Strategic Technology Workshop

Board of Public Utilities
May 22, 2017

Presentation Outline

Where we started

Where we are today

Where we are headed

What's next

Where We Started

Background Information

Drivers for Change

- Utility industry standards
- Existing technology
- Ongoing technology
- RPU mission & vision
- Desire to be a leader in innovation and technology

Drivers for Change

5

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Drivers for Change

6

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Drivers for Change

Drivers for Change

Drivers for Change

9

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Technology Vision

"Rise to a position of leadership among public utilities in the creative use of technology to enhance business performance.

Redefine business processes to provide world-class customer service.

Create new business value through innovative operational technology solutions to build a digital utility."

10

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Customer Benefits

Customer Information Management	Enabling improved energy and water conservation by providing near real-time energy/water usage data to customers
Improved Customer Service	24x7 access to account information from any device; reduced time to start and stop service; and ability to evaluate service options including pre-pay
Outage Management	Reduced outage duration and extent; proactive outage notifications; and more accurate service restoration time estimates
Customer Cost Management	Keep customer costs down by detecting water leaks and energy and water diversions; reduced meter reading and service call costs; and reduction in energy and water losses
Enhanced Quality of Life	Improve customer choice through better integration of electric transportation, distributed solar and battery energy storage options

11

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CUSTOMER-FOCUSED

Directly influence customer experience and provide customer interaction.

1. Customer Information System (CIS)
2. Customer Relationship Management (CRM)
3. Interactive Voice Response (IVR)
4. Customer Web Portal (CWP)

INFORMATION-BASED

Provide decision and analysis, data management and process implementation (primarily large databases).

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6. Work Management System (WMS)
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8. Geographic Information System (GIS)
9. Mobile Applications (Mobile Apps)
10. Operational Data Management System (ODMS)

OPERATIONAL

Provide real-time operation and control of water and energy delivery systems.

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14. Meter Data Management System (MDMS)
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16. Distribution Automation (DA)
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18. Outage Management System (OMS)
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OTHER

Additional projects identified after Strategic Technology Plan was issued.

20. Dark Fiber
21. Talent Management System
22. LED Street Lights

12

Utility Infrastructure

PEOPLE

PROCESSES

Water Infrastructure	Communications Infrastructure
• Meters • Pipelines • Valves	• Network • Radio • Fiber
Electric Infrastructure	**Technology Infrastructure**
• Transformers • Poles • Substations	• Mobile devices • Software • Systems

13

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Utility Infrastructure

Poles

Meters

People

Process

Technology

Pipelines

14

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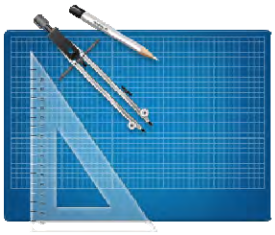
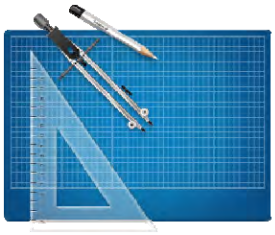
Organizational Structure



Operational

15

Organizational Structure



Strategic

16

How is a Technology Project Similar to Pipeline Replacement?

CAPITAL PROJECT – REPLACE **PIPELINE**

Plan → Design → Construct → Maintain

TECHNOLOGY PROJECT – REPLACE **GIS**

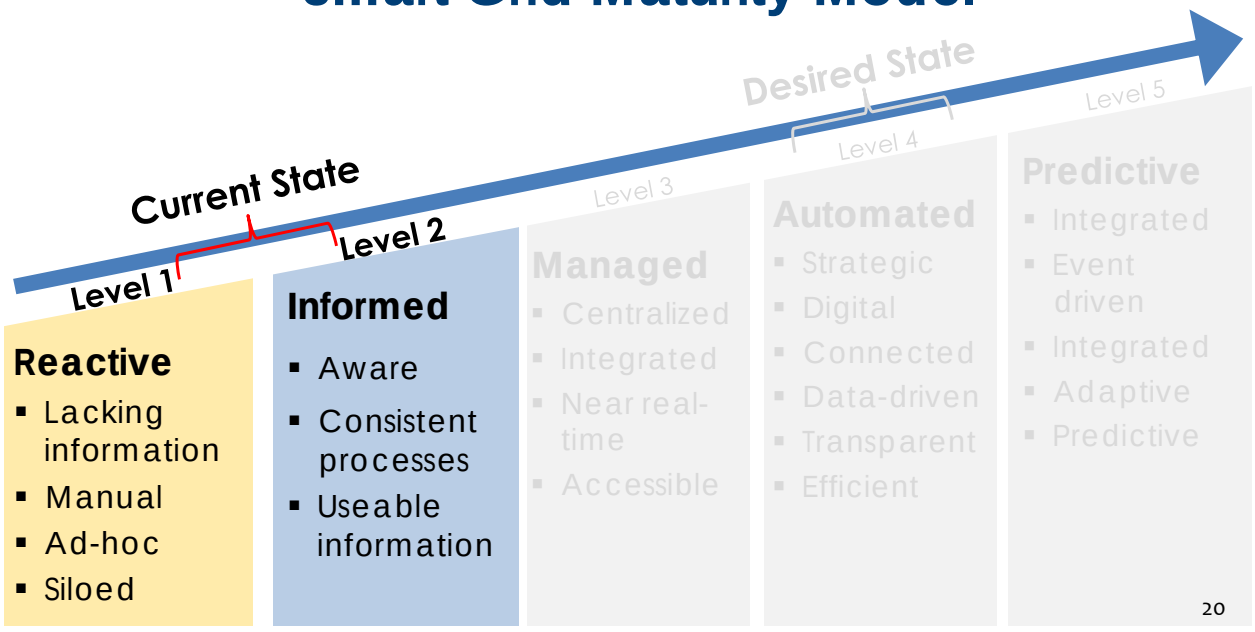
Plan → Design → Implement → Maintain

Where We Are Today

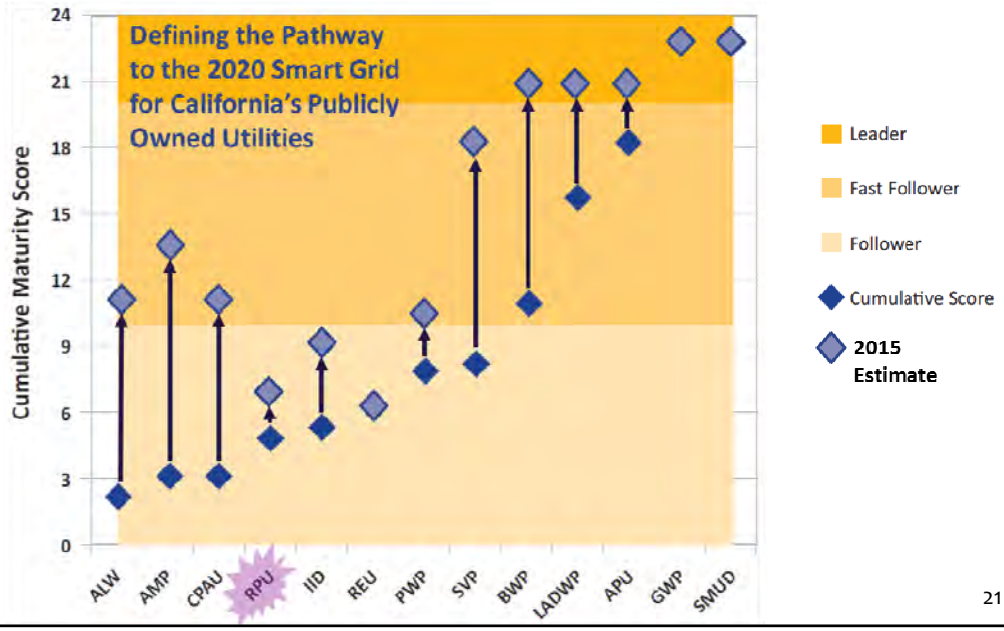
Current Technology State

- Transitioning
- Manual processes
- Disconnected systems
- Reactive
- Customers expectations changing
- Low technology
- Data rich, information poor
- Aging infrastructure
- Changing workforce

Smart Grid Maturity Model

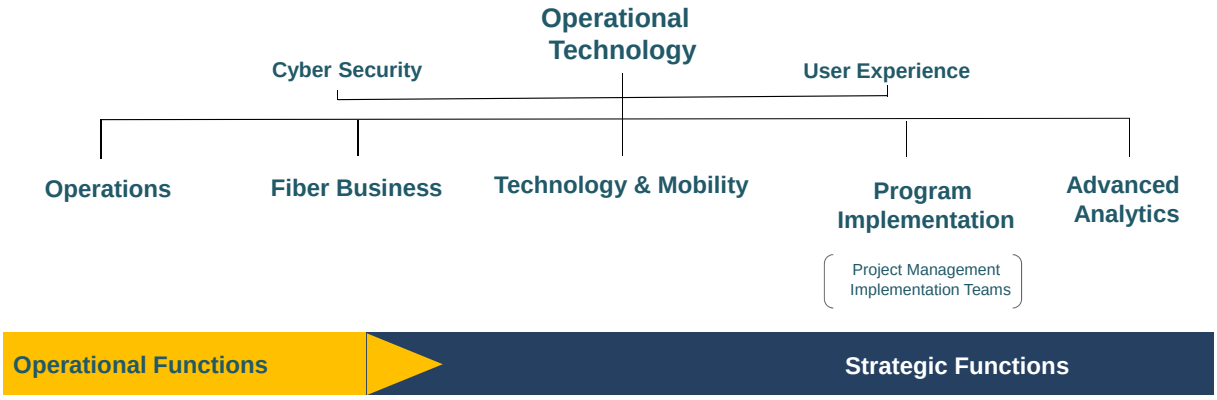


Maturity Compared to Industry



21

Organizational Structure



22

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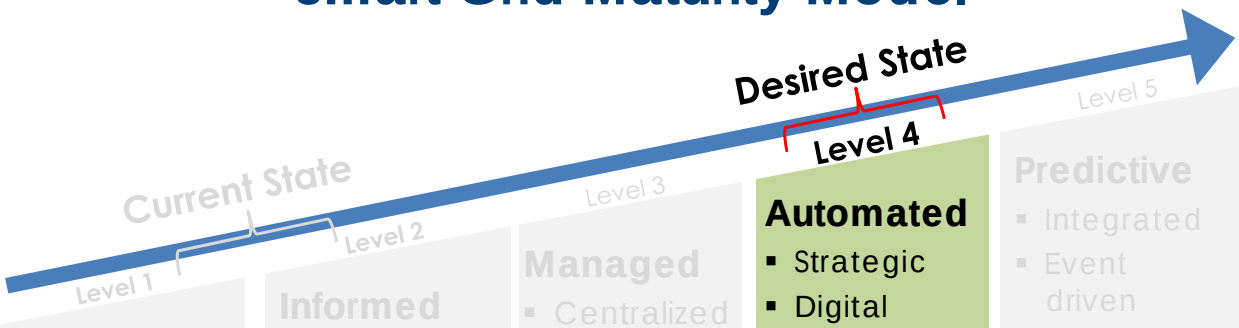
Approved Utility 2.0 Projects

	Operational Technology Projects	Board Approved	Approved Budget	% Complete	Est Comp
1	Customer Information System (CIS) Phase I	6/1/12	$9,930,000	90%	12/17
4	Customer Web Portal - Phase I			100%	
5	Asset Management System (AMS) Water	6/20/14	$2,530,400	100%	
	Asset Management System (AMS) - Electric Assessment	7/11/16	$500,000	100%	
6	Work Management System (WMS) - Electric Assessment			100%	
7	Warehouse Inventory System (WIS) - Electric Assessment			100%	
10	Enterprise Operational Data Management System (ODMS) - Phase 1	4/25/16	$3,556,307	80%	12/18
12	Land Mobile Radio (LMR)	9/26/16	$3,000,000	80%	6/17
16	Distribution Automation (DA)	1/8/13	$960,000	40%	6/18
20	Dark Fiber	11/14/16	$92,000	20%	12/18
22	LED Street Lights	7/25/16	$900,000	20%	6/19

Where We Are Headed

Smart Grid Maturity Model



Reactive
- Lacking information
- Manual
- Ad-hoc
- Siloed

Informed
- Aware
- Consistent processes
- Useable information

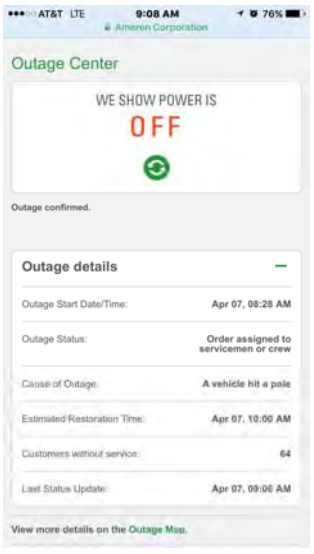
Managed
- Centralized
- Integrated
- Near real-time
- Accessible

Automated
- Strategic
- Digital
- Connected
- Data-driven
- Transparent
- Efficient

Predictive
- Integrated
- Event driven
- Integrated
- Adaptive
- Predictive

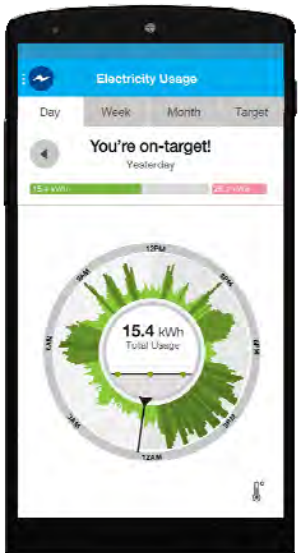
25

Digital Community



Customer receives outage notification alert via text

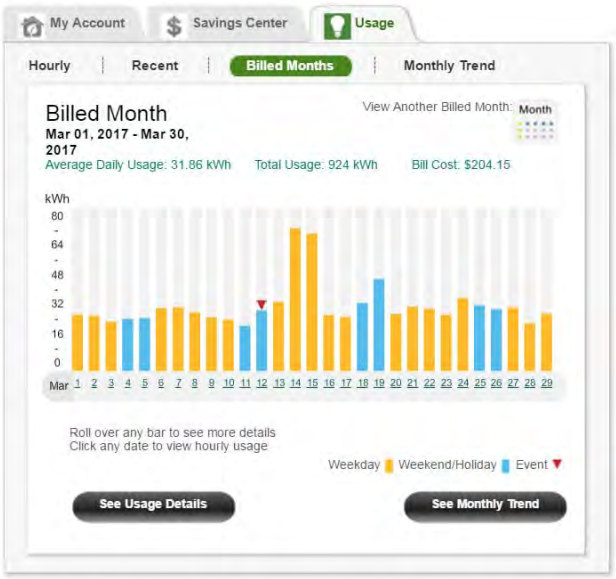
Customer can pay bill via mobile app



Customer can manage usage via mobile app

26

Digital Community

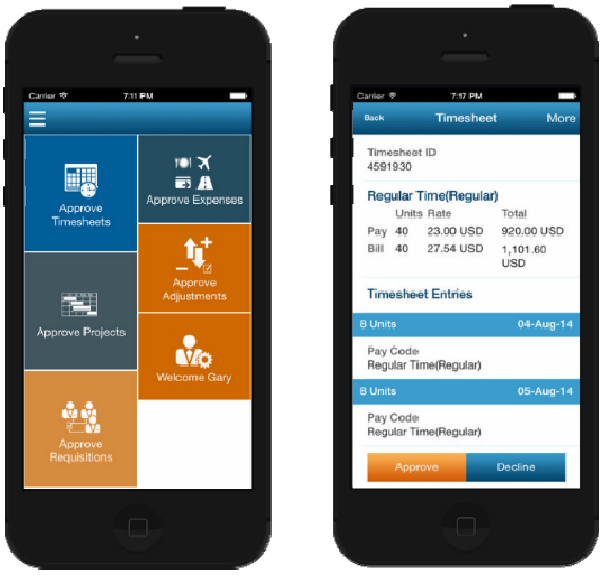


27

Digital Utility

28

Connected Workforce



29

Advanced Technology Enables Utility 2.0

Utility & Community of the Future

Business Ready

Smart Energy

Mobile Workforce

Smart City

Digital Community

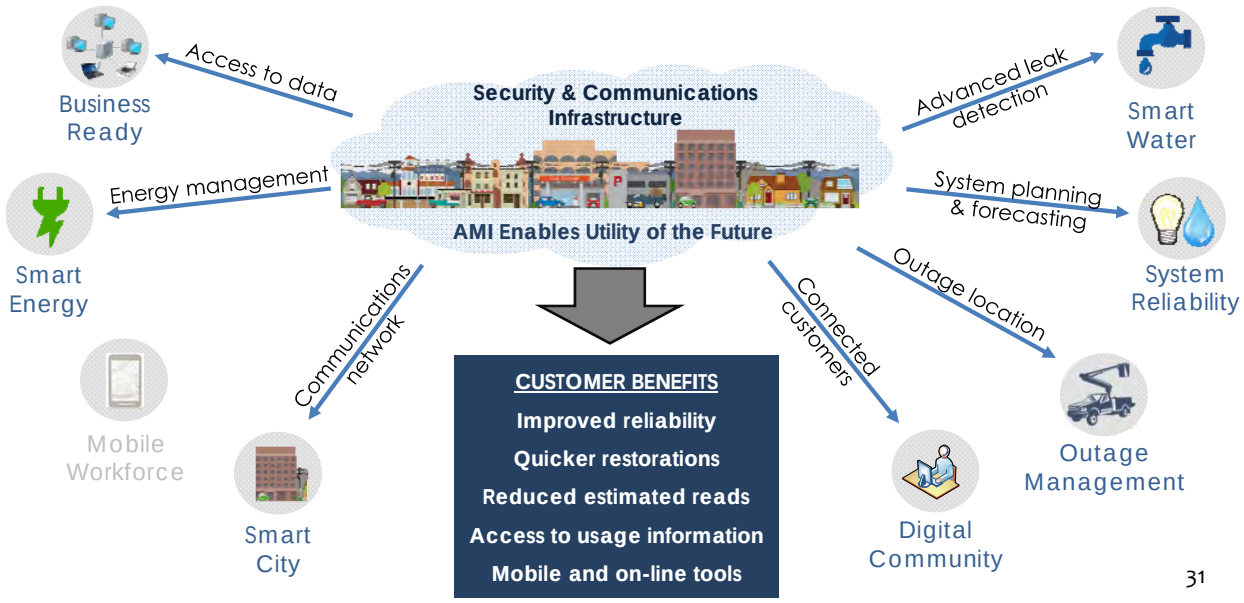
Outage Management

System Reliability

Smart Water

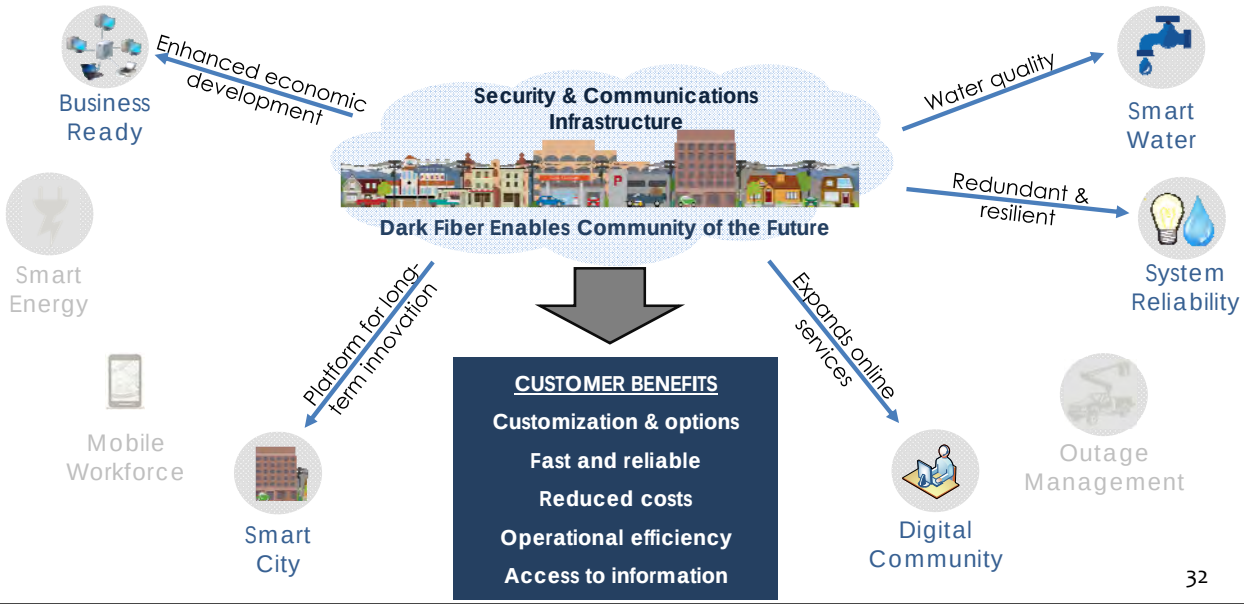
30

Advanced Metering Infrastructure (AMI)



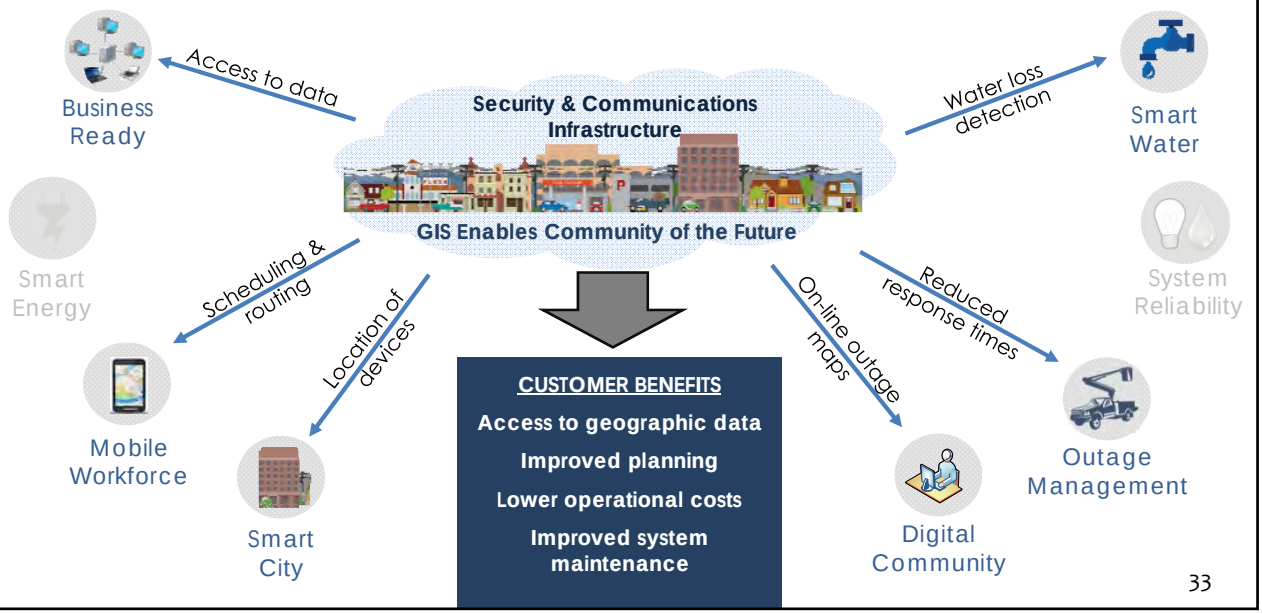
31

Dark Fiber



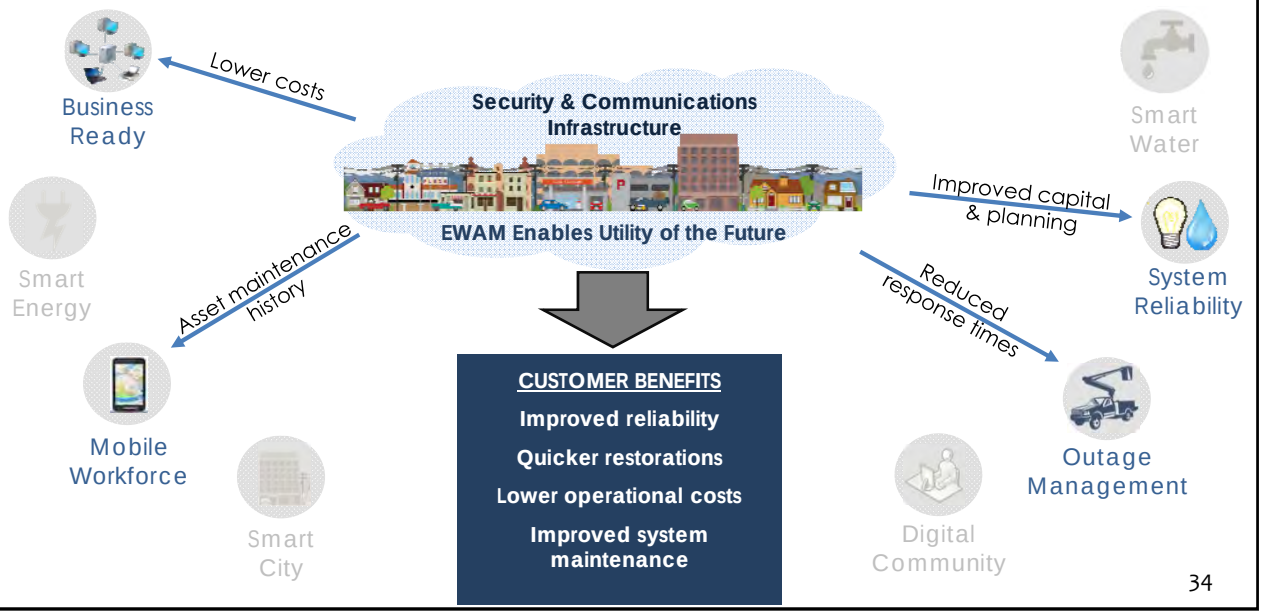
32

Geographic Information System (GIS)



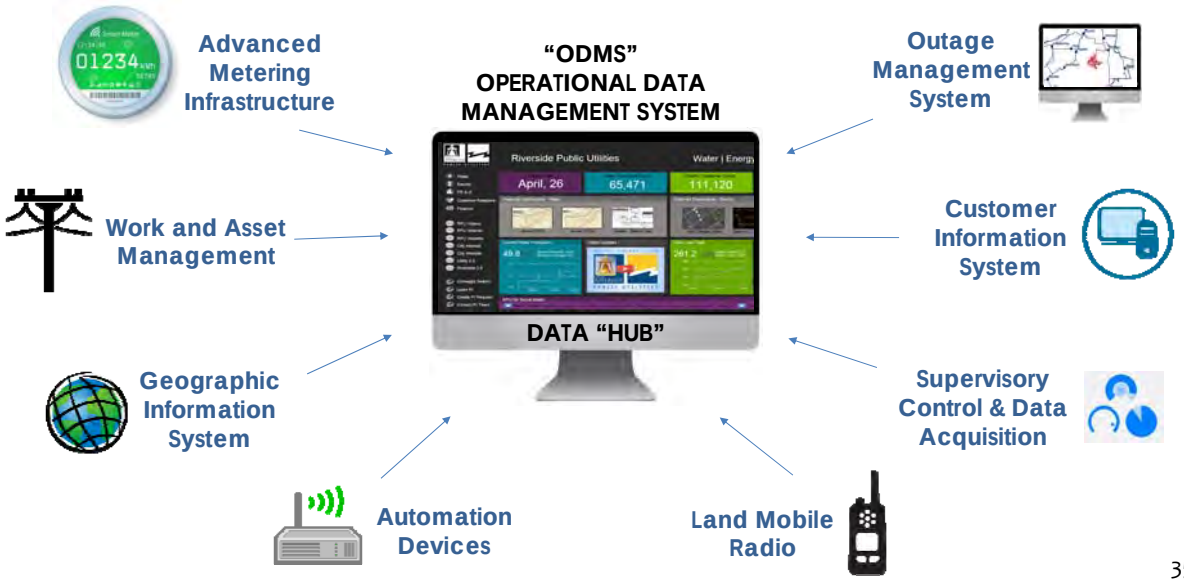
33

Enterprise Work and Asset Management (EWAM)



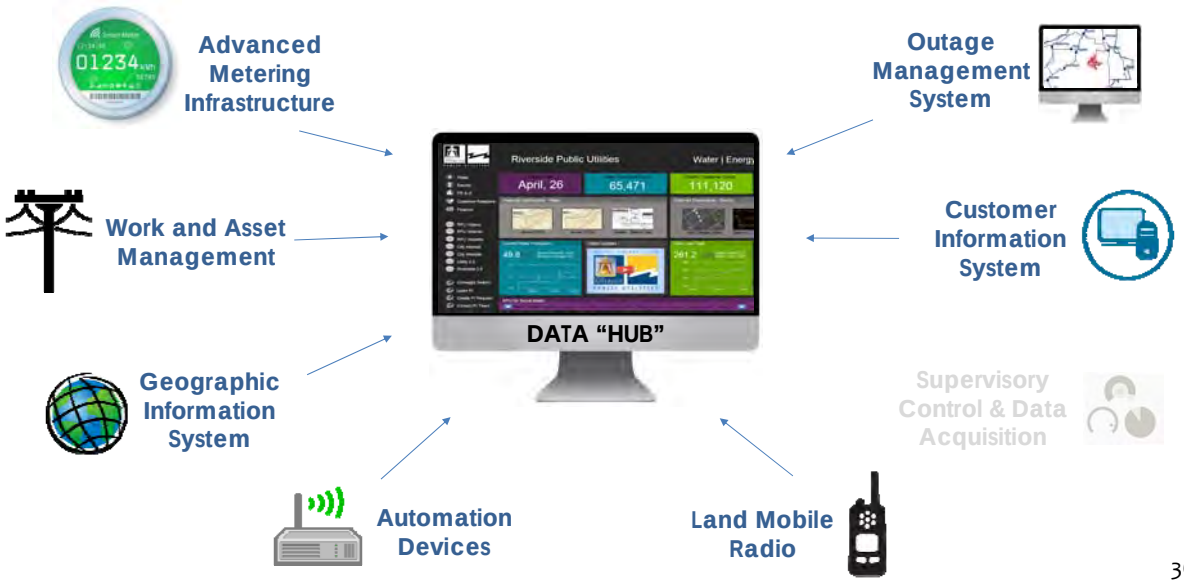
34

Turning Data into Useful Information



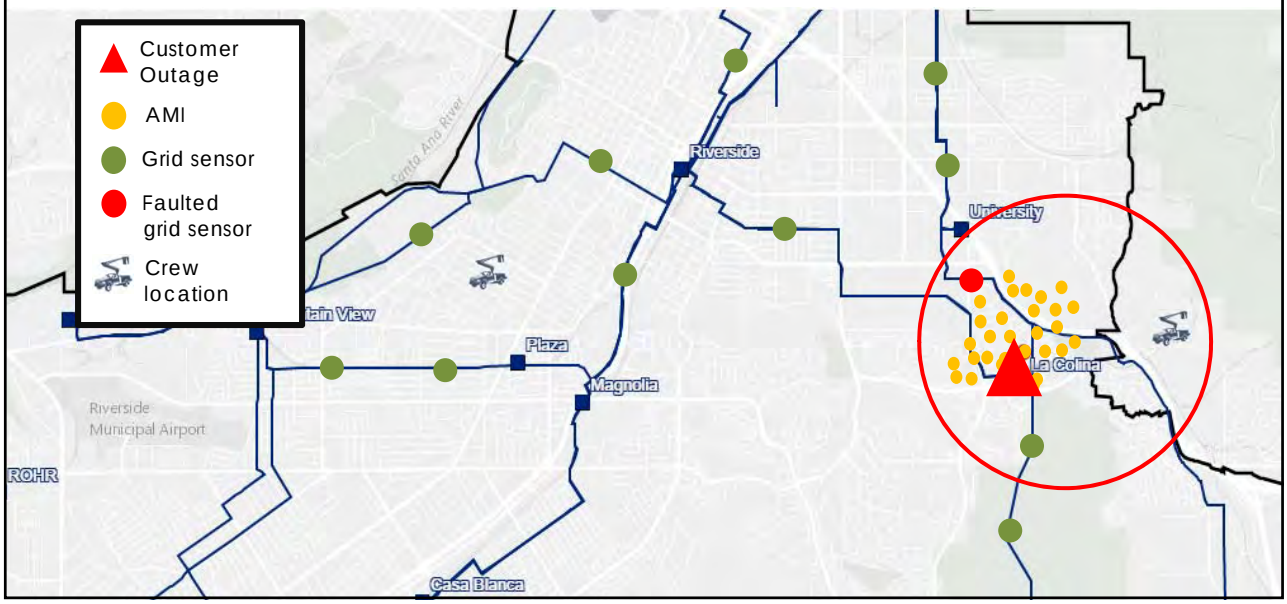
35

ODMS Benefit Example – Outage Map

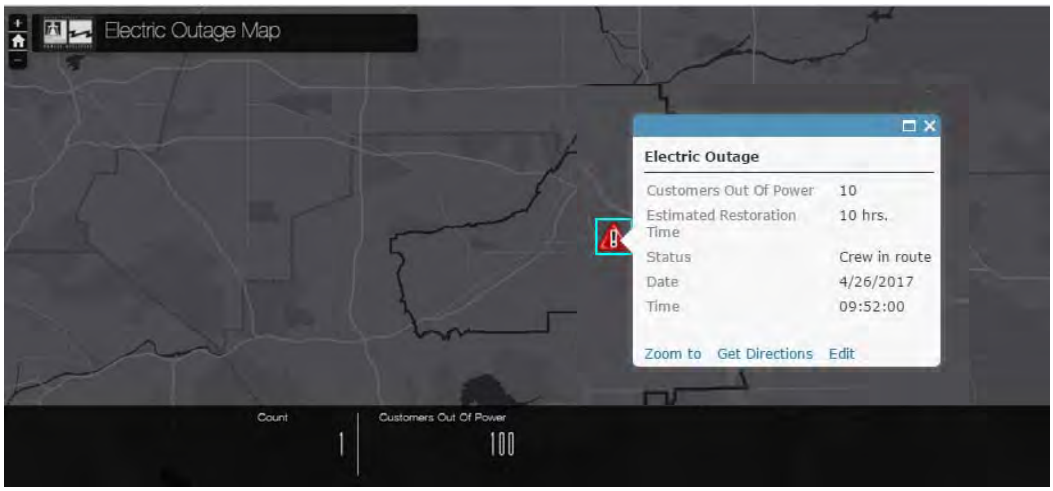


36

Internal Outage Map



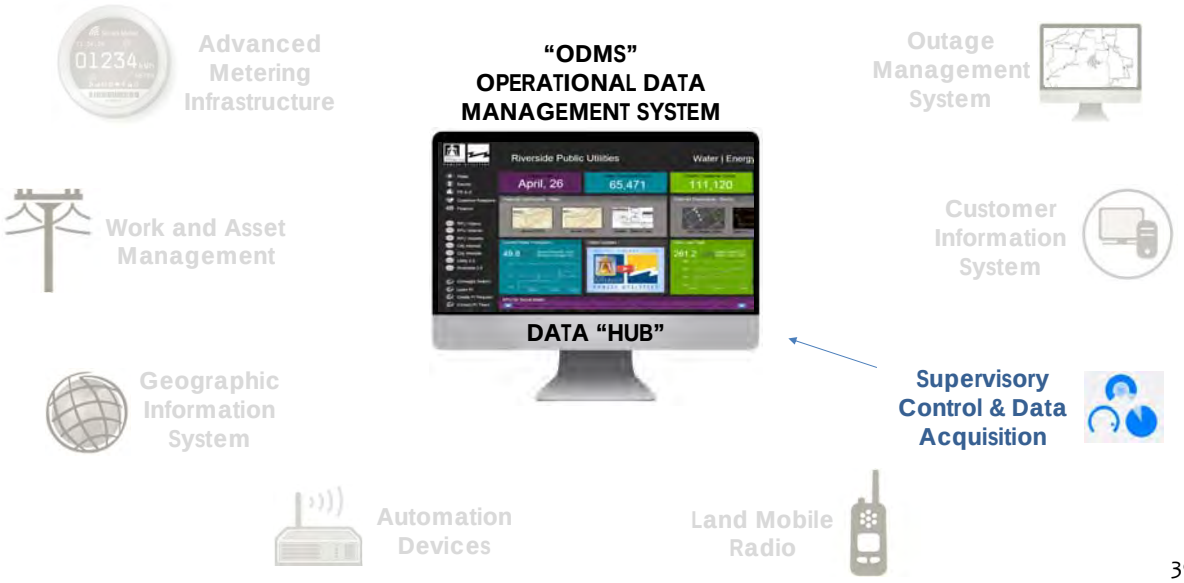
Customer Facing Outage Map



https://riversideca.gov/outages

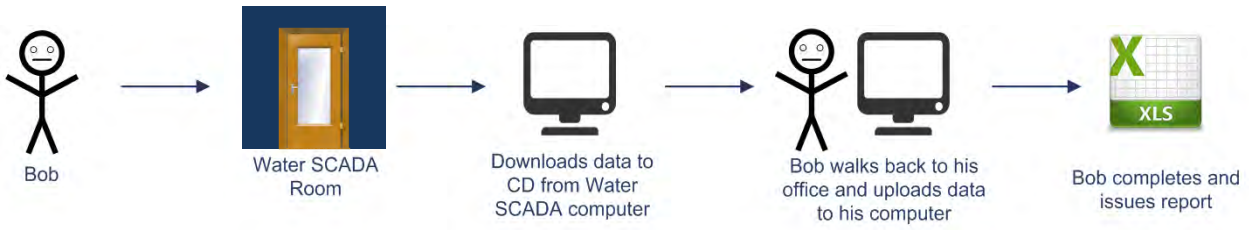
38

ODMS Benefit Example – SCADA Reporting



39

Manual Processes = Inefficient



Estimated staff time: 2 hours per day = 10 hours per week = 520 hours per year = 2,600 hours in 5 years

40

Eliminating Manual Processes = Efficient

With **ODMS**, data is now automatically populated and displays in real-time (every two minutes)

- Digital
- Connected Workforce
- Efficient

Estimated staff time: 30 seconds

What's Next

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43

Upcoming Utility 2.0 Projects

	Operational Technology Projects	Target Board Date				Requested Budget
		Q1	Q2	Q3	Q4	
5	Asset Management System (AMS) - Electric Implementation Phase 1			7/24/17		$2,300,000
6	Work Management System (WMS) - Electric Implementation Phase 1					
7	Warehouse Inventory System (WIS) - Electric Implementation Phase 1					
8	Geographic Information System (GIS) Program - Phase 1		6/12/17			$500,000
10	Enterprise Operational Data Management System (ODMS) - Phase 2		6/12/17			$1,350,000
13	Advanced Metering Infrastructure (AMI) - Consultant Services		6/12/17			$3,000,000
14	Meter Data Management System (MDMS) - Consultant Services					
20	Dark Fiber		5/22/17			$0
22	LED Street Lights				11/27/17	$4,500,000

44

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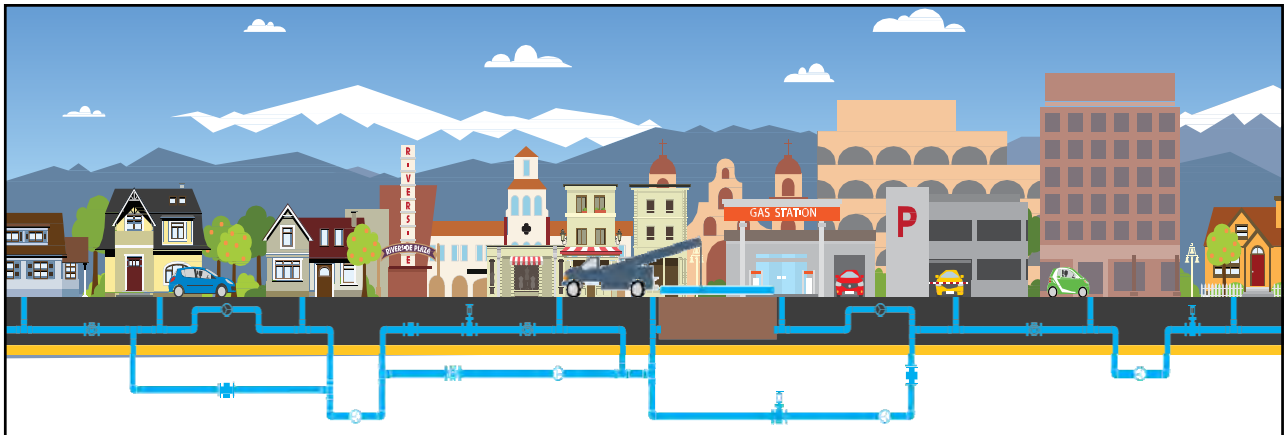

WATER – ENERGY – LIFE