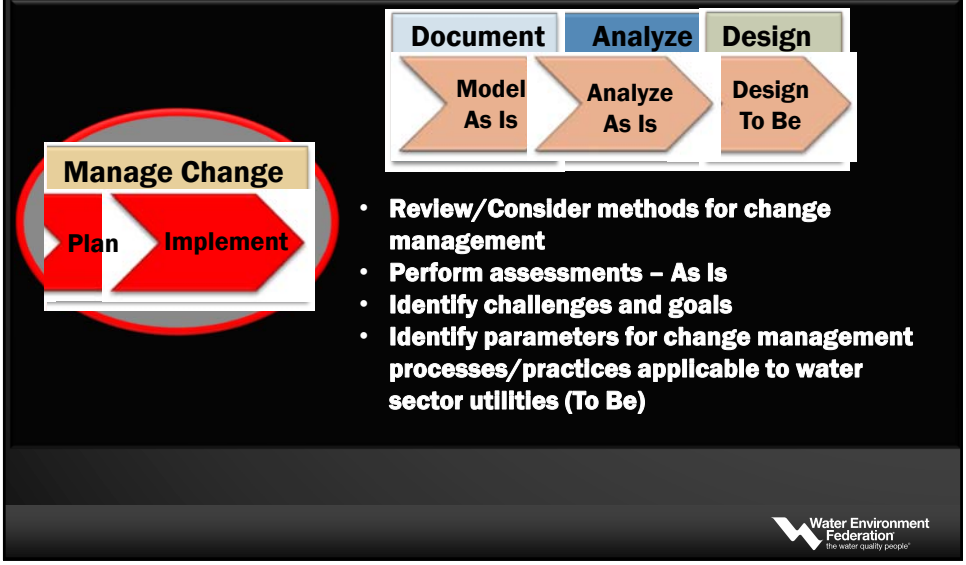
Scope for Change Management Subtopic (Collaborative Efforts)



- Review/Consider methods for change management
- Perform assessments – As Is
- Identify challenges and goals
- Identify parameters for change management processes/practices applicable to water sector utilities (To Be)

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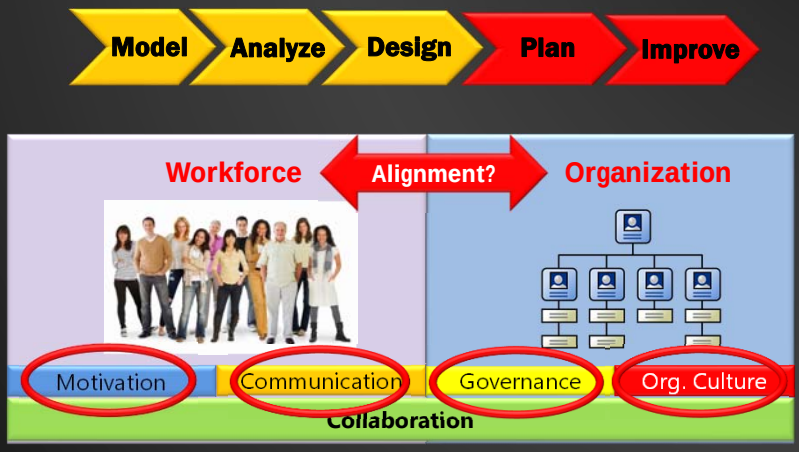
Apply Method to Each Element



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Summary

- Research driven by needs of utility partners
- Collaboration and knowledge sharing
- Key deliverables:
  - Standard methodology for modeling, analysis, improvement
  - Knowledge base: shared business process models, artifacts
  - Community of peers in water sector utilities
  - Case studies

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How Can a Utility Participate?

- Track 1 (utilities work independently)
  - Document (model) their own business processes of interest
  - Design and implement performance improvements
  - Prepare and post case studies
- Track 2 (utilities join teams to work on specific topics)
  - Attend collaborative sessions (conference calls)
  - Attend workshops (UMC, WEFTEC)
  - Prepare or review models for specific topics
  - Post/share relevant artifacts
  - Collaborate on assigning metrics to business processes
  - Design recommended processes for selected topics

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How Does a Utility Join UAIM?

- Contact Water Research Foundation
- Different Models of Participation

THE Water Research FOUNDATION

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Cello Vitasovic, PI – cello@9DAnalytics.com
Scott Haskins, Co-PI Scott.Haskins@Jacobs.com
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Clean Water Services

Craig Edlund
MCES

Scott Haskins
Jacobs Engineering

Mert Muftugil
Portland Water

Getachew Melsew
DC Water

Cello Vitasovic
9D Analytics

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