GE Digital
Consistency, Efficiency and Accountability

Water Solutions

imagination at work

"My controls are reaching end of life and we need to be able to modernize easily into a platform that will enable connection to the digital age securely."


Using control systems past their expected lifespan introduces many risks

Results:
Unpredictable failures, obsolescence, limited expandability, low data fidelity, and can't support new technologies

"After huge IT investments, I still have operators hand creating 60 page operational reports every 6 hours wasting thousands of hours every year."

Asset Management

**Engineering Operations**

Business

SCADA
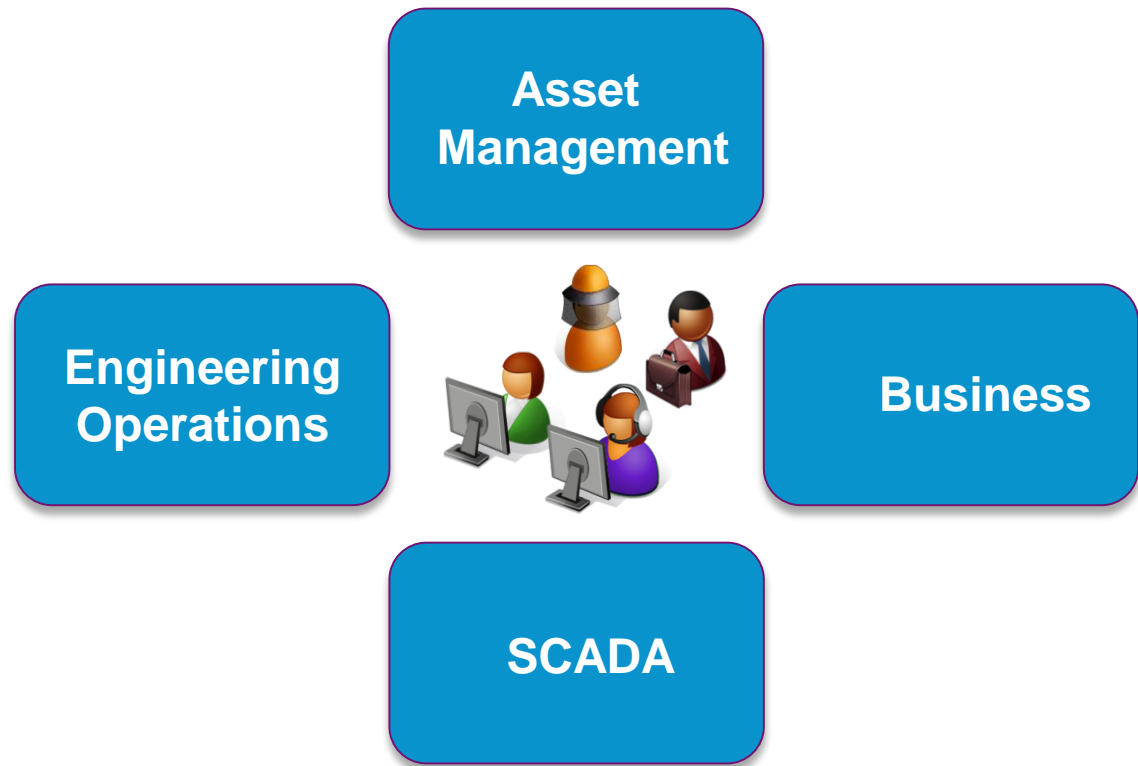
Manual data collaboration is widespread even with the large level of IT investment.

Results:

Duplicate effort, information silos, analysis gaps operational inefficiency and reactive operations

"I know I can save at least $1,000,000 per year on oxygen use in wastewater treatment but I don't have an analysis capability to optimize it."

Asset Management

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Business

SCADA
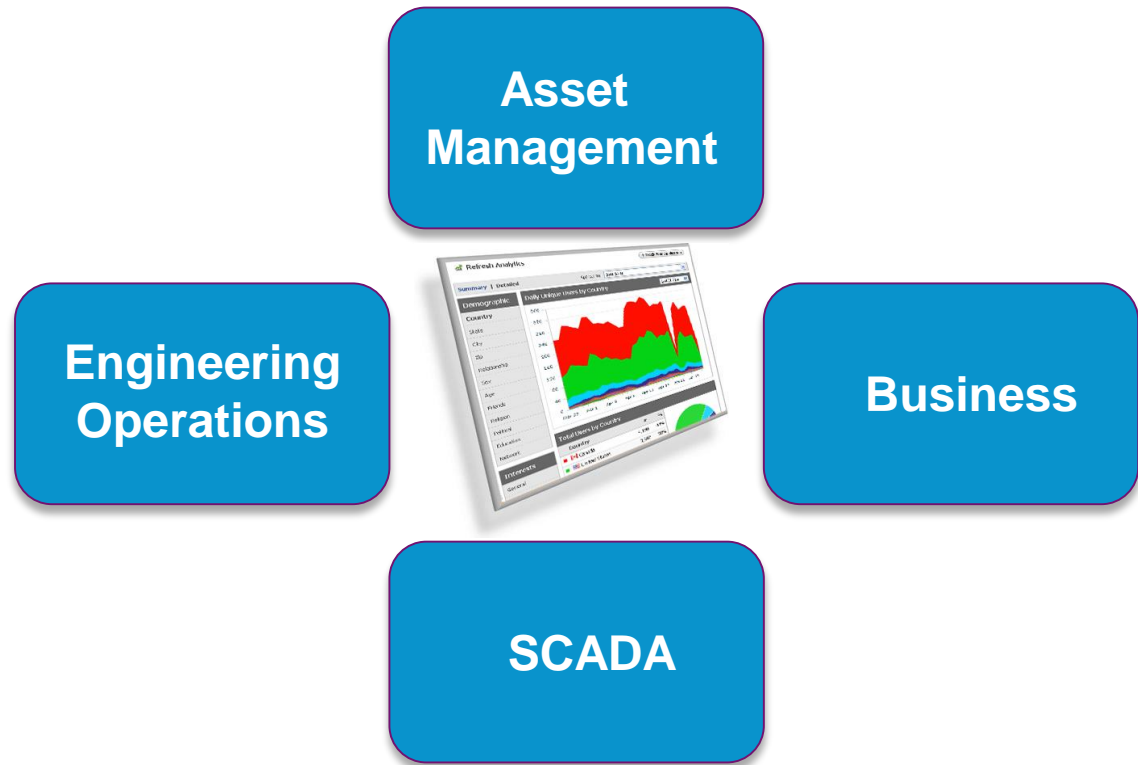
Necessary data to perform process optimization analysis is in disparate systems and not available for use.

Results:
Incomplete and inaccurate analysis.

"If I could get operational information directly in the hands of the people who need it through mobile applications, we could save tremendous staff time while increasing response time and operational compliance."

Staff resources not optimized resulting in more reactive than proactive operations.

Results:
Increased labor costs, greater response times and lower regulatory compliance.

imagination at work

> "We need to keep running no matter what and during the last hurricane that's just what we did."

Designed to connect

We've designed-in the ability to integrate your control system with your entire IT network… So field assets gets smarter as the network gets smarter

A utilities control system determines their ability to efficiently meet their customers needs:

- **Well Connected**– Support multiple data interfaces with distributed IT to make local control decisions with utility wide information

- **Modernization Master Plan –** Build a stable path to expanding the longevity of your control system with minimal production interruptions

- **System Reliability** – Redundancy capabilities minimize impact failures and provides command and control options during emergencies

imagination at work

"Platform convergence provides staff with collaborative information allowing us to better serve our customers."
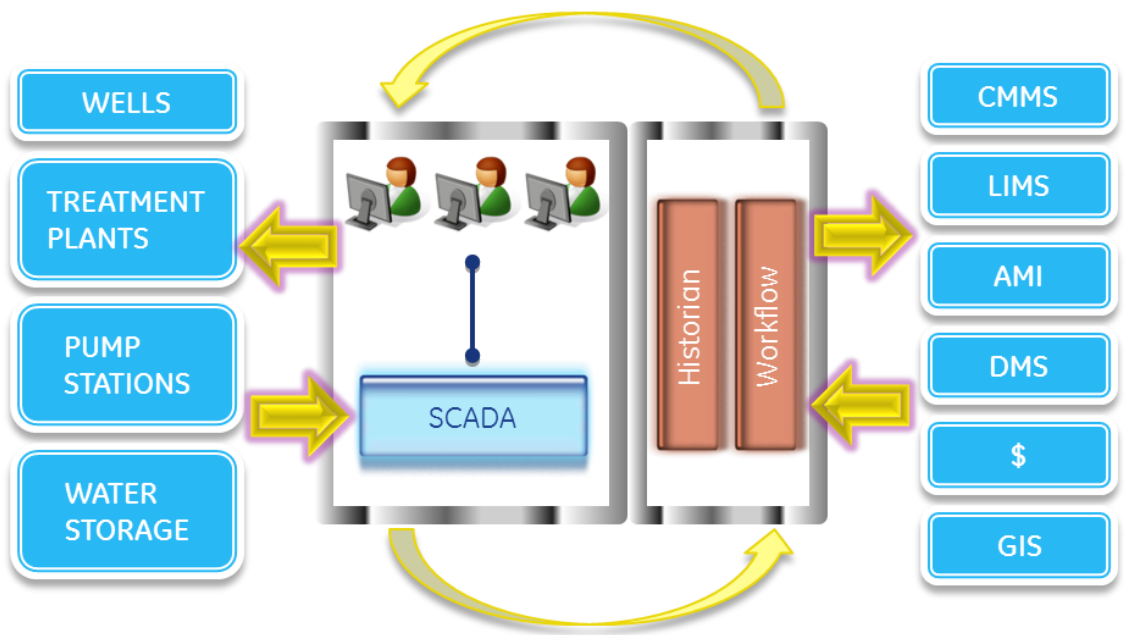
Maximize your investment by connecting your IT investment:

- $ ➔ Workflow – Incorporate into financial packages for further analysis

- GIS ➔ Workflow – Real time spatial mapping of events & asset information

- Controls ➔ Proficy ➔ CMMS - Automatically Trigger work orders, capture labor and materials parameters, & real-time water efficiencies

"Analytics provides us with process visibility we never had. It has provided opportunity for increased efficiency."
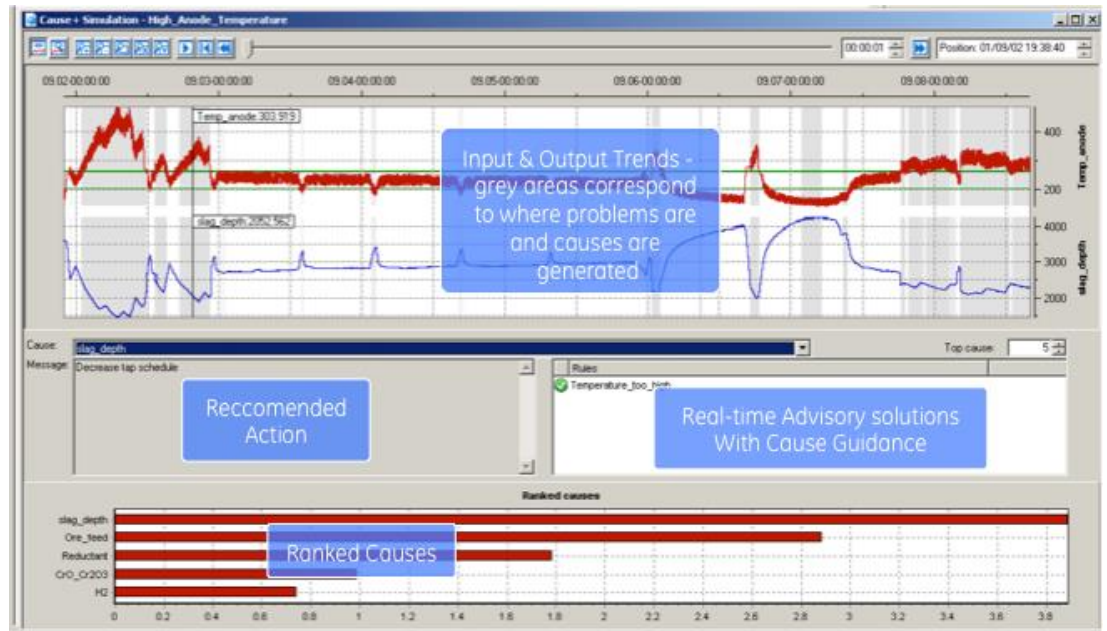
Utilizing real-time and historian data from relevant systems to perform powerful process and operational analysis

Results:

Optimized processes, better regulatory compliance and lower costs

imagination at work

Real-time Operational Intelligence

1 Secure information anywhere, anytime

2 A larger vision: plants, site, asset, etc.

3 Integrated knowledge

4 Pro-active analysis

5 Quicker Response

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Field Crew Scenario

Joe_Black
PS Maint. Team

WM23 Motor Temp Normal – About to Trip!

Bill_K
Dispatching

Main Plant 🟢
Chemicals 🟢
Tanks 🟡
Sewer PS 🔴
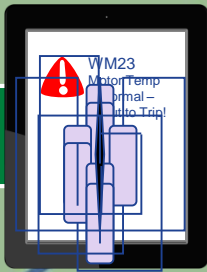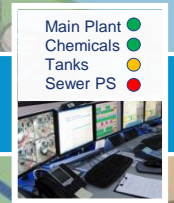
10:01 WM23 Motor_2 – High Temp.
10:02 WM23 BRK_6 – OFF
10:05 WM23 Motor_2 – HHTemp.
10:10 WM23 BRK_12 – OFF
..
10:23 WM23 Motor_2 – STOPPED

HS Pumps

John_S
Maintenance Team

Tanks

Gary_R
Management Team

Cape Cod 🟢   Quincy 🟡
Greenfield 🟢   Springfield 🔴

imagination at work

"Mobilization empowers my team to make more accurate decisions quicker which increases overall service levels to the public."

Mobile solutions with real-time system access enable field staff to analyze and respond to events faster.

Results:
Lower costs, faster responses and risk reduction.

imagination at work

What we can impact

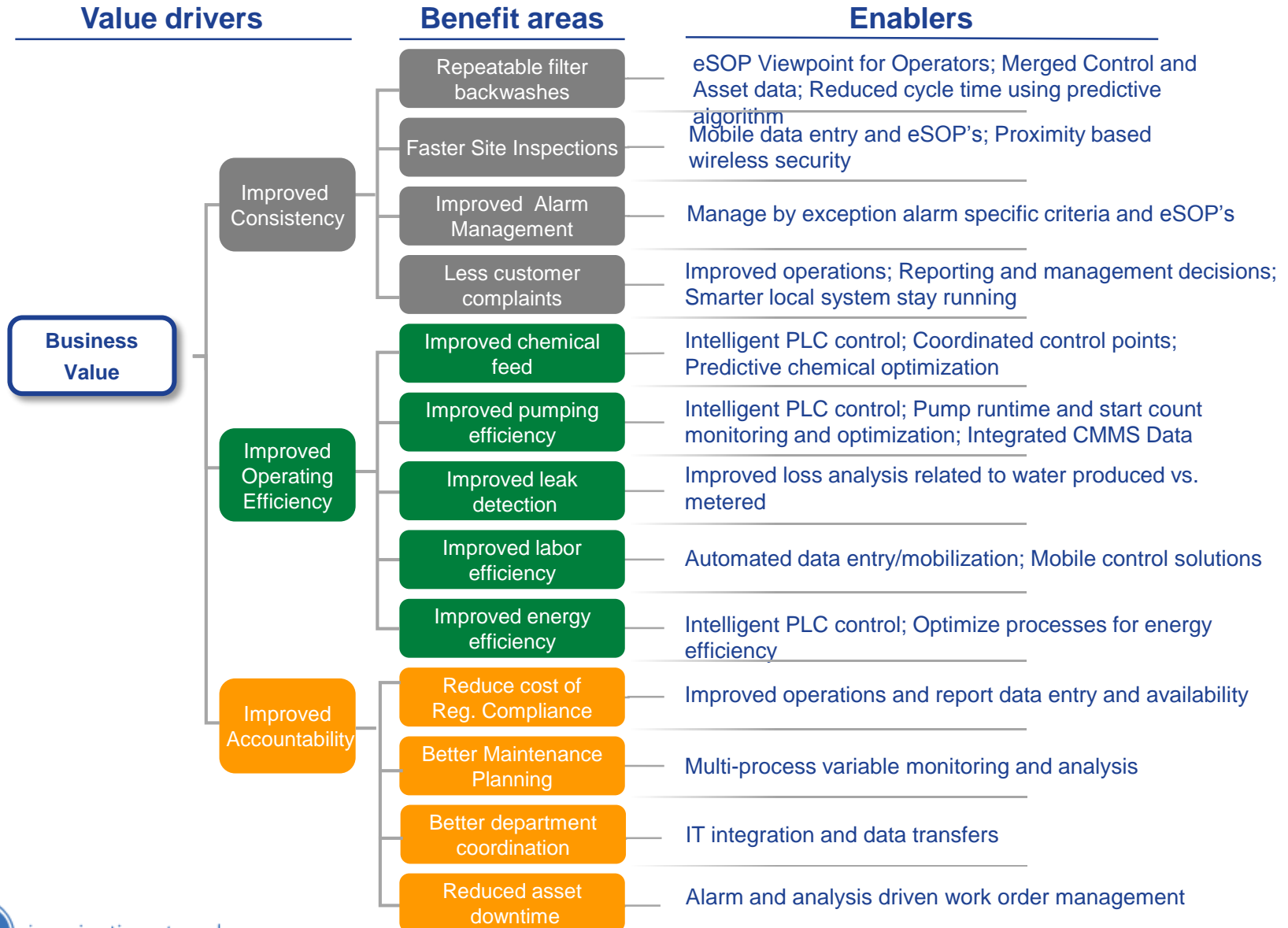| Value drivers	Benefit areas	Enablers
	Repeatable filter backwashes	eSOP Viewpoint for Operators; Merged Control and Asset data; Reduced cycle time using predictive algorithm
Improved Consistency	**Faster Site Inspections**	Mobile data entry and eSOP's; Proximity based wireless security
	Improved Alarm Management	Manage by exception alarm specific criteria and eSOP's
	Less customer complaints	Improved operations; Reporting and management decisions; Smarter local system stay running
	Improved chemical feed	Intelligent PLC control; Coordinated control points; Predictive chemical optimization
	Improved pumping efficiency	Intelligent PLC control; Pump runtime and start count monitoring and optimization; Integrated CMMS Data
Improved Operating Efficiency	**Improved leak detection**	Improved loss analysis related to water produced vs. metered
	Improved labor efficiency	Automated data entry/mobilization; Mobile control solutions
	Improved energy efficiency	Intelligent PLC control; Optimize processes for energy efficiency
	Reduce cost of Reg. Compliance	Improved operations and report data entry and availability
Improved Accountability	**Better Maintenance Planning**	Multi-process variable monitoring and analysis
	Better department coordination	IT integration and data transfers
	Reduced asset downtime	Alarm and analysis driven work order management

Business Value

imagination at work

14

Through continued automation efforts the cost of producing 1,000 CF of water is still at the same level as 1992.