



KNOWLEDGE MANAGEMENT SURVEY RESULTS

Prepared by:

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Background

The City and County of Denver and the American Water Works Association (AWWA) received a \$71,000 planning grant from the Colorado Department of Labor and Employment for the period of June 2009 to November 2009. Funding under this planning grant was used in a partnership between the water and wastewater management providers, workforce development agencies and water associations to address the acute need for new skilled sector workers within the context of a systematic Water Workforce Implementation Plan. Four Colorado counties were targeted for this project: Arapahoe, Boulder, Denver and Douglas.

The project plan included the goal:

The water and wastewater utilities will conduct knowledge management and employee retention efforts to ensure mission critical personnel have the knowledge and skills to operate effectively. Front Range water and wastewater utilities will share best practices and/or design and implement organizational development projects around knowledge management.

Objectives

This report describes the results of a brief survey about Knowledge Management as it applies to operations functions in water and wastewater utilities. The survey will be used to guide development of an action plan for KM that will describe best practices to ensure that mission critical (operations) personnel have the knowledge and skills to operate effectively.

Approach

An on-line survey was administered using the tool Zoomerang. The survey consisted of 12 questions that evaluated the perceived importance of knowledge management, effectiveness of current efforts, challenges, and, areas where assistance is needed. Participants were also asked if they would be willing to participate in a workshop on KM. The survey is included in Appendix A.

Invitations were sent to two audiences identified from the Colorado Department of Public Health and Environment (CDPHE) database of all Colorado water and wastewater utility operators-in-responsible charge (ORC). These audiences were:

- Colorado - Operators in Responsible Charge with operators from the four country area removed
- Four counties - Operators in Responsible Charge from the four country region (Arapahoe, Boulder, Denver, Douglas)

The number of surveys sent and response rate is provided in the table below:

Table 1: Survey response data

	Colorado	Four Counties
Survey invites	912	147
Number of responses	121	24
Response rate	13%	16%

Demographic information that included system size, type of services provided, and by job function of the respondent. Results are provided in Tables 2-4.

Table 2: System size by number of responses (percentage of responses)

	Colorado	Four Counties
Up to 5,000 taps	51 (69%)	6 (43%)
5,000-50,000 taps	20 (27%)	6 (43%)
Over 50,000 taps	3 (4%)	2 (14%)

Table 3: Type of utility by number of responses (percentage of responses)

	Colorado	Four Counties
Drinking water only	31%	38%
Wastewater only	13%	14%
Drinking water and wastewater	45%	29%
Non-utility	12%	19%

Table 4: Job functions by number of responses (percentage of responses)

	Colorado	Four Counties
Executive/management	18%	42%
Supervisory	38%	21%
Engineer	2%	0%
Operator	38%	29%
Consultant	1%	4%
Other	3%	4%

RESULTS

Below is a summary of responses to survey questions. Full reports on the survey result are provided in Appendix B for Colorado - Operators in Responsible Charge and Appendix C for 4 county results.

Segmentation analysis was conducted on the Colorado operators list, since this was the only data base largest enough to see significant differences.

Question 3. Rate the importance of these knowledge management issues to your utility

Finding and providing key information to operations staff when it is needed to do the job was ranked as the most important KM issue. Hiring new employees with the necessary knowledge and skills was lowest. What’s surprising is that retaining knowledge from retiring operators was ranked in the middle of the issues.

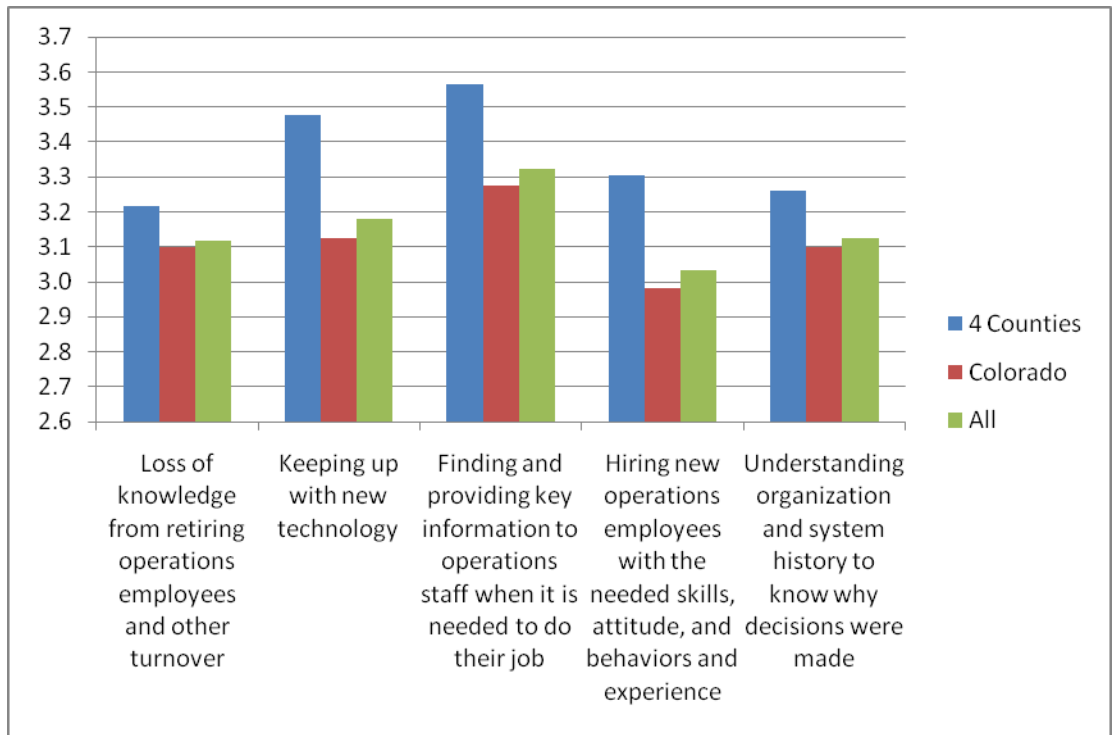


Figure 1: Importance of knowledge management issues to your utility (4 point scale, with 4 very important and 1 not important)

When segmenting the data by size of utility and job title, hiring new employees was considered the most important issues for the very large utilities. However, the data base is very small (only three utilities reported data). Non-utility ranked hiring new employees very low.

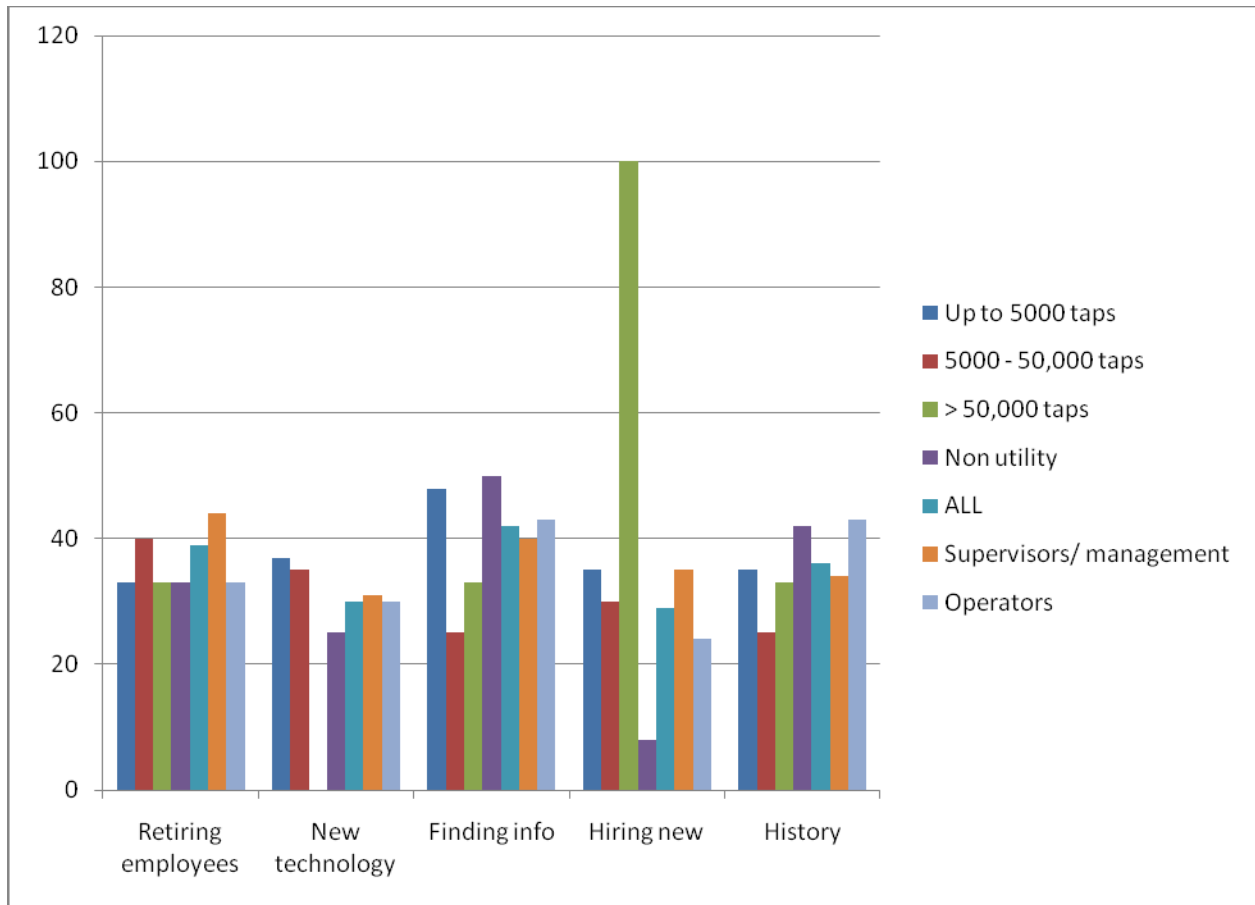


Figure 2: Percentage that ranked the knowledge management issues as very important

Question 4. How important is knowledge management for the operations function within your utility.

The survey show that results that knowledge management is important to the majority of utilities surveyed. 52% of those surveyed for the 4 counties rated it very important as compared to only 34% through Colorado.

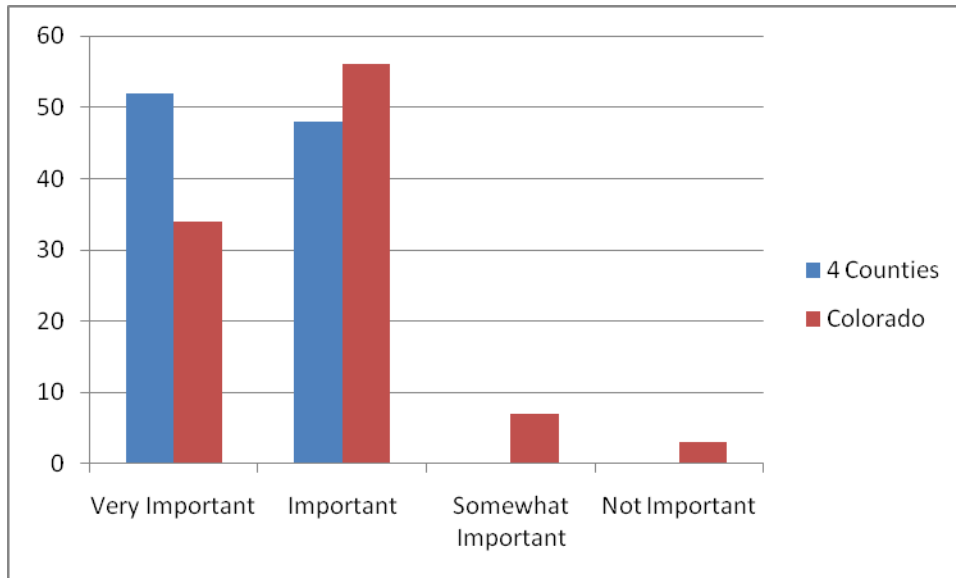


Figure 3: Percentage of reponses on the importance of KM

100% of the very large utilities responding rated KM as very important, while non-utility respondents rated it the lowest (17%). Operators rated the imprtance of KM slightly higher than managers and supervisors (38% vs 34%). 89% of the operators rated the importance of KM as important or very important, vs. 74% for managers and supervisors.

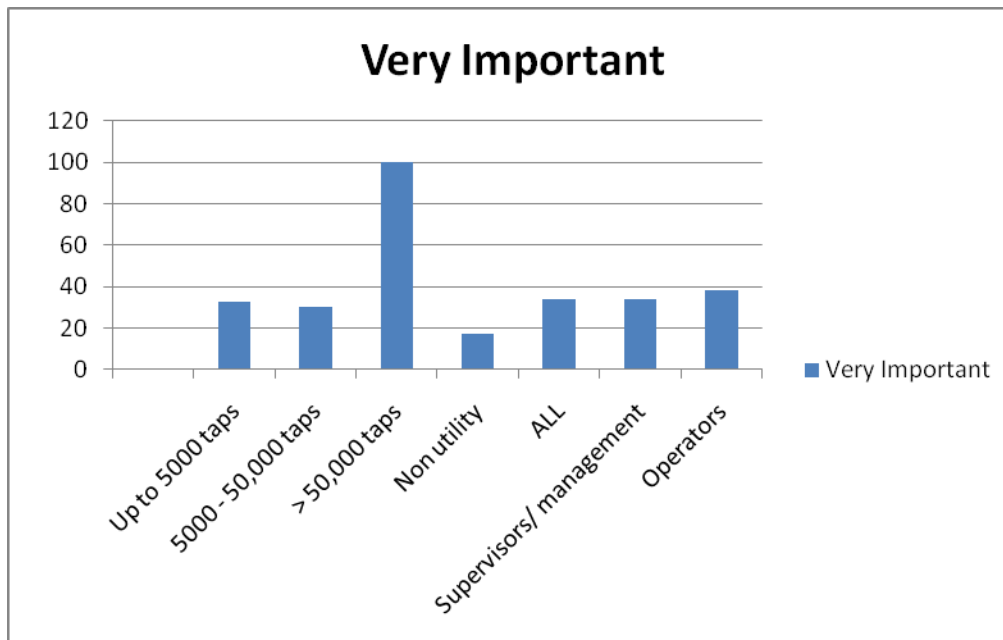


Figure 4: Percentage of very important reponses on the importance of KM by segment

Question 5. Rate your current organizational effectiveness in the following knowledge management components

Knowledge shared among operations employees and the knowledge and abilities of operations staff were rated highest. Sharing information between different departments within a utility was ranked the lowest. The four county repondants ranked the effectiveness of current KM practices slightly above all of Colorado.

In general, the average response was effective to slightly below effective. This was on a four point scale where, 4 was very effective, 3 effective, 2, somewhat effective, and 1, not effective.

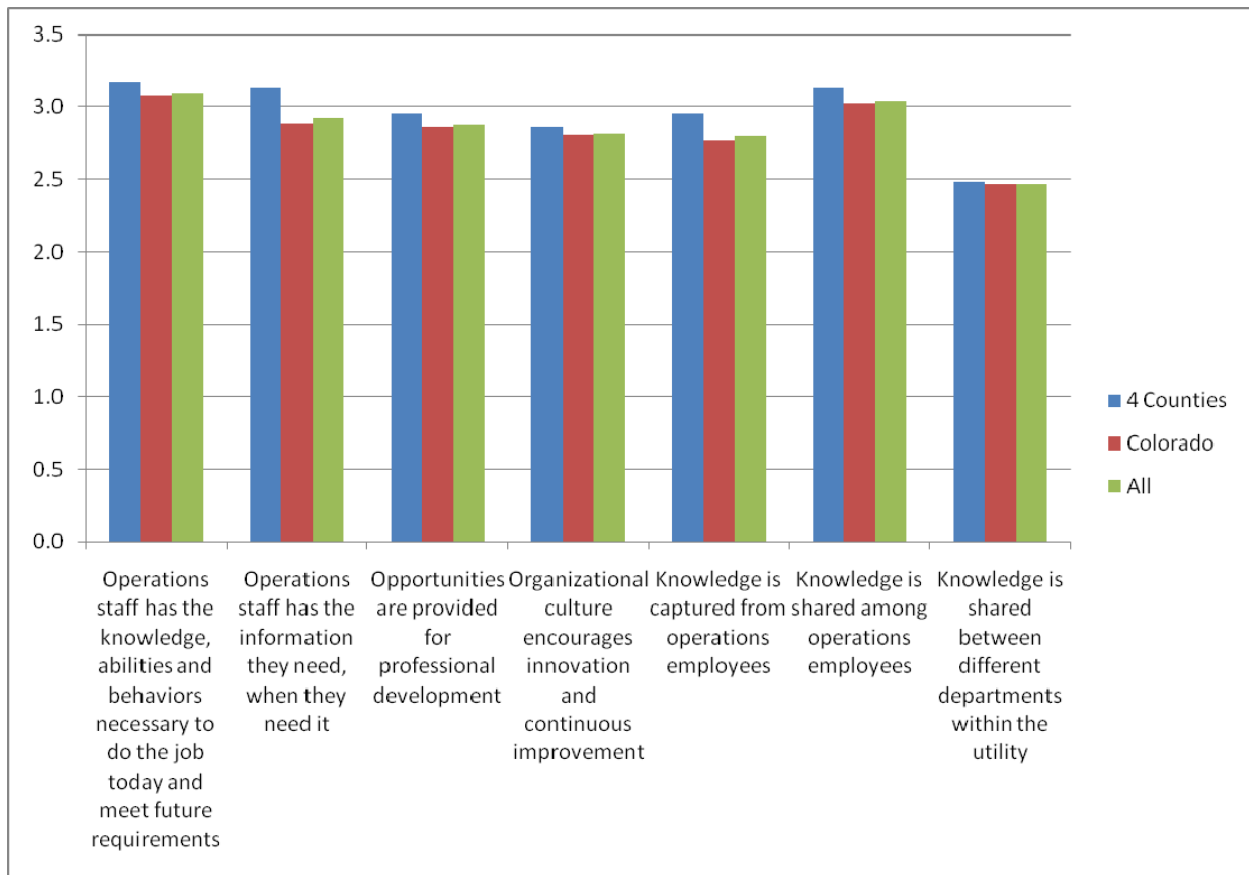


Figure 5: Current organization effectiveness (4 point scale, with 4 being very effective and 1 being not effective)

When segmented by job title, operators ranked the organizational culture much lower than managers and supervisors. Operators also ranked that operators have the knowledge necessary to do the job much than managers and supervisors..

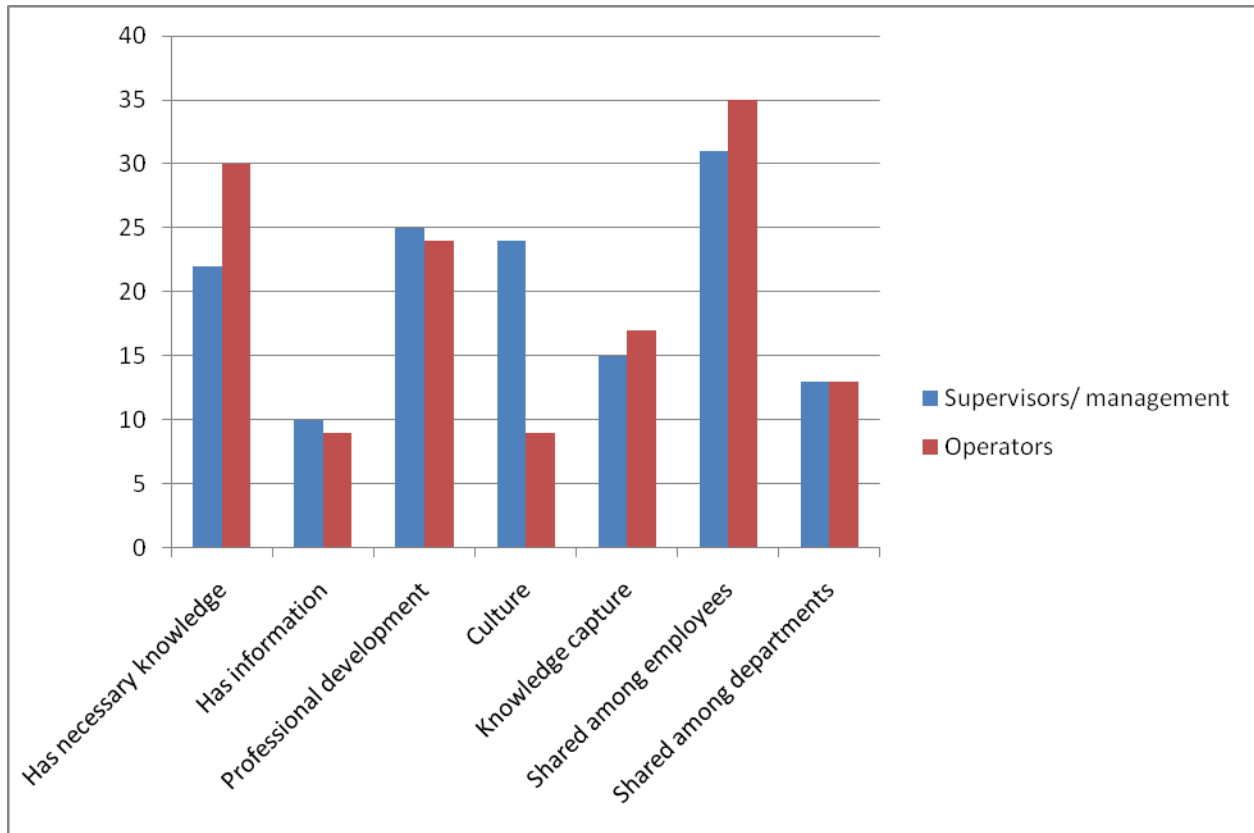


Figure 6: Current organizational effectiveness by job function (*percentage ranking very effective*)

Question 6. What stage is knowledge management in the operations division of your utility?

65% of utilities are just getting started with KM or programs are under development. Approximately 10% of all systems have a KM program ongoing. 26% of utilities are not addressing KM.

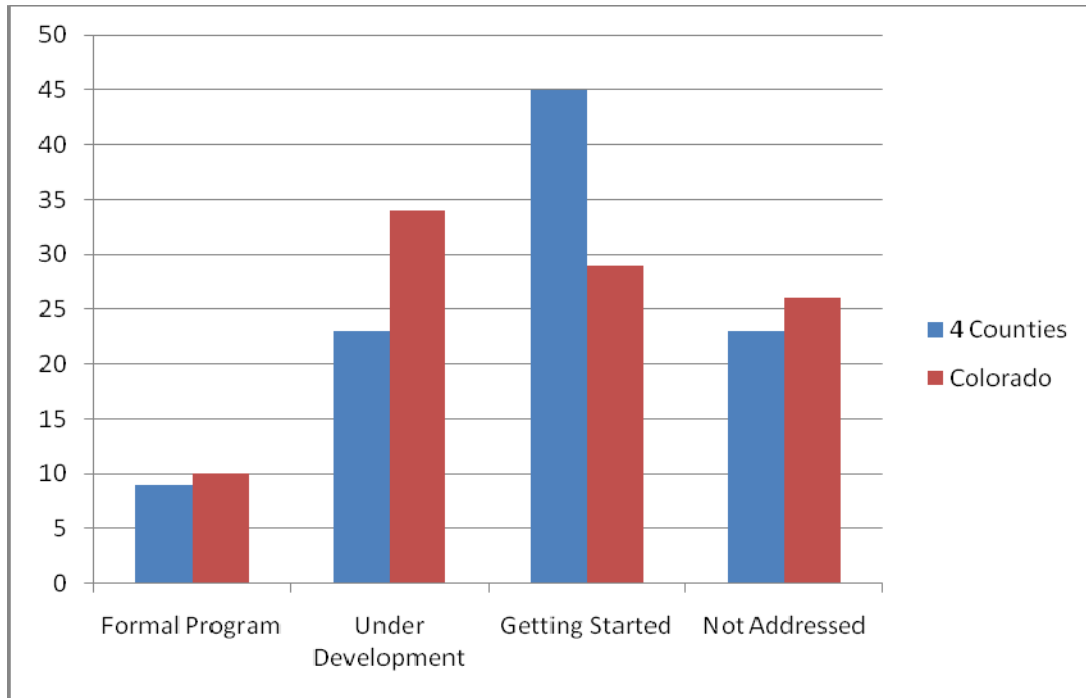


Figure 7: Stage of knowledge management programs

Question 8. Identify how significant the following challenges are to implementing knowledge management in your utility.

Time, resources and money for implementing knowledge management are clearly the largest challenge facing utilities. Lack of support from boards or councils was least significant issue.

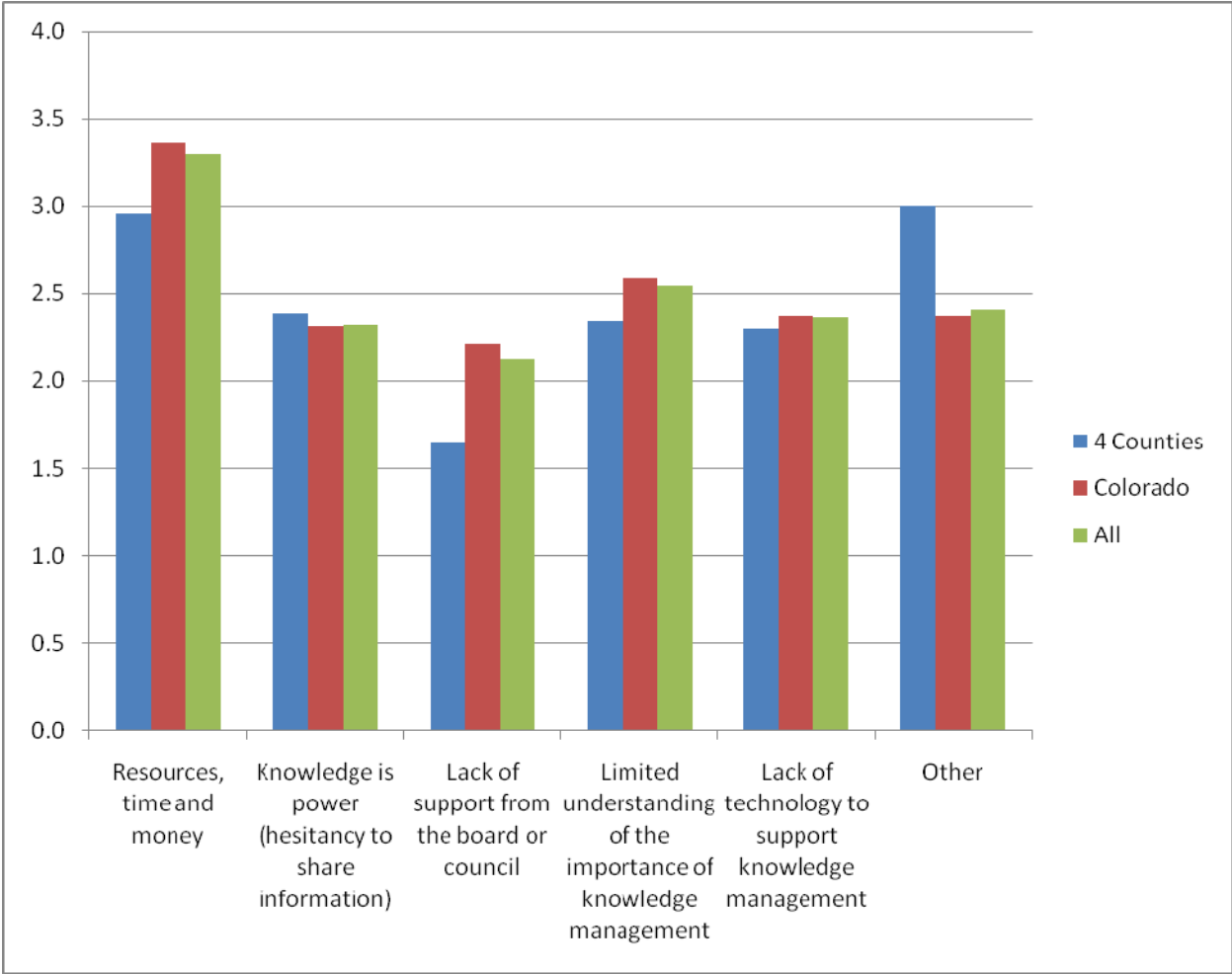


Figure 8: Challenges to KM (4 point scale, with 4 being very significant and 1 being not significant)

Small utilities were more apt to rank lack of resources and lack of technology as very significant issues than other systems. No medium sized utility ranked knowledge is power (hesitancy to share information) as a very significant issue.

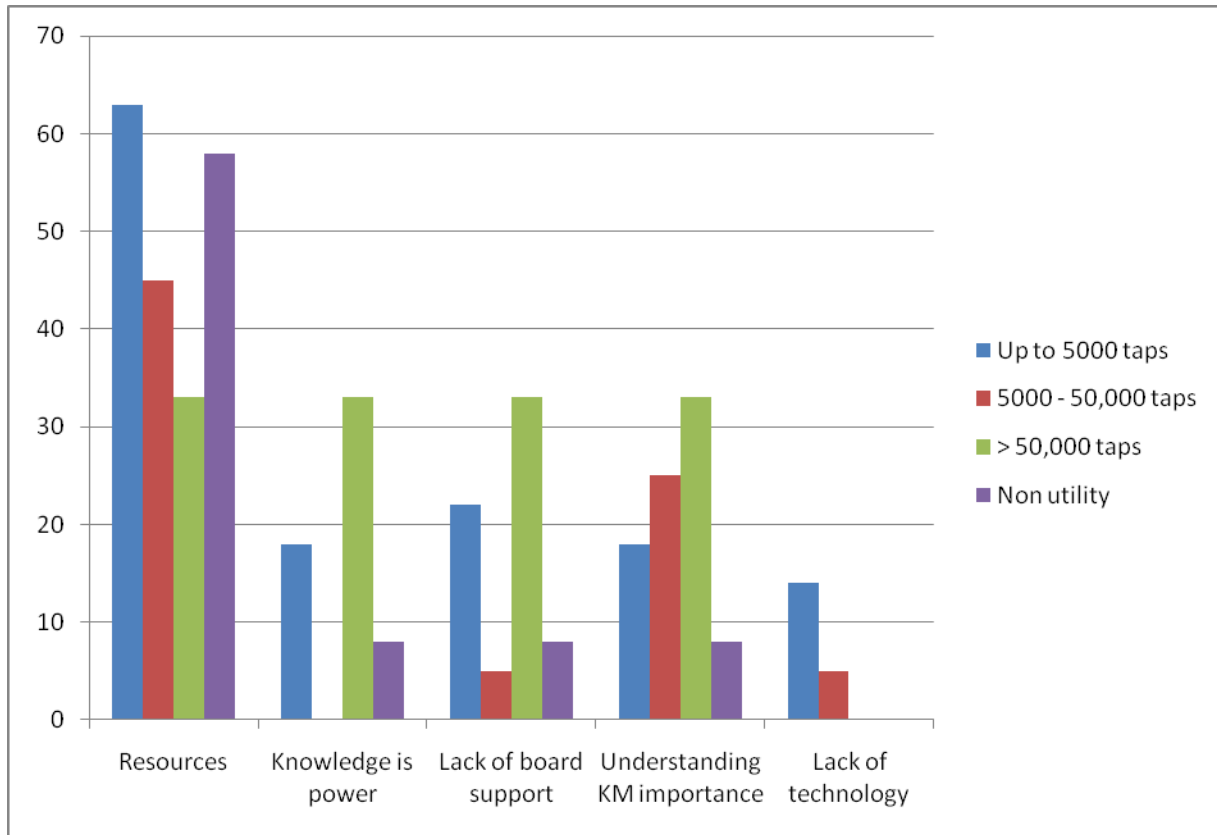


Figure 9: Very significant challenges to KM implementation by system size

Question 10. Please rate your interest in receiving assistance on the following knowledge management topics

Training and staff development assistance was of the most interest to survey respondents. In general, interested in assistance was slightly higher in the four county area on all topics.

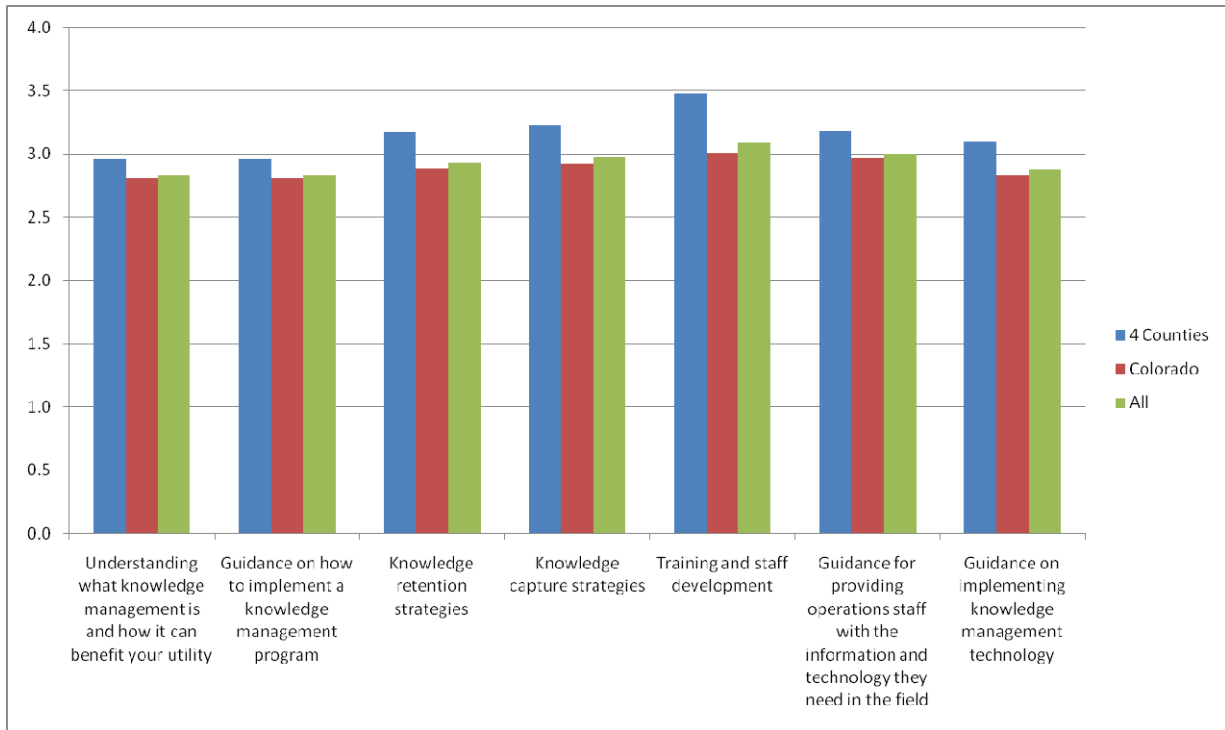


Figure 10: Interest in receiving assistance (4 point scale, with 4 being very significant and 1 being not significant)

Operators and managers ranked being very interested in receiving assistance on training/staff development and guidance for providing operators with information and technology they need in the field the highest.

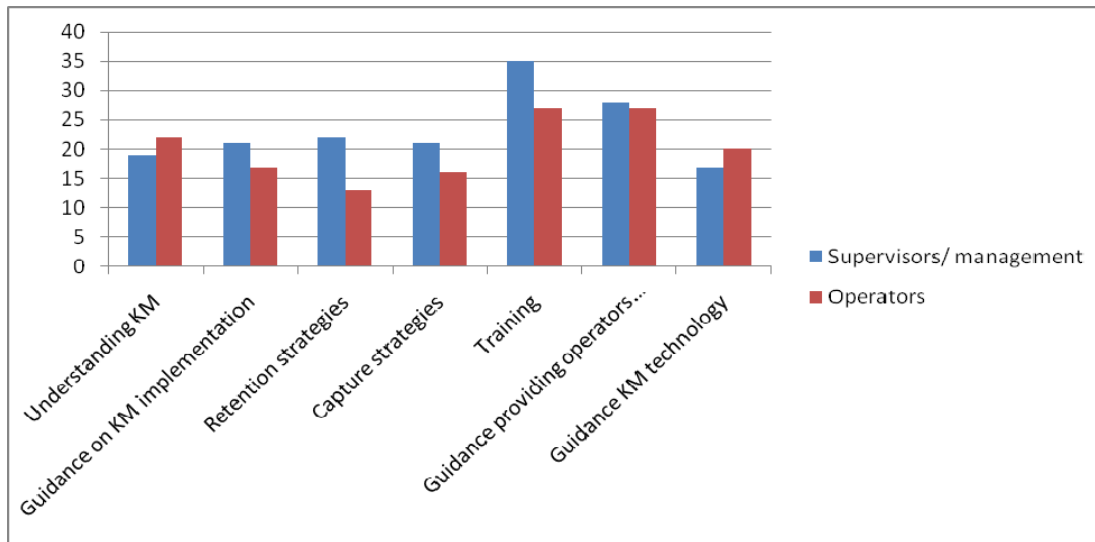


Figure 11: Percentage of responses very interested in receiving assistance by job function

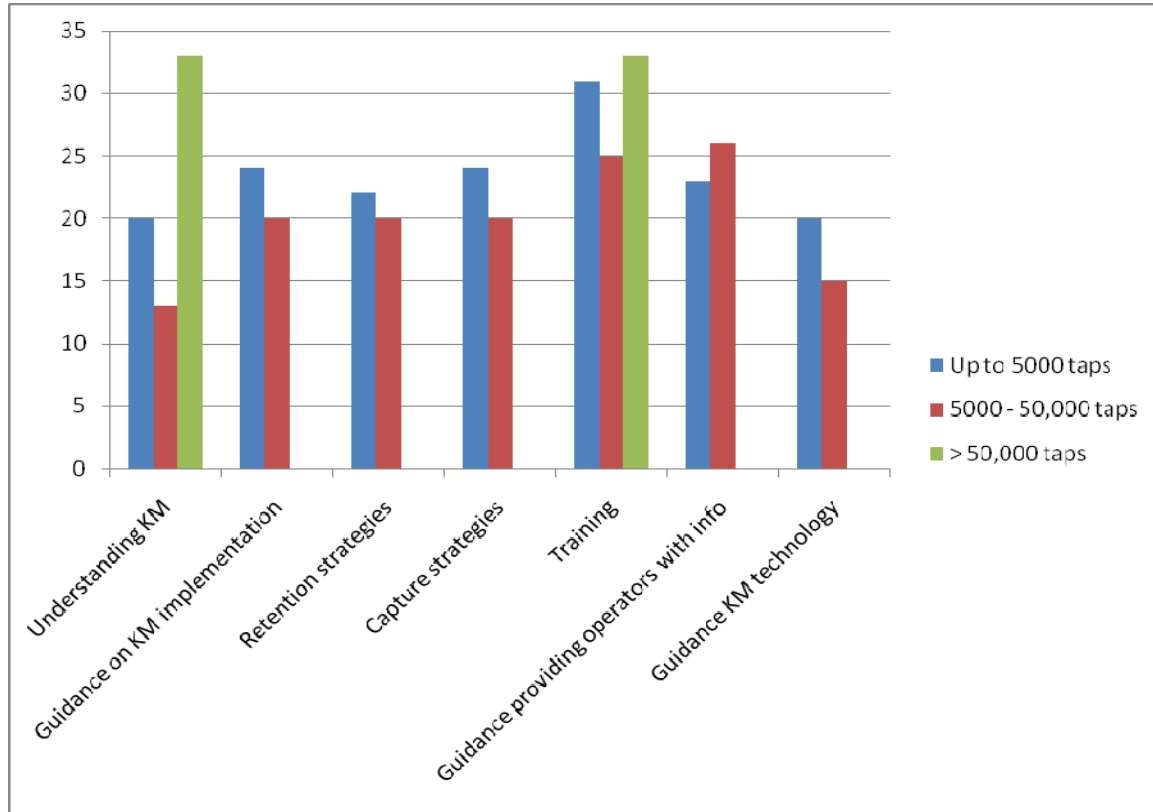


Figure 12: Percentage of responses very interested in receiving assistance by system size

Summary

Over 92% of the survey respondents indicated that knowledge management is important or very important for the operation function within their utility. 65% have program under development or just getting started. 26% are not addressing knowledge management.

Finding and providing key information to operations staff when it is needed to do their job was identified as the most important issue for knowledge management. This corresponds to the highest interest in obtaining assistance on training/staff development and providing guidance to operations staff with the information and technology they need in the field.

The most significant challenge to implementing knowledge management is resources (time and money). Smaller systems also lack technology to support knowledge management.

Get Into Water--Knowledge Management Survey

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 Disable Browser "Back" Button: False

Get Into Water--Knowledge Management Survey

Page 1 - Question 1 - Choice - Multiple Answers (Bullets)

What features below best describe your utility (you may choose multiple answers)?

- Up to 5,000 taps
- 5,000-50,000 taps
- Over 50,000 taps
- Non-utility
- Drinking and wastewater
- Drinking water only
- Wastewater only

Page 1 - Question 2 - Choice - One Answer (Drop Down)

What is your current job function?

- Executive/Management
- Supervisory
- Engineer
- Operator
- Scientist
- Consultant
- Regulator
- Marketing and Sales
- Purchasing
- Other

Page 1 - Question 3 - Rating Scale - Matrix

Please rate the importance of these knowledge management issues to your utility:

	Very Important	Important
Loss of knowledge from retiring operations employees and other turnover	<input type="radio"/>	<input type="radio"/>
Keeping up with new technology	<input type="radio"/>	<input type="radio"/>
Finding and providing key information to operations staff when it is needed to do their job	<input type="radio"/>	<input type="radio"/>
Hiring new operations employees with the needed skills, attitude, and behaviors and experience	<input type="radio"/>	<input type="radio"/>
Understanding organization and system history to know why decisions were made	<input type="radio"/>	<input type="radio"/>

Page 1 - Question 4 - Rating Scale - One Answer (Horizontal)

How important is knowledge management for the operations function within your utility?

Very Important	Important	Somewhat Important	Not Important
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate your current organizational effectiveness in the following knowledge management components:

- Operations staff has the knowledge, abilities and behaviors necessary to do the job today and meet future requirements
- Operations staff has the information they need, when they need it
- Opportunities are provided for professional development
- Organizational culture encourages innovation and continuous improvement
- Knowledge is captured from operations employees
- Knowledge is shared among operations employees
- Knowledge is shared between different departments within the utility

What stage is knowledge management in the operations division of your utility?

Formal Program	Program Under Development	Getting Started	Not Addressed
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please share below any example of knowledge management programs or initiatives your utility is conducting:

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.....

.....

Identify how significant the following challenges are to implementing knowledge management in your utility:

	Very Significant	Significant	Limited Significance	Not Significant
Resources, time and money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge is power (hesitancy to share information)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of support from the board or council	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limited understanding of the importance of knowledge management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of technology to support knowledge management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Please define)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please share more information about knowledge management challenges your utility may be facing:

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.....

Please rate your interest in receiving assistance on the following knowledge management topics:

	Very interested	Interested
Understanding what knowledge management is and how it can benefit your utility	<input type="radio"/>	<input type="radio"/>
Guidance on how to implement a knowledge management program	<input type="radio"/>	<input type="radio"/>
Knowledge retention strategies	<input type="radio"/>	<input type="radio"/>
Knowledge capture strategies	<input type="radio"/>	<input type="radio"/>
Training and staff development	<input type="radio"/>	<input type="radio"/>

Guidance for providing operations staff with the information and technology they need in the field

Guidance on implementing knowledge management technology

Page 1 - Question 11 - Open Ended - Comments Box

Do you have any suggestions on how the Knowledge Management Work Group could best support your utility?

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Page 1 - Question 12 - Yes or No

Would you or a representative from your utility be interested in attending a work session to help develop a regional action plan on knowledge management (May 2011)?

If so, please provide your email address in the box below:

- Yes
- No
- Additional Comment

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Thank You Page

Standard

Screen Out Page

Standard

Over Quota Page

Standard

Survey Closed Page

Standard

APPENDIX B - COLORADO

Get Into Water--Knowledge Management Survey

Results Overview



Date: 4/8/2011 6:42 AM PST

Responses: Completes

Filter: No filter applied

1. What features below best describe your utility (you may choose multiple answers)?

Up to 5,000 taps		51	43%
5,000-50,000 taps		20	17%
Over 50,000 taps		3	3%
Non-utility		12	10%
Drinking and wastewater		46	39%
Drinking water only		32	27%
Wastewater only		13	11%

2. What is your current job function?





Executive/Management		22	18%
Supervisory		46	38%
Engineer		3	2%
Operator		46	38%
Scientist		0	0%
Consultant		1	1%
Regulator		0	0%
Marketing and Sales		0	0%
Purchasing		0	0%
Other		3	2%
Total		121	100%

3. Please rate the importance of these knowledge management issues to your utility:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Very Important	Important	Somewhat Important	Not Important
	Loss of knowledge from retiring operations employees and other turnover	47 39%	49 40%	15 12%
Keeping up with new	36	67	15	3

technology	30%	55%	12%	2%
Finding and providing key information to operations staff when it is needed to do their job	50 42%	56 47%	11 9%	3 2%
Hiring new operations employees with the needed skills, attitude, and behaviors and experience	35 29%	57 47%	21 17%	8 7%
Understanding organization and system history to know why decisions were made	44 36%	52 43%	18 15%	7 6%

4. How important is knowledge management for the operations function within your utility?

1 Very Important		41	34%
2 Important		67	56%
3 Somewhat Important		8	7%
4 Not Important		3	3%
Total		119	100%

5. Please rate your current organizational effectiveness in the following knowledge management components:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Very Effective	Effective	Somewhat Effective	Not Effective
Operations staff has the knowledge, abilities and behaviors necessary to do the job today and meet future requirements	30 25%	72 60%	17 14%	2 2%
Operations staff has the information they need, when they need it	14 12%	80 67%	23 19%	2 2%
Opportunities are provided for professional development	30 25%	53 44%	30 25%	8 7%
Organizational culture encourages innovation and continuous improvement	22 18%	59 49%	33 28%	6 5%
Knowledge is captured from operations employees	18 15%	62 52%	35 29%	5 4%
Knowledge is shared among operations employees	39 32%	48 40%	32 26%	2 2%
Knowledge is shared				

between different departments within the utility	15 12%	44 37%	43 36%	18 15%
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6. What stage is knowledge management in the operations division of your utility?

1 Formal Program		12	10%
2 Program Under Development		41	34%
3 Getting Started		35	29%
4 Not Addressed		31	26%
Total		119	100%

8. Identify how significant the following challenges are to implementing knowledge management in your utility:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Very Significant	Significant	Limited Significance	Not Significant
Resources, time and money	61 50%	45 37%	13 11%	2 2%
Knowledge is power (hesitancy to share information)	14 12%	34 28%	49 40%	24 20%
Lack of support from the board or council	16 13%	25 21%	48 40%	31 26%
Limited understanding of the importance of knowledge management	19 16%	46 38%	43 36%	13 11%
Lack of technology to support knowledge management	10 8%	40 33%	55 46%	15 12%
Other (Please define)	3 19%	5 31%	3 19%	5 31%



10. Please rate your interest in receiving assistance on the following knowledge management topics:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Very interested	Interested	Limited Interest	No Interest
Understanding what knowledge management is and how it can benefit your utility	24 20%	55 46%	33 28%	7 6%
Guidance on how to implement a knowledge	23 19%	60 50%	26 22%	10 8%

management program				
Knowledge retention strategies	22 18%	69 58%	20 17%	8 7%
Knowledge capture strategies	22 19%	69 60%	17 15%	7 6%
Training and staff development	35 30%	59 50%	17 15%	6 5%
Guidance for providing operations staff with the information and technology they need in the field	30 26%	59 52%	16 14%	9 8%
Guidance on implementing knowledge management technology	20 17%	67 57%	22 19%	9 8%

12.

Would you or a representative from your utility be interested in attending a work session to help develop a regional action plan on knowledge management (May 2011)? If so, please provide your email address in the box below:

Yes		46	42%
No		64	58%
Total		110	100%
48 Responses			

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APPENDIX - FOUR COUNTIES

Get Into Water--Knowledge Management Survey

Results Overview



Date: 4/8/2011 6:39 AM PST

Responses: Completes

Filter: No filter applied

1. What features below best describe your utility (you may choose multiple answers)?

Up to 5,000 taps		6	25%
5,000-50,000 taps		6	25%
Over 50,000 taps		2	8%
Non-utility		4	17%
Drinking and wastewater		6	25%
Drinking water only		8	33%
Wastewater only		3	12%

2. What is your current job function?

Executive/Management		10	42%
Supervisory		5	21%
Engineer		0	0%
Operator		7	29%
Scientist		0	0%
Consultant		1	4%
Regulator		0	0%
Marketing and Sales		0	0%
Purchasing		0	0%
Other		1	4%
Total		24	100%

3. Please rate the importance of these knowledge management issues to your utility:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Very Important	Important	Somewhat Important	Not Important
Loss of knowledge from retiring operations employees and other turnover	11 48%	7 30%	4 17%	1 4%
Keeping up with new	12	10	1	0

technology	52%	43%	4%	0%
Finding and providing key information to operations staff when it is needed to do their job	15 65%	6 26%	2 9%	0 0%
Hiring new operations employees with the needed skills, attitude, and behaviors and experience	10 43%	10 43%	3 13%	0 0%
Understanding organization and system history to know why decisions were made	10 43%	10 43%	2 9%	1 4%

4. How important is knowledge management for the operations function within your utility?

1 Very Important		11	52%
2 Important		10	48%
3 Somewhat Important		0	0%
4 Not Important		0	0%
Total		21	100%

5. Please rate your current organizational effectiveness in the following knowledge management components:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Very Effective	Effective	Somewhat Effective	Not Effective
Operations staff has the knowledge, abilities and behaviors necessary to do the job today and meet future requirements	8 35%	11 48%	4 17%	0 0%
Operations staff has the information they need, when they need it	5 23%	16 73%	0 0%	1 5%
Opportunities are provided for professional development	6 26%	11 48%	5 22%	1 4%
Organizational culture encourages innovation and continuous improvement	5 22%	11 48%	6 26%	1 4%
Knowledge is captured from operations employees	6 26%	11 48%	5 22%	1 4%
Knowledge is shared among operations employees	6 26%	14 61%	3 13%	0 0%
Knowledge is shared				

between different departments within the utility	4 17%	6 26%	10 43%	3 13%
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6. What stage is knowledge management in the operations division of your utility?

1 Formal Program		2	9%
2 Program Under Development		5	23%
3 Getting Started		10	45%
4 Not Addressed		5	23%
Total		22	100%

8. Identify how significant the following challenges are to implementing knowledge management in your utility:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Very Significant	Significant	Limited Significance	Not Significant
Resources, time and money	7 30%	9 39%	6 26%	1 4%
Knowledge is power (hesitancy to share information)	1 4%	11 48%	7 30%	4 17%
Lack of support from the board or council	0 0%	4 17%	7 30%	12 52%
Limited understanding of the importance of knowledge management	0 0%	11 48%	9 39%	3 13%
Lack of technology to support knowledge management	1 4%	9 39%	9 39%	4 17%
Other (Please define)	0 0%	1 100%	0 0%	0 0%



10. Please rate your interest in receiving assistance on the following knowledge management topics:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Very interested	Interested	Limited Interest	No Interest
Understanding what knowledge management is and how it can benefit your utility	3 13%	16 70%	4 17%	0 0%
Guidance on how to implement a knowledge	6 26%	10 43%	7 30%	0 0%

management program				
Knowledge retention strategies	6 26%	15 65%	2 9%	0 0%
Knowledge capture strategies	6 27%	15 68%	1 5%	0 0%
Training and staff development	12 52%	10 43%	1 4%	0 0%
Guidance for providing operations staff with the information and technology they need in the field	5 23%	16 73%	1 5%	0 0%
Guidance on implementing knowledge management technology	5 23%	14 64%	3 14%	0 0%

12.

Would you or a representative from your utility be interested in attending a work session to help develop a regional action plan on knowledge management (May 2011)? If so, please provide your email address in the box below:

Yes		9	45%
No		11	55%
Total		20	100%
10 Responses			

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