GE Digital

Learn how to create your digital plant

Water/Wastewater Digital Transformation strategies

1

Webinar Moderator

Billie Emas
Sales Associate
American Water Works Association

Billie Emas is the Sales Associate to the NE and SE territories in the Sales Department at AWWA. She has been with AWWA for six months and she has been corresponding and building relationships with the members, advertisers, exhibitors and sponsors with AWWA. She has over 20 years of experience marketing, sales, event planning and membership.Billie has a BS in Business Administration from Bowling Green State University.

2

Enhance Your Webinar Experience

Close

✓Email Programs

✓Instant messengers

✓Other programs not in use

GoToWebinar Support

https://support.logmeininc.com/gotowebinar?labelid=4a17cd95

3

3

Webinar Survey

Immediately upon closing the webinar

- Survey window opens
- Thank you!

4

4

Products or Services Disclaimer

The mention of specific products or services in this webinar does not represent AWWA endorsement, nor do the opinions expressed in it necessarily reflect the views of AWWA

AWWA does not endorse or approve products or services

5

5

Our presenters today

Steve Pavlosky
Principal Digital Product Manager
GE Digital
https://www.linkedin.com/in/stephen-pavlosky-20293951

Ranbir Saini
Sr Director – Digital Product Management
GE Digital
https://www.linkedin.com/in/ranbir-saini/

6

How to create your digital plant
Water/Wastewater Digital Transformation strategies

Webinar Objectives

- Present the challenges of Digital Transformation in Water
- Understand the importance of good industrial data management
- Learn how centralized visualization with data in context can drive better decision making
- How Rapid Application Development (RAD) empowers people & reduces time to value
- How digitization improves consistency & compliance of processes

https://www.awwa.org/Events-Education/Events-Calendar/ctl/ViewEvent/mid/6794/OccuranceId/364

GE Digital in GE

GE Power
Equipping 90% of transmission utilities worldwide

GE Renewable Energy
Installed 400+ GW capacity globally

GE Aviation
Powering two-thirds of commercial aircraft departures*

GE Healthcare
17,000+ babies born every day with the help of our equipment

GE Digital
More than 30 years' experience delivering industrial software and services for more than 21,000 customers including GE businesses and four key external markets:

Grid
40% of the world's electricity is managed by our software – from generation to transmission & distribution.

Manufacturing
40% of Fortune 500 companies – including automotive; CPG/F&B and water utilities.

Power Generation
More than 950 plants in 75 countries use our Asset and Operations Performance Management software.

Oil and Gas, Chemical Manufacturing
Four of the top five supermajors in O&G rely on our Asset Performance Management solutions.

*Including CFM International, a 50-50 joint venture between Snecma (Safran) and GE.

The Opportunity

Operate

Better enable customers to **operate** industrial equipment and systems, delivering higher ROI

Analyze

Analyze customer and industry data to derive unique, actionable insights

Optimize

Optimize our customers' assets, operations, and people, improving business outcomes

Operational data fuels analytics

Analytics drive optimization

Closed loop control & automation

9

Key Water/Wastewater Concerns & Challenges

10

Water / Wastewater
3 Digital Transformation Scenarios

Control system modernization

1

Increase **visibility**, personnel **efficiency** & **compliance**, and better manage operational risk.

Cross installation visibility & basic analysis

2

Deliver end-to-end monitoring – **complete, accurate, and centralized view** of assets, current state, and health.

Smart monitoring & maintenance

3

Use **analytics** to **reduce** maintenance **costs**, **increase** overall operations **efficiency** (reduction of chemicals, etc.)

11

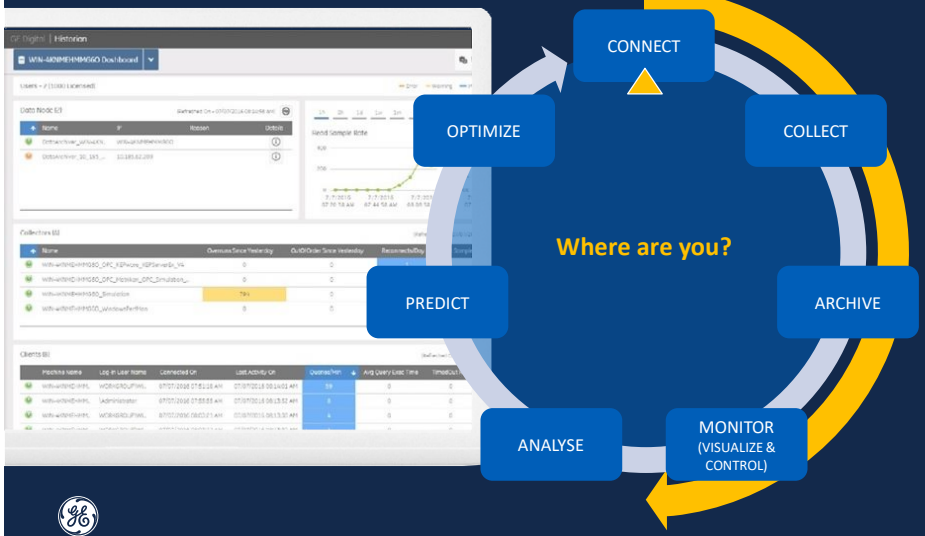
Poll Question #1
What scenario best describes your application?

1. We have not upgraded our control system yet
2. We have a modern control system
3. We have global visibility & implemented basic analysis
4. We have deployed analytics for smart monitoring & maintenance

12

Where are you on the maturity circle?

Control system modernization



13

#1

Control system modernization

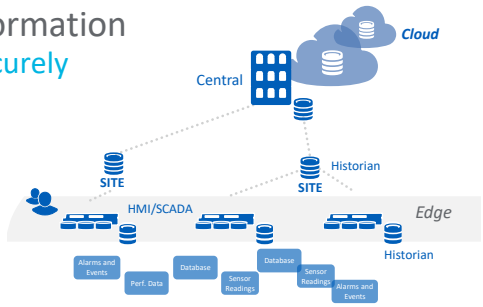
Operator-centric capabilities

Make the user
the center of the universe

14

#1 – **Data** is the foundation of your Digital Transformation

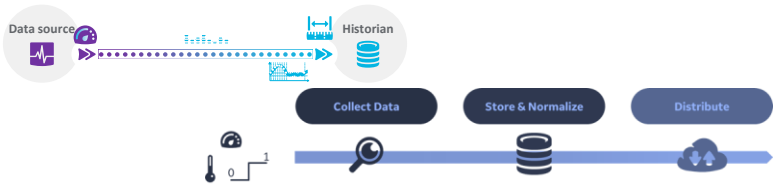
Connect, collect, store & distribute data – across sites, securely



- Build a **comprehensive set** –
  Big data (real-time, historical data, alarm & events) and **thick** data
- Create a **data model** mapped to the equipment model
- Look for ***store & forward*** capabilities – no data lost, to accommodate for remote sites with intermittent connections

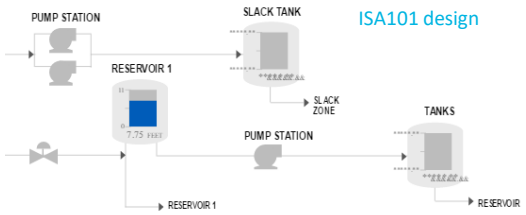
Key OUTCOMES

- No more **data gaps** & a **holistic view** of the performance
- **Reliable** & **consistent information** – ready for regulatory reporting



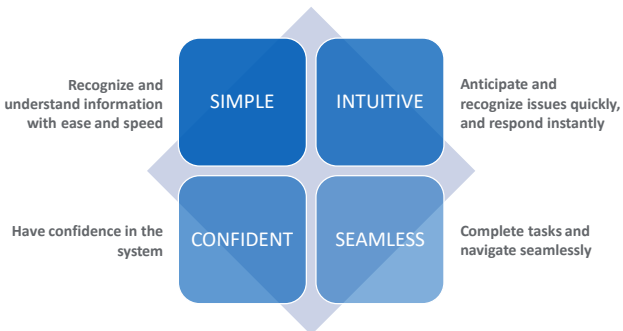
#1 – Control System Modernization

Enhanced User eXperience



ISA101 design

- Efficient / high performance HMI based on the **ISA 101 standards** (recommended practices, and/or technical reports pertaining to human-machine interfaces)
- Increase situational awareness, and productivity and reduce time to alarm detection & the risk of making mistakes



Efficient HMI requirements

#1 – Control System Modernization
Digital Work Process Management

- Capture the knowledge of your best operators & reduce training time
- Encapsulate "tribal" knowledge
- Move from alarm / event to the right action, fast
- Prevent mistakes from happening!
- Record & track work processes for compliance

Digitize procedures to ensure **consistency, repeatability, adherence to standards and accountability**

WATER/WASTEWATER | HMI/SCADA | NORTH AMERICA

Standardized workflows improve process consistency & efficiency

CHARTER TOWNSHIP OF WATERFORD MICHIGAN

Challenge

Loss of institutional knowledge to retirement negatively impacting operations. Automatically create SOPs & assign work orders when specific conditions are met.

Action

- Link real-time operational data with their workflow procedures
- Anytime an event occurs, the engineer on staff is electronically sent step-by-step instructions on how to resolve the issue

Result

- Integration of institutional knowledge and expertise
- Improved process due to electronic standard operating procedures
- Greater efficiency with automatic work order generation
- Better operational responsiveness with ability to manage by exception
- Significant time savings of staff with automated step-by-step work processes

#2
Cross installation visibility & Basic analysis

A single source of truth

Anywhere, any time, on any device

19

#2 – Cross installation visibility & Basic analysis
Centralized app management & empowered users

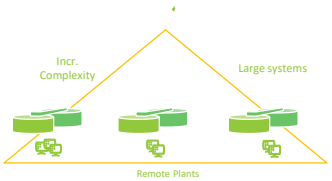
Centralized management- global monitoring & control

- A single source of truth, from operators to managers
- Drives consistency across sites
- Favor RAD (Rapid Application Development) solutions – code-free!

Actionable Information, anywhere, any time

- Make the operators more efficient with mobile devices
- Allow for remote monitoring & control – make adjustments remotely
- Log in from any device: use a smartphone, an iPad, a legacy device which supports HTML5 - less cost

Save tremendous staff time while decreasing response time and increasing operational compliance



VANDMILJØ RANDERS

Challenge

- Replace aging HMI/SCADA system
- Improve their way of working
- Optimize IT processes management and power consumption

Action

- Migrated to a modern HMI/SCADA, including report generation without manual intervention
- The right tool to generate KPIs , improve decision making by being closer to the processes, and optimize processes
- Manage alarms and send the right information to the right person at the right time

Result

- Increased efficiency of working methods and managing processes more effectively
- Optimizing processes continuously and reducing power consumption

21

Poll Question #2

How would you rate data availability & visibility for your application?

1. **Not good** – data gaps, lack of visibility
2. **Fair** – I wish I had more data & KPIs
3. **Good** – I have enough data to do my job, I lack visibility on performance & potential problems
4. **Great** – I can access all the data I need anywhere, any time

22

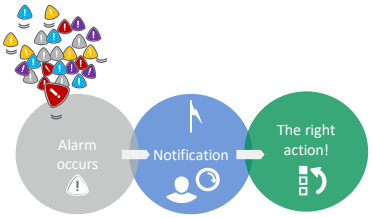
#2 – Cross installation visibility & Basic analysis
Meeting requirements for water/wastewater

Effective System wide asset monitoring

- Estimate asset health across the geographies
- Monitor and Optimize Asset utilization based on seasonal needs

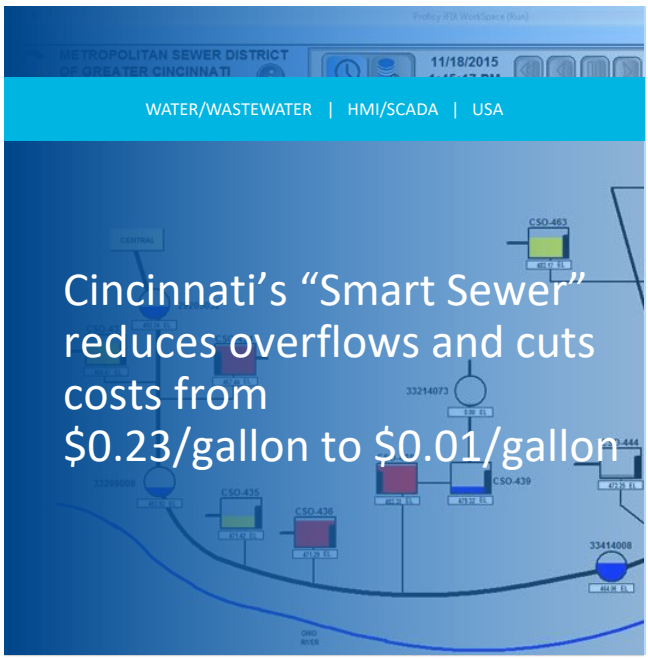
Effective alarm management procedures

- Increase productivity & reduce risk
- Move from alarm / event to the right action, fast
- **A good alarm strategy means, less "noise", faster reaction, increased productivity / efficiency, safer operations**



Automatically generate compliance reports

- Paperless reporting
- *Code-free software* delivers faster time to solution



http://www.msdgc.org/initiatives/smart_sewers/index.html

METROPOLITAN SEWER DISTRICT of greater CINCINNATI

Challenge

- Increase existing sewer system efficiency to address Consent Decree (federal mandate) to keep raw sewage mixed with stormwater out of waterways when it rains.

Action

- Using HMI/SCADA & historian products in a Wet Weather Operational Optimization System, Greater Cincinnati MSD monitors flow levels and controlling gates and valves to direct flows, allowing the utility to store flows inside large interceptor sewers, storage tanks, and high-rate treatment facilities in different parts of the sewer system.
- The software also delivers the visibility for operators to make informed decisions and optimize the use of the interceptors, avoiding overflowing systems that are at capacity.

Result

- **Reduced costs to ~$0.01/gallon of overflow volume, as compared to about $0.23/gallon** for green stormwater controls and about $0.40/gallon for larger pipes and storage tanks
- Reduced sewer overflows by more than 400 million gallons/year
- Decreased new capital projects needed to reduce the overflows, such as larger sewers and storage tanks
- Anticipated to save tens of millions of dollars in capital investments in projects to control sewer overflows

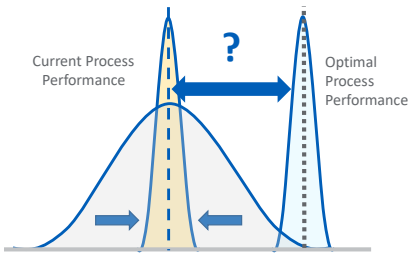
#3
Smart Monitoring & Maintenance

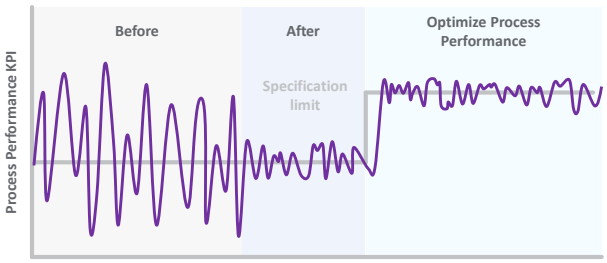
Be proactive

Reduce risk & cost

25

#3 – Smart Monitoring & Maintenance
Reduce variability & optimize process performance





Multi variate analysis tool

OUTCOMES

- More stable operations & less equipment downtime
- Improve quality & efficiency
- More efficient energy & chemicals consumption

26

A mid-size Municipality in Europe

Challenge

- Cost and compliance on Ammonia usage as weather changes
- Optimization of energy usage by blowers during different seasons

Action

- Weather and process data patterns were modeled to find correlation between the impact of ammonia dosing and need for blowers
- Analytics provided a model that could be connected with the SCADA to continuously advise on set points to ensure optimum utilization

Result

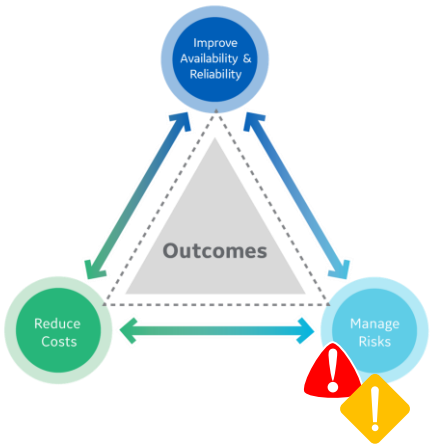
- Reduction in overall operational costs
- Easier alignment to compliance standards preventing any fines

27

#3 – Smart Monitoring & Maintenance
Condition-based M&M

IoT based remote monitoring for early warning on potential disruptions

- Add value on top of the automation solution via historical data-based predictive analytics and policies
- Optimize performance & Increase availability via additional analysis & analytics



OUTCOMES
- Be proactive, reduce operational risks
- Predict and diagnose equipment issues
- **Respond before assets fail**

AWWA Webinar - April 2020 |

28

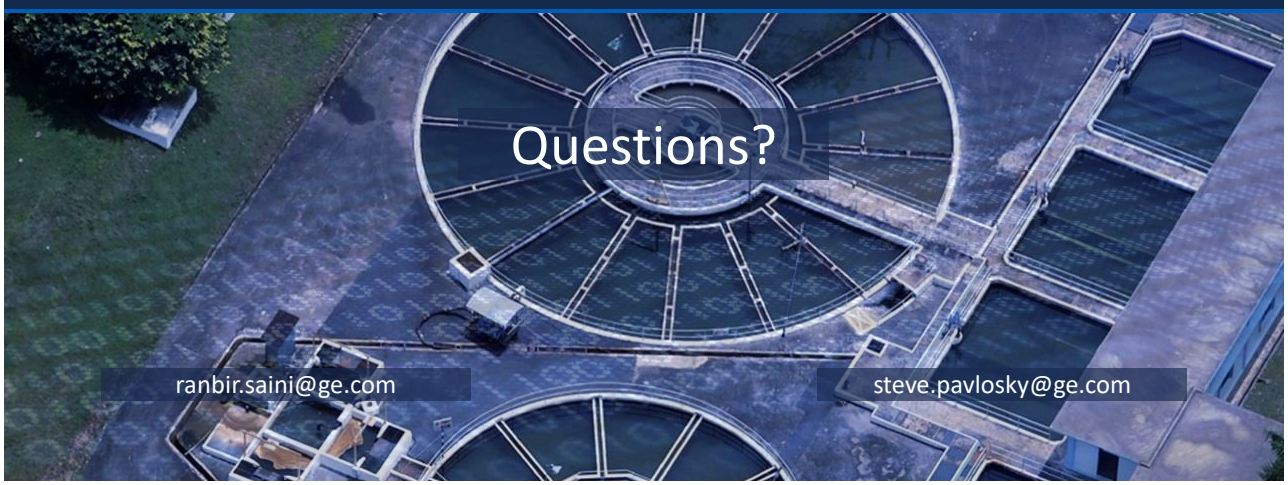
Poll Question #3

Are you planning to implement advanced analytics tools & when?

1. No plan
2. Evaluating – no decision yet
3. Decision made - we'll start implementation in the next months
4. Implementation has started
5. We have deployed an advanced analytics solution already

29

Thank you!



30

Presenters Biography Information

Ranbir Saini is the senior director of product management for Automation Software at GE Digital, which includes the industry-leading iFIX and CIMPLICITY HMI/SCADA software used by thousands of organizations around the world. Ranbir has nearly 20 years of experience delivering industrial automation, operations management, and media content-creation software to OEM, municipal, and enterprise customers. He has a passion for designing compelling and innovative solutions in the physical and digital space that make a meaningful difference to customers, human experiences, and society. Outside of work, this passion has led him to venture into architectural design such as residential houses and doors as well as having an ongoing pursuit to create the perfect cup of chai.

Steve Pavlosky is the Principal Product Manager for GE Digital's Proficy Historian and Data at the Edge program. With more than 30 years serving in automation and industrial data management, Steve is an Industrial Internet pioneer and firm believer in the value and power of data. His career spans the introduction of GE's CIMPLICITY HMI/SCADA software to leading the company's edge-to-cloud connectivity device portfolio. Having worked with hundreds of customers, Steve is passionate about enabling organizations to get the most performance and reliability from their assets – which starts with secure and efficient collection and storage, contextualizing asset data, and distributing data to the users and applications that derive value from the data.

31

31

CE Credits (CEUs) and Professional Development Hours (PDHs)

AWWA awards webinar attendees CEUs.

If you viewed this webinar live, you will receive a certificate through the AWWA account associated with the email address you used to register.

If you viewed this webinar through a group registration, contact your proctor to log your participation.

If you viewed this as an archive webinar, follow the directions included in your archive webinar email to log your participation.

Certificates will be available on your AWWA account within 30 days of the webinar

32

32

How to Print Your Certificate of Completion

Within 30 days of the webinar, login to **www.awwa.org** or register on the website. If you are having problems, please email educationservices@awwa.org

Once logged in, go to:

- My Account (click on your name in the top right corner)
- My Transcripts
  - To print your official transcript, click **Print list**
  - To print individual certificates, click **Download Certificate**

33

33