



Creating a Sustainable Workforce

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Our Point

DWSD is developing a methodology for a sustainable workforce.



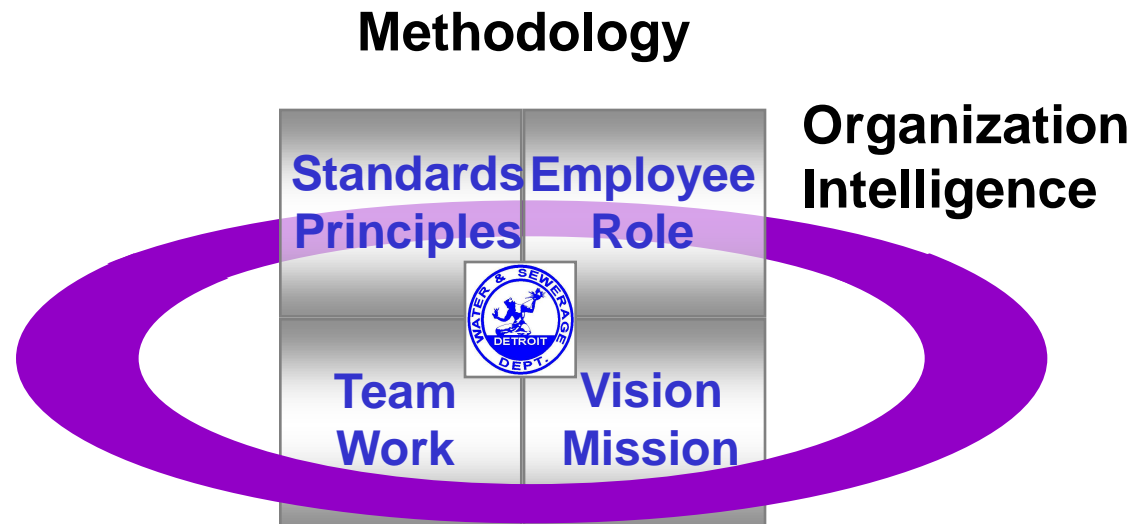
Our Methodology Has Four Quadrants

To develop a sustainable employee skillbase, our approach incorporates DWSD standards and principles, the role of employees, the vision and mission of DWSD, and team work.



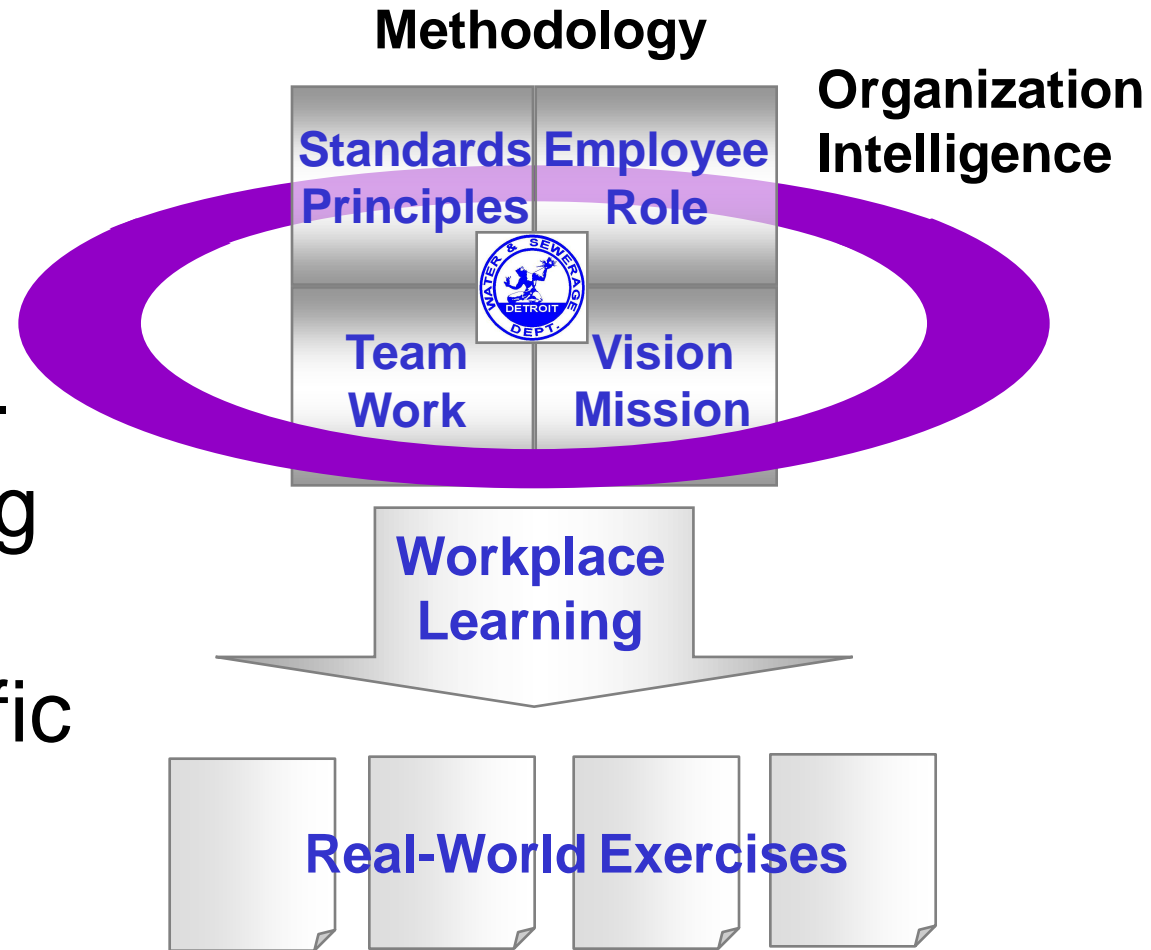
Our KM Philosophy Plays a Strategic Role

For a sustainable workforce, we must continue our efforts to become a learning organization.



Using Real-World Exercises

Employees strengthen their effective decision-making skills using timely information and DWSD-specific exercises.



Overview



In the Industry, We See:

- Qualified Workers Leaving
- Fewer People Do More Work
- Utility Business Must Carry On

Solutions Include Methodologies That:

- Foster Learning Environment
- Are Cost-Effective
- Develop Human Capital



DWSD

In Our Department, We See:

- Retirements Continue
- Training Needs Continue
- The Work Continues
- Technology Drives Increased Competencies

Our Response Includes:

- Knowledge Management (KM)
- Sustainable Programming
- Core Competency Training


Detroit Water & Sewerage Dept. (DWSD)



Detroit Wastewater System

- Serves 77 communities in SE Michigan
- Service Area of 850 square miles
- Wet weather treatment capacity 1.7 BGD
- Average annual flow 650 MGD
- 6 CSO Facilities
- 2 more nearing completion
- 2 in design phase

Challenges at DWSD

- Regulatory Issues
- Asset Mgmt
- Regional Issues
- Rate Pressures
- Balancing Construction/Operation
- Knowledge Retention
- Workforce Attrition 

KM Includes People, Process, Technology and Culture

Throughout DWSD's KM initiatives, technology is used to provide employees access to timely information for effective and efficient decision making.

Technology-literate employees are essential to the success of KM. The trends of fewer qualified workers and continued retirements threaten to impact successful implementation of KM.

Why Do We Need a Sustainable Workforce?

Our organizational data very clearly illustrates two critical trends of workforce attrition. This informs our view on the need for workforce development programs.

First, the Retirements Continue

- FY 2005-2006 = 99
- FY 2006-2007 = 60
- FY 2007-2008 = 60 estimated
- FY 2008-2009 = 438* are eligible

* 20% of 2008 workforce.

Dashboard

Employees (DWSD)

Data Chart

This Year by Month

	Actual	Prior Yr
2008 Jan	--	51
2008 Feb	--	54
2008 Mar	--	56
2008 Apr	--	56
2008 May	--	58
2008 Jun	--	60

Second, the Number of Employees is Down

In the two years from July 2005 to June 2007, DWSD's workforce dropped by 14.7%

Dashboard

Employees (DWSD)

Data Chart

JUL 2005 - JUL 2007

	Actual	Diff.
2005 Jul	2569	----
2006 Jun	2306	- 263.0
2007 Jun	2216	- 90.0
2007 Jul	2191	- 25.0
Total		- 378.0

Third, DWSD Jobs Require Skill & Experience

Departmental work is not “assembly line” repetitive. Even “routine” work requires some special skills for effective decision making and timely information.

DWSD is Concentrating on Developing Across-the-Board Competency

Every employee needs to be able to optimize their efficiency and productivity on the job.

Starting with “Core” Competencies

Because of the range of Departmental technology available to employees, DWSD determined to achieve focus by concentrating on “core” competencies – essential skills needed for all computer tools and applications.

DWSD Surveyed the Workforce

Asking employees to:

- Verify the tools and applications needed for their jobs,
- Share their perception of their computer training needs,
- Answer objective questions to verify their computer knowledge and experience.

Departmental Employees Participated Enthusiastically and within the Required Timetable

There was unparalleled participation:

- Employees who missed a scheduled assessment took all necessary steps to ensure they rescheduled
- Employees *not* scheduled, actually volunteered to take the assessment if it would benefit the Department

The Results

The assessment results validated technology competencies across every major organizational unit within the Department. Critical gaps in the two major types of core competencies were identified.

Two Types of Core Competencies

Technology Basics. Training essential to Departmental business processes.

Business Role-Specific. Training critical to employee's daily work tasks.

DWSD's Next Steps

- Timetable
- Keys to Success
- Next Steps

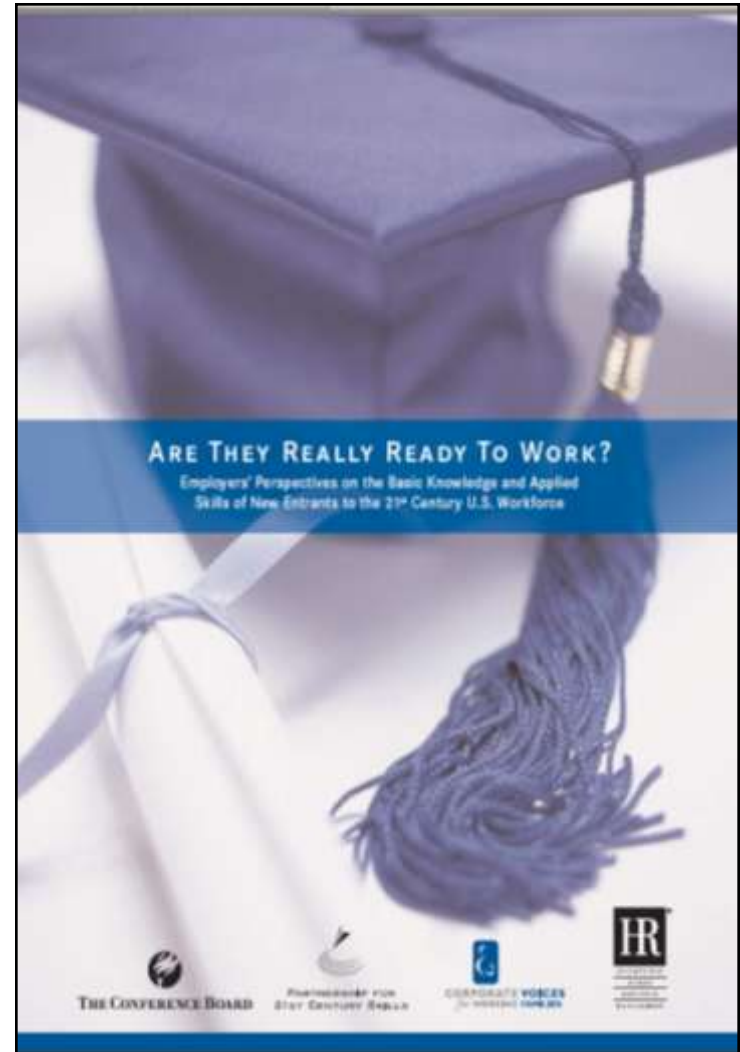
Are These Challenges Unique to DWSD?

The challenges of ensuring a sustainable utility workforce are not unique to DWSD. The trends of aging workforce, attrition, and increasing competition for skilled workers are well documented at a national level. These trends are complicated by other workforce trends emerging in American society.

Are They Really Ready To Work?

- Survey of over 400 key employers across the US
- Employers articulated skill sets for new entrants
 - High School Graduates
 - Two-year Colleges or Technical Schools
 - Four Year Colleges
- Covered Knowledge & Skills

www.21stcenturyskills.org



The Requirements

For new entrants with a high school diploma, applied skills are four of the top five “very important” skills in combined ranking with basic knowledge and skills.

Rank	Skill
1	Professionalism/Work Ethic* . 80.3%
2	Teamwork/Collaboration* . . . 74.7
3	Oral Communications* 70.3
4	Ethics/Social Responsibility* . 63.4
5	Reading Comprehension 62.5
6	English Language 61.8
7	Critical Thinking/ Problem Solving* 57.5
8	Information Technology Application* 53.0
9	Written Communications* . . . 52.7
10	Diversity* 52.1
11	Writing in English 49.4
12	Lifelong Learning/ Self Direction* 42.5
13	Creativity/Innovation* 36.3
14	Mathematics 30.4
15	Leadership* 29.2
16	Foreign Languages 11.0
17	Science 9.0
18	Government/Economics 3.5
19	History/Geography 2.1
20	Humanities/Arts 1.8

Basic and applied skills rank ordered by percent rating as “very important.”
Number of respondents varied for each question, ranging from 336 to 361.
* Indicates an applied skill

For new entrants with a two-year college/technical school diploma, applied skills are four of the top five “very important” skills in combined ranking with basic knowledge and skills.

Rank	Skill
1	Professionalism/Work Ethic* . 83.4%
2	Teamwork/Collaboration* . . . 82.7
3	Oral Communications* 82.0
4	Critical Thinking/ Problem Solving* 72.7
5	Reading Comprehension 71.6
6	Written Communications* . . . 71.5
7	English Language 70.6
8	Ethics/Social Responsibility* . 70.6
9	Information Technology Application* 68.6
10	Writing in English 64.9
11	Lifelong Learning/ Self Direction* 58.3
12	Diversity* 56.9
13	Creativity/Innovation* 54.2
14	Leadership* 45.4
15	Mathematics 44.0
16	Science 21.2
17	Foreign Languages 14.1
18	Government/Economics 6.7
19	Humanities/Arts 4.4
20	History/Geography 3.6

Basic and applied skills rank ordered by percent rating as “very important.”
Number of respondents varied for each question, ranging from 334 to 360.
* Indicates an applied skill

For new entrants with a four-year college diploma, applied skills are the top five “very important” skills in combined ranking with basic knowledge and skills.

Rank	Skill
1	Oral Communications* 95.4%
2	Teamwork/Collaboration* . . . 94.4
3	Professionalism/Work Ethic* . 93.8
4	Written Communications* . . . 93.1
5	Critical Thinking/ Problem Solving* 92.1
6	Writing in English 89.7
7	English Language 88.0
8	Reading Comprehension 87.0
9	Ethics/Social Responsibility* . 85.6
10	Leadership* 81.8
11	Information Technology Application* 81.0
12	Creativity/Innovation* 81.0
13	Lifelong Learning/ Self Direction* 78.3
14	Diversity* 71.8
15	Mathematics 64.2
16	Science 33.4
17	Foreign Languages 21.0
18	Government/Economics 19.8
19	History/Geography 14.1
20	Humanities/Arts 13.2

Basic and applied skills rank ordered by percent rating as “very important.”
Number of respondents varied for each question, ranging from 382 to 409.
* Indicates an applied skill

A Poor Report Card

High School Graduates

Deficiency

Written Communications	80.9%
Professionalism/Work Ethic	70.3
Critical Thinking/Problem Solving	69.6
Oral Communications	52.7
Ethics/Social Responsibility	44.1
Reading Comprehension	38.4
Teamwork/Collaboration	34.6
Diversity	27.9
Information Technology Application	21.5
English Language	21.0

Excellence

No skills are on the Excellence List for new entrants with a high school diploma.

Two-Year College/Technical School Graduates

Deficiency

Written Communications	47.3%
Writing in English	46.4
Lifelong Learning/Self Direction	27.9
Creativity/Innovation	27.6
Critical Thinking/Problem Solving	22.8
Oral Communications	21.3
Ethics/Social Responsibility	21.0

Excellence

Information Technology Application 25.7%

Four-Year College Graduates

Deficiency

Written Communications	27.8%
Writing in English	26.2
Leadership	23.8

Excellence

Information Technology Application	46.3%
Diversity	28.3
Critical Thinking/Problem Solving	27.6
English Language	26.2
Lifelong Learning/Self Direction	25.9
Reading Comprehension	25.9
Oral Communications	24.8
Teamwork/Collaboration	24.6
Creativity/Innovation	21.5

Everybody Needs More Expertise . . .

“The global revolution in technology and the sciences has created increased demand in the United States for people with expertise in science, technology, engineering and mathematics (STEM) at a time when the baby boomer generation of STEM professionals moves toward retirement. There is an emergent consensus that the United States . . . must find more effective ways to increase the production of scientists and engineers...”

The Need is Clear

Technology and science skills are required to manage water resources. People are needed who are capable of collaborating to maximize effectiveness of the utility. As evidenced by DWSD's recent experience, this requires a longer view for developing human capital.

Steps to a Sustainable Workforce

Use today's competent workforce to:

- Develop and recruit the next workforce
- Train and retain the current workforce
- Capture knowledge and experience
- Offer cost-effective & high-quality credentialing and certifications
- Build strategic partnerships

You Can Build a Sustainable Workforce

- Develop tools, techniques, and employment pathways to develop, attract, retain, train, and empower a utility workforce.
- Create community-supported partnerships for implementing cost-effective, high-quality courses providing basic certifications in STEM fields.

Create Community-Based Partnerships

Explore partnerships among utilities, businesses, and educational communities to enact tangible and measurable solutions. Focus on high school students and college age students to fill near- and long-term pipeline demands for qualified and competent workers capable of managing water resources effectively.

Measure Your Results Quantitatively

Use a quantitative method for measuring results of your community-based partnerships. This could be a survey-based questionnaire that gathers performance data on participants' technical readiness. It could also gather information about participants' perception of their involvement in technology prior to and after the completion of the program.

Measure Your Results Qualitatively

Use qualitative methods such as interviews of participants. Use a Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis for improving the overall design and structure of your program. Within this framework, ask participants to share their perspectives. Use this to conduct ongoing integrated evaluation to monitor achievement of objectives.

Create Tools

- **Partnership Guide.** Write an informational booklet on how to foster strategic partnerships between industry organizations, utilities, businesses, and educational institutions.
- **Develop a STEM Course.** Create a training course that provides early high school students with awareness of water industry career opportunities.
- **Become a Guest Speaker in a STEM Classroom.** Contact local high schools and offer to speak on a career in science, technology, engineering, or math.

Your Next Steps

- Do it NOW – in 2008
- Keys to Success – Budget, Emphasis
- Next Steps- Learn
- Make it Ongoing

Your workforce is an asset that needs to be sustainable – You can make it happen



Thank You

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