

transformative issues symposium

DIGITALIZATION: UTILITY AND REGIONAL PERSPECTIVE

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DIGITALIZATION SKILLS

“IN THE MODERN WORKPLACE, DIGITAL SKILLS ARE HIGHLY VALUED; IN THE FUTURE, DIGITAL SKILLS WILL BE VITAL.”

UK PARLIMENT

CORNELL UNIVERSITY DEFINES DIGITAL LITERACY AS ‘THE ABILITY TO FIND, EVALUATE, UTILIZE, SHARE, AND CREATE CONTENT USING INFORMATION TECHNOLOGIES AND THE INTERNET’.

READ MORE AT: [HTTPS://WWW.SKILLSYOU NEED.COM/RHUBARB/DIGITAL-SKILLS-MODERN-WORKPLACE.HTML](https://www.skillsyouneed.com/rhubarb/digital-skills-modern-workplace.html)



TRANSFORMATIVE ISSUES SYMPOSIUM: WORKFORCE

EXAMPLES OF DIGITAL SKILLS

- FLUENCY IN INPUTTING INFORMATION DIGITALLY ON A RANGE OF DEVICES AND SOFTWARE PACKAGES
- CONFIDENCE MOVING BETWEEN DEVICES AND USING THEM EQUALLY
- REPRODUCING AND MANIPULATING DIFFERENT TYPES OF DIGITAL INFORMATION
- RESEARCH, ANALYSIS AND SEARCH SKILLS
- EFFECTIVELY USING AND MANAGING DIGITAL TROUBLESHOOTING MEDIUMS
- SETTING UP, MODIFYING AND PERSONALISING DIGITAL DEVICES AND SOFTWARE
- AN AWARENESS OF DIGITAL TRENDS IN YOUR (AND RELATED) DOMAINS
- HOW AUTOMATION CAN HELP AND HINDER OPERATIONAL EXCELLENCE





UTILITY PERSPECTIVE - DIGITAL TOOLS ADOPTED BY SFPUC



- ASSET MANAGEMENT – MAXIMO – DATABASE/DATA MGMT. – RUN REPORTS
- KNOWLEDGE MANAGEMENT – SHAREPOINT – INTRANET (CURRENTS) – SHARE INFORMATION
- GRAPHIC INFORMATION SYSTEM (GIS) – LOCATES ASSETS IN SYSTEM – DEPTH AND LOCATION IN STREET AVOIDING CABLE AND GAS LINES. DIGITALIZED, NO LONGER USE MAPS.
- SYSTEM CONTROL AND DATA ACQUISITION SYSTEMS - PI SYSTEM – TO CONNECT SENSOR-BASED DATA, SYSTEMS AND PEOPLE.
- RELIABILITY CENTERED MAINTENANCE (RCM) – DIGITAL SOFTWARE TOOL
- BLUE JEANS/ZOOM – VIDEO CONFERENCING SOFTWARE
- SMART PHONES AND TABLETS – ACCESS PROGRAMS IN FIELD, ENTER DATA IN REAL TIME – TAKE PICTURES AND VIDEOS IN FIELD
- DRONES – INSPECTIONS OF ASSETS AND DAMAGE ASSESSMENTS

UTILITY PERSPECTIVE



EXAMPLES OF LESSONS LEARNED FROM DIGITALIZATION PROJECTS AT SFPUC:

- SMART METERING INFRASTRUCTURE – WATER ENTERPRISE

LESSONS LEARNED

- HEAVY IT INVOLVEMENT IS NEEDED TO MANAGE AND HANDLE ALL THE NEW DATA, INCLUDING SCREENING OF RAW DATA FOR USE IN DATA SHARING VERSUS MAINTENANCE NEEDS
- PLAN FOR SIGNIFICANT INCREASE IN FIELD MAINTENANCE AND INVENTORY MANAGEMENT WITH NEW TECHNOLOGY COMPONENTS AND INABILITY TO GO BACK TO MANUAL READING
- CONTINUED TECHNOLOGY ADVANCEMENTS AND UPGRADES REQUIRE CAREFUL LONG TERM PLANNING AND MANAGEMENT OF INTEGRATED SYSTEMS AND HARDWARE

UTILITY PERSPECTIVE



EXAMPLES OF LESSONS LEARNED FROM DIGITALIZATION PROJECTS AT SFPUC:

- DISTRIBUTED CONTROL SYSTEM (DCS) – WASTEWATER ENTERPRISE

LESSONS LEARNED

- GRAPHICS DISPLAY CHANGES - CHANGE COLORS ON SCREEN TO DECREASE STRESS ON OPERATORS – NEW COLORS BASED ON NATIONAL ANALYSIS AND RESEARCH
- NEW DIGITAL SKILLS AND TRAINING ARE NEEDED FOR THIS SYSTEM
- UPDATE OPERATOR ANNOUNCEMENTS AND TRAINING TO INCLUDE DIGITAL SKILLSET AND DIGITAL COMPETENCIES, TRAINING FOR STAFF IS CRITICAL
 - OPERATIONS
 - MAINTENANCE
 - INSTRUMENTATION CONTROL TECHNICIANS
 - ITS



GUIDING PRINCIPLES FOR DCS TRAINING PLAN

1. MODERN AND FUNCTIONING DCS AND PROCESS CONTROL SYSTEM COMPONENTS ARE ESSENTIAL TO THE WWE, AND
2. AVAILABLE AND SKILLED OPERATORS WHO CAN OPTIMIZE THE DCS AND PROCESS CONTROL SYSTEM CAPABILITIES ARE ESSENTIAL TO ENSURE THE WASTEWATER SYSTEMS' POTENTIAL IS FULLY UTILIZED.
3. ENHANCED AND **DIGITAL-AGED SKILLS** AND CAPABILITIES FOR ENGINEERING AND MAINTENANCE STAFF ARE CRITICAL TO PROVIDE TIMELY CORRECTIVE AND WARRANTED PLANNED AND PREVENTATIVE MAINTENANCE OF THE PCS.
4. CLEAR ROLES AND RESPONSIBILITIES ACROSS THE OPERATIONS, MAINTENANCE AND ENGINEERING GROUPS ARE ESSENTIAL.
5. TO ENSURE WWE HAS SKILLED AND AVAILABLE STAFF, THERE WILL BE A **HIRING, TRAINING AND RETENTION PLAN** DEVELOPED CONSISTENT WITH THE IMPLEMENTATION OF THE DCS AND PROCESS CONTROL SYSTEM SCHEDULE.



OPERATOR TRAINING

CONTRACT WITH EMERSON CONTAINS

- **SIMULATOR FOR OPERATOR TRAINING**
- **OPERATORS AND MAINTENANCE STAFF TRAINING**
- SOFTWARE AND HARDWARE MAINTENANCE SUPPORT
- 15- YEAR PARTS REPLACEMENT
- **TRAINING NEEDS INCLUDE:**
 - FUNCTIONAL ORG CHART
 - COMPETENCIES
 - REVISED JOB DESCRIPTIONS
 - TECHNICAL TRAINING AND RETENTION PLAN



REGIONAL PERSPECTIVE



Baywork was formed based on a workforce development task force in 2008 from four water and wastewater utilities whose findings called for a regional response. Baywork is a consortium with 30 utilities and industry partners that works on workforce issues in the San Francisco Bay Area. You can learn more about Baywork at baywork.org.



BAYWORK REGIONAL PERSPECTIVE SURVEY ON DIGITALIZATION

- DIGITALIZATION SURVEY DISTRIBUTED TO BAYWORK SIGNATORY AGENCIES – JULY 2019
- RECEIVE SURVEY BACK – SEPTEMBER 2019
- ANALYZE SURVEY
- IDENTIFY BAYWORK SIGNATORY AGENCIES TO PARTICIPATE IN DIGITALIZATION EVENTS AND ACTIVITIES
- REACH OUT TO AGENCIES TO REQUEST DIGITALIZATION ENGAGEMENT
- SET UP SCHEDULE FOR DIGITALIZATION WORKSHOP AND SESSIONS FOR THE ANNUAL TRAINING BUFFET

User Survey
Lessons Learned on Implementation of Digital Tools by
Water/Wastewater Utilities

I. Respondent Information

A. Name _____

B. Letter/Company _____

C. Role _____

D. E-mail Address _____

E. Phone Number _____

II. Type of Digital Tools Implemented

Please indicate whether these tools have, to your knowledge, been implemented by your utility or company, and your last project when the tool was implemented, in the categories below, under "For Yes, N for No, or For Don't Know and if not, estimated year implemented."

Operations Technology	Yes	No	For Don't Know	Estimated Year Implemented
Process Control and Data Acquisition (SCADA) and other process control and automation systems				
Systems with easy access for analysis of critical data				
Real-time and historical models (including new tool or over real time)				



PLANNED BAYWORK ACTIVITIES

- FULL DAY WORKSHOP ON DIGITALIZATION
- AT LEAST 4-6 SESSIONS IN OUR ANNUAL TRAINING BUFFET ON THIS TOPIC
- 2 WEBINARS ON DIGITALIZATION – TBD
- WHITE PAPER ON DIGITALIZATION AND IMPLICATIONS FOR UTILITY WORKFORCE NEEDS
- PARTICIPATION IN UTILITY MANAGEMENT WORKSHOP (PENDING ABSTRACT ACCEPTANCE) BY BAYWORK SIGNATORY AGENCIES



TRANSFORMATIVE ISSUES SYMPOSIUM: WORKFORCE

QUESTIONS/COMMENTS?

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