

The Enterprise Implementation Journey

 **TORONTO** Water

Confessions from the Frontlines of Utility Project Management

CanMUG User Group
Conference

May 3rd & 4th, 2018

Sheraton Toronto Airport
Hotel



Outline

- Overview of Toronto Water Context
- Enterprise Implementation and Operational Challenges
 - Management Approaches and Risk to Complex Implementations
 - Benefits Argument from a Business and Technology Perspective
 - The TW experience so far
- The Benefits of Dedicating Resources
 - 'Anchors' of Divisional Project Management
 - Coordinate and Guide Communications and Change
- Business Scenario Artifacts Generation
 - Strategic Decision Making (Mobile, Site, Integrations, Specialized Modules, etc.)
 - Operational Decision Making (Knowledge Transfer, Practices and Job Plans)
- Q&A

But Before We Begin...

- Question: For those of you who have implemented MAXIMO already, what would you have done differently, knowing what you know now?
- Question: For those of you with complex operations (linear and vertical assets, highly regulated environments, etc.) how have you (or could you have) prepared for implementing your MAXIMO solution?
- Question: How has MAXIMO enabled you to keep on top of technology trends (GIS, spatial, mobility, etc.)?
 - Did MAXIMO immediately enable/integrate with the latest tech tools?
 - Did you have to work in parallel with MAXIMO and integrate later?

The Toronto Water Context

- Serve 3.6 million residents and businesses in Toronto, and portions of York and Peel
 - Residential Customers (detached homes to multi unit high rises)
 - Industrial-Commercial-Institutional Customers (Hospitals, Long Term Care, Schools)
- Over \$28.3 billion in infrastructure assets (book value)
 - Increasingly stringent regulatory environment
- Operate facilities 24 hours per day, 365 days per year
- Program is rate-supported – no reliance on the property tax base to support Toronto Water operating and capital budgets
 - Revenues (\$1 billion CDN) must cover annual operating expenses (\$400 million) as well as fund capital programs (\$600 million) along with reserves (for emergencies)

Inventory of Assets (\$28.3 Billion)

Water – \$9.1 Billion

- 4 water filtration plants
- 11 reservoirs and 4 elevated storage tanks
- 5,551 km of distribution water mains and 550 km of trunk water mains
- 64,913 valves and 41,505 hydrants
- 511,452 water service connections, plus York Region (population served: 600,000)
- 18 water pumping stations

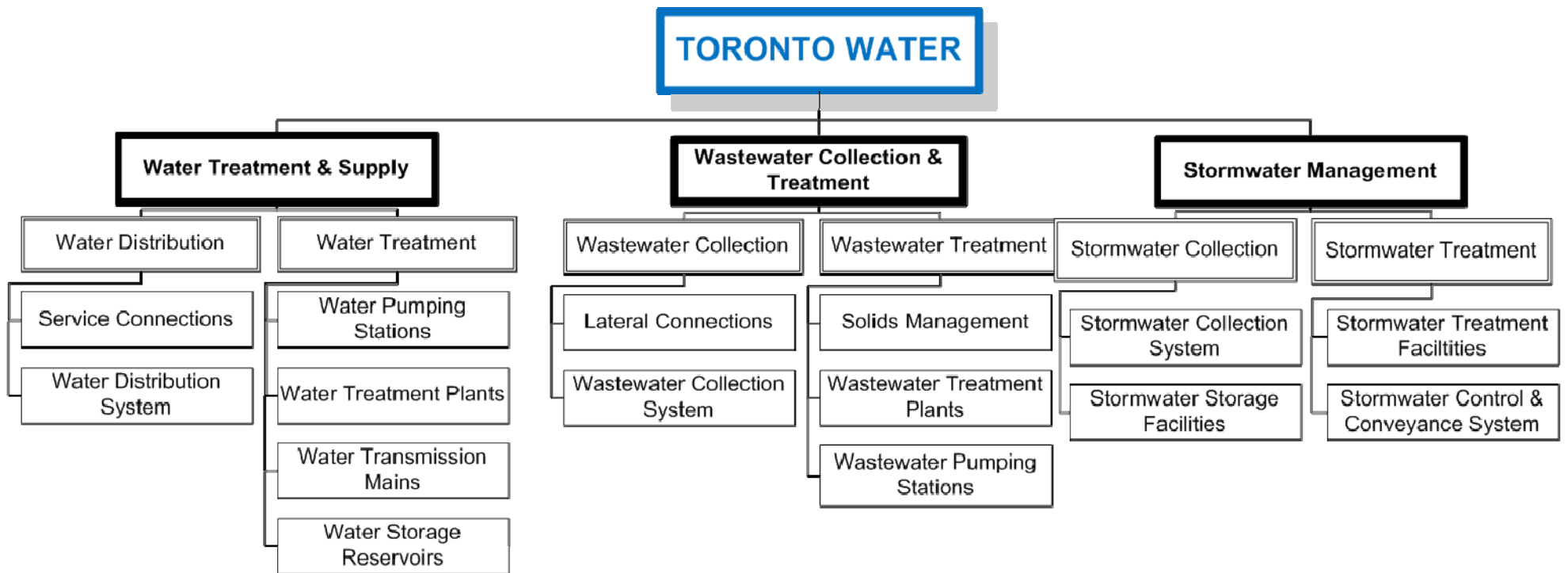
Wastewater – \$11.4 Billion

- 4 wastewater treatment plants
- 3,730 km sanitary sewers, 1,411km combined sewers
- 253 km sanitary trunk, 121 km combined trunk
- 57,772 sanitary maintenance holes, 24,748 combined maintenance holes
- 507,548 sewer service connections
- 67 sanitary pumping stations, 8 combined pumping stations

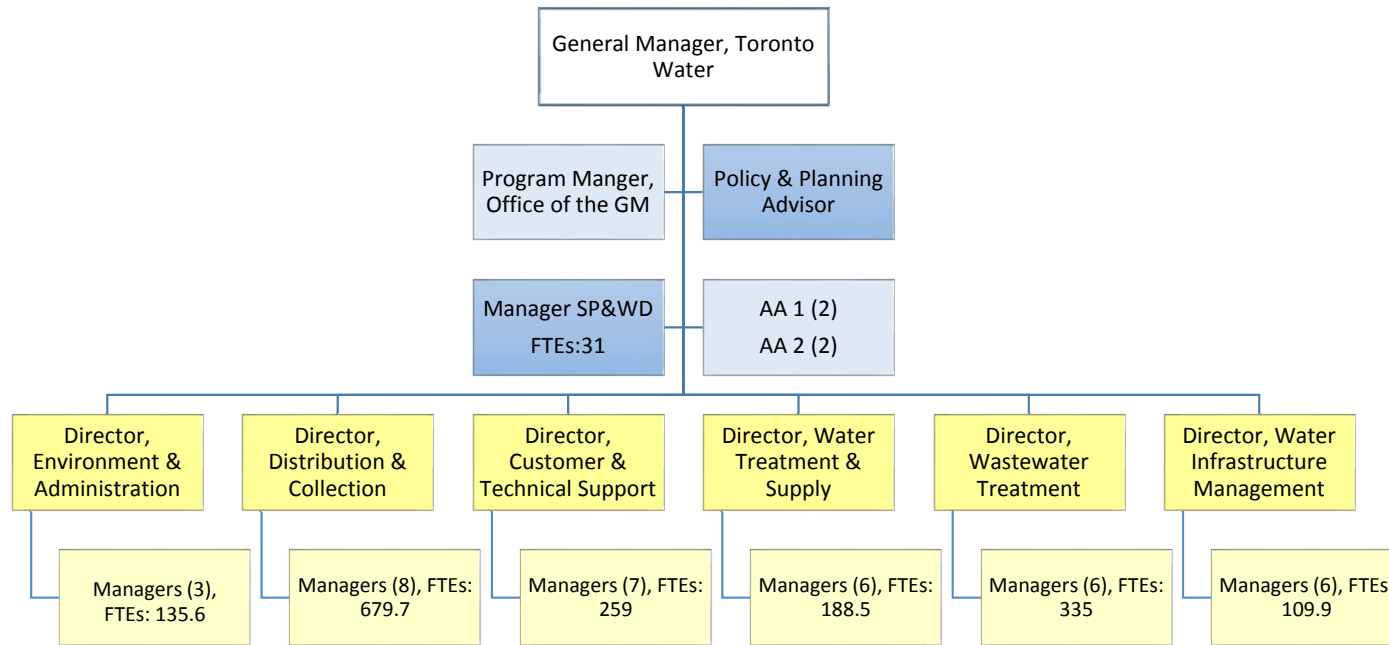
Stormwater – \$7.8 Billion

- 7 storage and detention tanks
- 4,981 km of storm sewers, and 27 km of trunk sewers
- 76,331 maintenance holes
- 371 km of watercourses, 84 stormwater management ponds
- 1,864 outfalls and 173,370 catch basins
- 12 stormwater pumping stations

Toronto Water Program Map



Toronto Water Organizational Structure



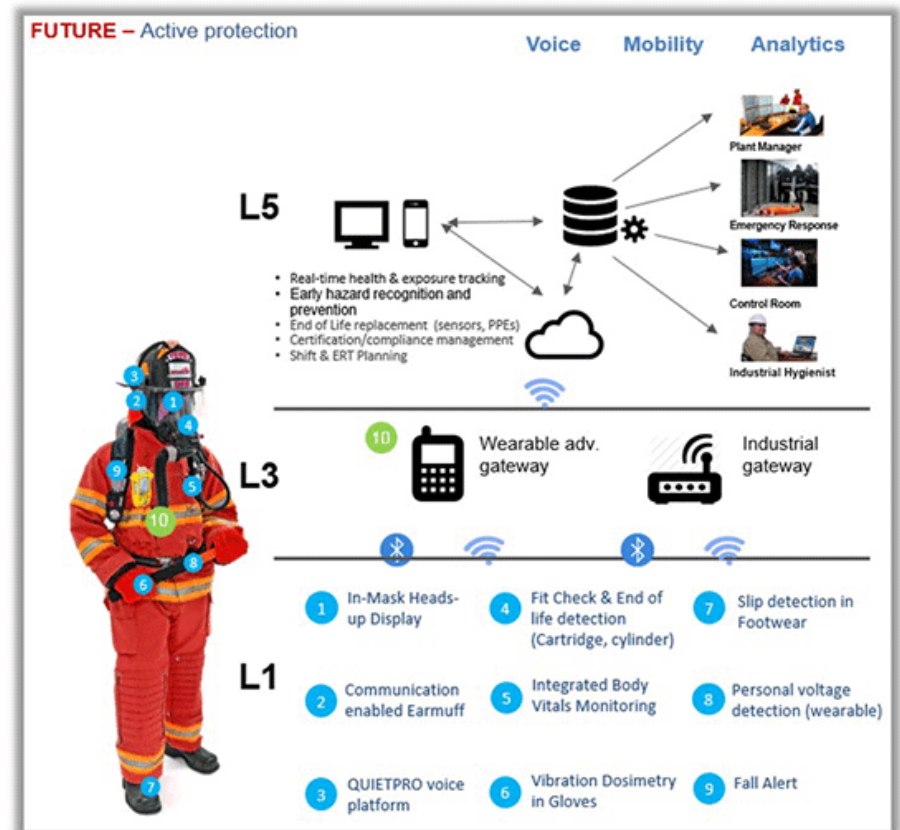
2017 Full and Part Time Staff

Category	Senior Management	Management	Exempt Professional & Clerical	Union	Total
Permanent	1.0	169.0	177.0	1,309.0	1,656.0
Temporary	0.0	5.0	2.0	89.7	96.7
Total	1.0	174.0	179.0	1,398.7	1,752.7

Information based 'Assets' (our staff)

- Similar to first responders, utility field staff need to be 'instrumented' to enable mobile information transfer
- Real time information on assets is critical to decision making and process optimization
- Augmented reality, map enabled views, spatial information, asset condition information, hydraulic modelling are some of the capabilities which are derived from field staff

Source: Honeywell



Toronto Water Strategic Plan

- **Mission Statement**
 - To provide quality water services through supplying drinking water and the treatment of wastewater and stormwater to residents, businesses and visitors in order to protect public health, safety and property in an environmentally and a fiscally responsible manner.
- **Vision Statement**
 - Toronto Water will be a leader in achieving excellence and efficiency in all aspects of water service delivery.
- **Guiding Principles**
 - Continuous Service Delivery Improvement
 - Financial Vitality, Viability and Sustainability
 - Operational Excellence
 - Infrastructure Management
 - Employer of Choice



Toronto Water Challenges

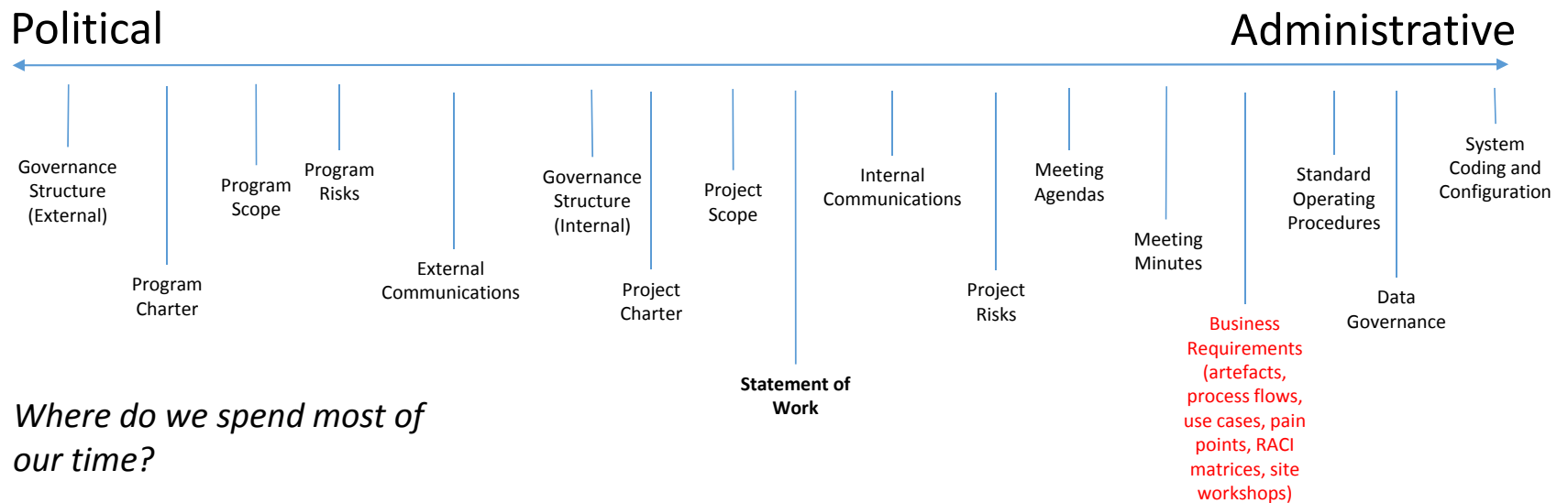
- Long-term Financial Stability: existing financial plan relies on water rate increases to fund infrastructure investment
- Declining Water Consumption: downward trend despite population growth, forecast is for a moderate annual decrease in consumption
- Aging Infrastructure: significant backlog of state of good repair for underground assets. Updating condition assessments for plants
- Strict Regulatory Control: W/WW industry continuing to experience increased legislative and regulatory reform, impacting budgets
- Managing Reserve Balances: Ensuring positive reserve balances during major capital spending years. Many large scale projects planned

The Toronto Water Enterprise Approach

- Management sciences promotes innovation
 - Enterprise solutions generate benefits of reducing technology footprints, increasing integration, improving data management, streamlining processes and being conscious of customer experiences.
- The TW EWMS Project is mandated to engage these challenges
 - Business resources embedded within operations, are critical.
 - Enabling field staff with spatial and mobile access
 - Provide divisional coordination for integration with shared services
- The TW Approach
 - Phase 1: Linear infrastructure (field staff, customer facing)
 - Phase 2 & 3: Vertical infrastructure (plant, facilities and compliance)

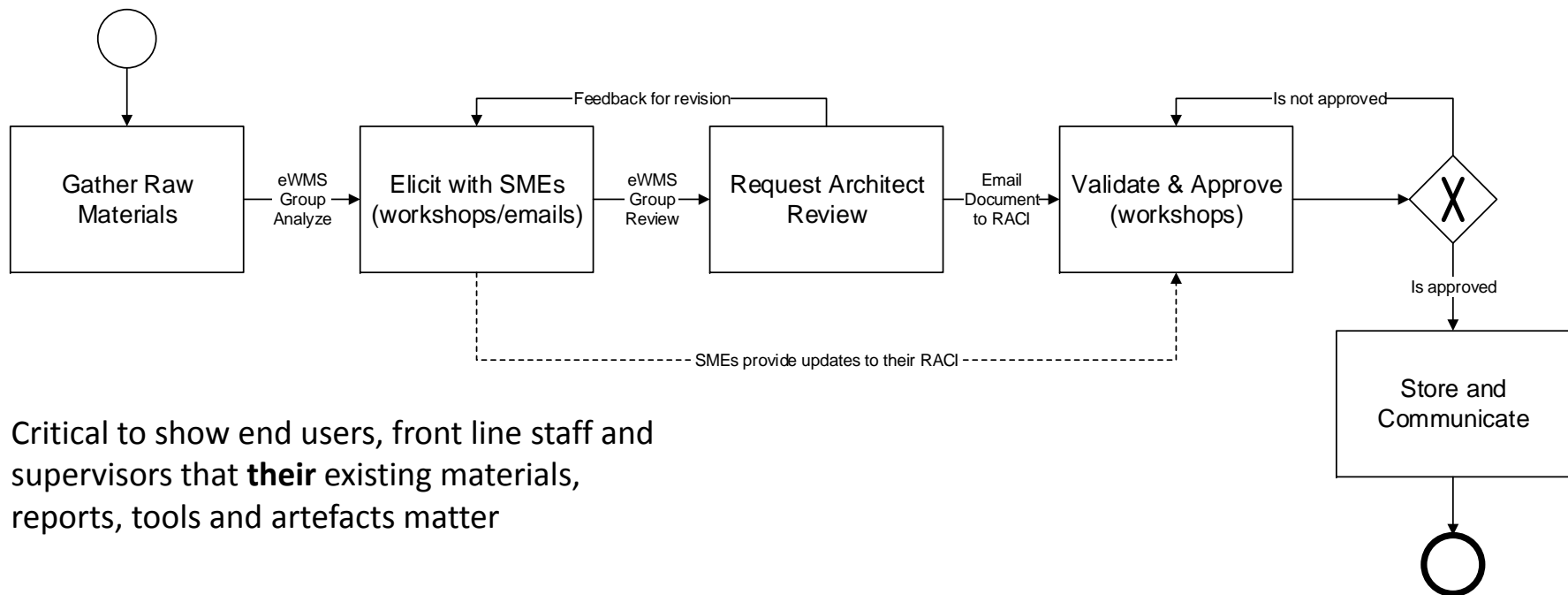
Dedicating Resources

- Anchors of Divisional Project Management
 - The TW EWMS team represents divisional interests by facilitating SME input from both divisional business and technology stakeholders
 - Drafts and develops artifacts which reflect pain points, AS BE flows and specific asks



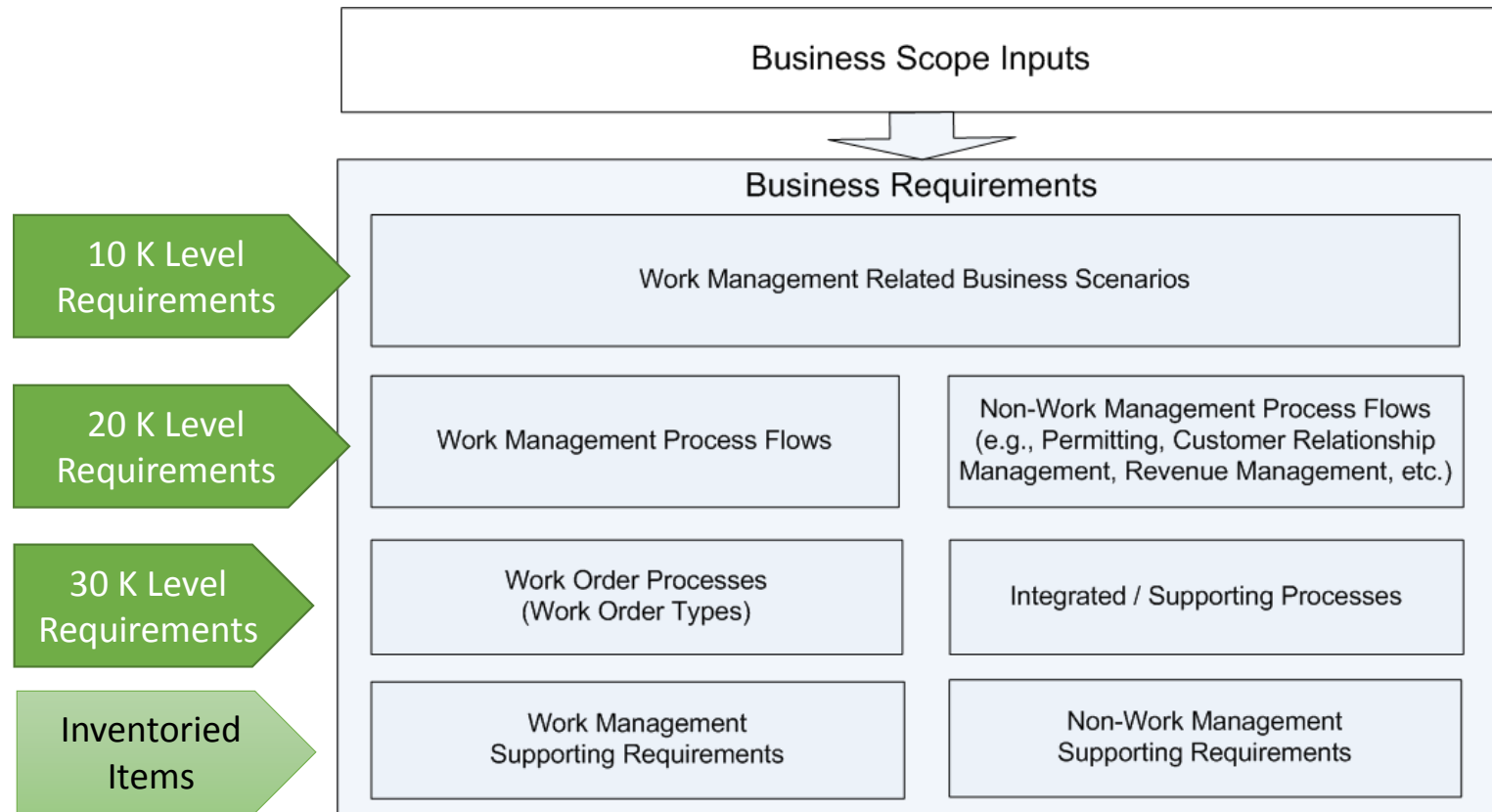
Leveraging Outputs and Artifacts

- Business Scenario Artifacts have helped to anchor critical discussions
 - Strategic Decision Making (Mobile, Site Sustainment, Integrations, etc.)
 - Operational Decision Making (Knowledge Transfer, Practices and Job Plans)



Critical to show end users, front line staff and supervisors that **their** existing materials, reports, tools and artefacts matter

Artifact Development and Segregation



Benefits of Preparation - Strategic

- Strategic Planning
 - Better align internal resources around asset treatment (class, sub class)
 - Implement two way integration with operations (asset condition updates)
 - Plan for integration with shared services (HR, Payroll, Materials, Inventory)
 - Decide on MAXIMO vs. Non-MAXIMO functionality
 - MAXIMO vs. Non-MAXIMO modules and functionality (CMS, Mobile, etc.)
 - Standardize Operating Procedures for linear and vertical infrastructure (compliance)
 - Streamlining hand offs with inter divisional partners (inspections, permitting)
 - Focussed addressing of pain points across complex operations and processes
 - Supplement succession planning with critical work management and asset maintenance flows

Benefits of Preparation - Operations

- Operational Alignment
 - Align desktop and mobile data entry on asset information
 - Isolate and improve on customer engagement
 - Standardizing notification of customers in the case of emergencies, outages
 - Follow up on customers through dedicated services
 - Complaint Management
 - Establishing a common vocabulary and nomenclature across SR and WO types
 - Reducing duplicate problem codes and related work orders.
 - Reducing duplicate PMs and coordinating maintenance efforts
 - Optimize processes and efficiencies



Thank You...

 **TORONTO** Water

Questions?

 **CanMUG**
Maximo User Group