Implementing Smart Meters: What You Need to Know

Larry Scinto
Managing Director, Technology Strategy & Architecture, Deloitte Consulting
Implementing Smart Meters:
What You Need to Know

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Larry Scinto is a Managing Director with Deloitte Consulting’s Technology Strategy practice. He has over 20 years of business and consulting experience helping energy and utilities clients manage technology-enabled business transformation and operations improvement initiatives. Larry started his career as a Field engineer with Con Edison and has worked on numerous Smart Metering and AMI initiatives ranging from business case development, through technology & partner selection, contracting, implementation and management. He has also served as an expert witness on several utility benchmarking and regulatory rate cases on IT and technology issues.

**Managing Director – Technology, Strategy & Architecture**

**Larry Scinto**
Arlington, VA
lscinto@deloitte.com
1-571-643-1360

**Experience**

- Led the business case and implementation plan development for the AMI / Smart Grid program for a major North American Electric Utility
- Facilitated numerous utility Customer Care, T&D and Shared Services benchmarking and performance improvement programs for North American Electric and Gas Utilities
- Served as Expert Witness and Advisor on several technology, IT and customer operations sourcing programs and regulatory / rate cases
Overview of Deloitte’s US Power & Utilities Practice

Deloitte’s US Power & Utilities practice helps clients address critical challenges and execute initiatives designed to further their strategic objectives, and deliver value for their shareholders.

• Comprises 1,000+ experienced professionals.

• Regularly publishes research and analysis to help our clients understand the ever-changing power and utilities industry.

• Includes dedicated service lines such as strategy, energy trading, regulatory services, risk management, environmental services, energy efficiency, mergers and acquisitions, project finance, operational optimization, information technology systems, structured finance, due diligence, and valuation services.

• Offers a number of high-quality conferences and seminars addressing major power and utilities industry issues: global energy, alternative energy, accounting and tax, and risk management. We also offer Dbriefs and live webcasts from our practice, offering valuable insight into important developments affecting the business.

Discussion – Implementing Smart Meters – What You Need to Know

• Provide Overview of the Smart Meter Lifecycle & Key Implementation Challenges

• Discuss Smart Meter Solution Components – more than just a new meter

• Share Key Lessons Learned based on real-world experience – what actual benefits are utilities receiving from Smart Meter investments

• Understand and Address Key Questions
What is Involved in a Typical Smart Meter Implementation?

Smart Metering is much more than just a technology and equipment rollout. It is best thought of as a Customer and Process Transformation program.
Poll: Where Are Participants on the Smart Meter Implementation Lifecycle?

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<tr>
<td>A</td>
<td>![Icon]</td>
<td><strong>Strategy &amp; Business Case</strong></td>
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<td><strong>Approval &amp; Funding</strong></td>
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<td><strong>Piloting, Sourcing &amp; Vendor Selection</strong></td>
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<td><strong>Benefits Realization</strong></td>
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# Discussion - Smart Meter Solution Components

<table>
<thead>
<tr>
<th>Key Technology Components</th>
<th>Data Collection (Smart Meter / Devices)</th>
<th>Data Transmission (Network)</th>
<th>Data Aggregation &amp; Management</th>
<th>Reporting &amp; Analytics</th>
<th>Cognitive &amp; AI</th>
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<tbody>
<tr>
<td>• Smart Meter(s) – multiple types</td>
<td>• Wireless</td>
<td>• Master Data Mgmt Systems</td>
<td>• BI / Analytics Tools</td>
<td>• RPA/Machine Learning</td>
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<tr>
<td>• Monitoring Devices / Controllers (eg. Nest)</td>
<td>• Wireline</td>
<td>• Enterprise System Integration (CIS, OMS, WFM, GIS)</td>
<td>• CRM Tools</td>
<td>• Cognitive Assist (Watson)</td>
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<td>• IoT (emerging technologies)</td>
<td>• PLC</td>
<td>• Data Storage</td>
<td>• Customer Analytics (e.g. OPower)</td>
<td>• Digital Labor (Amelia)</td>
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<th>Major Process Areas Impacted</th>
<th>• Asset &amp; Lifecycle Management</th>
<th>• Network Access &amp; Availability</th>
<th>• Information &amp; Data Governance</th>
<th>• Forecasting &amp; Planning</th>
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<tr>
<td>• Customer Operations</td>
<td>• Security</td>
<td>• Data Standards / Interoperability</td>
<td>• Rate Making</td>
<td>• Predictive Maintenance / Planning</td>
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<tr>
<td>• System Ops</td>
<td>• Enterprise Risk Management</td>
<td>• IT / Systems</td>
<td>• Power Supply / Scheduling</td>
<td>• Agent Assistance</td>
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<td>• Field Svcs / Dispatch</td>
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<td>• Reporting</td>
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<tr>
<th>People &amp; Capability Needs</th>
<th>• Field Technician Training / Roles</th>
<th>• Cyber Security SMEs</th>
<th>• Data Czar / Data Steward</th>
<th>• Data Scientists</th>
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<tbody>
<tr>
<td>• Technology Vendor Management</td>
<td>• Data Network Operations / Troubleshooting</td>
<td>• Information Architects</td>
<td>• Software Development / Cloud Management Skills</td>
<td>• Autonomics Engineers</td>
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<td>• Customer Service</td>
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<td>• SI Vendors</td>
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<th>Key Issues / Considerations</th>
<th>• Workforce Changes</th>
<th>• Hackers / Grid Security</th>
<th>• Data Privacy &amp; Ownership</th>
<th>• Potential Monetization of Customer Data / Information</th>
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<tr>
<td>• Vendor “Lock-In” / switching costs</td>
<td></td>
<td>• Network Reliability</td>
<td></td>
<td>• Emerging Technology &amp; Capability Investments</td>
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**Technology Lifecycle Risk**
Smart Meter Implementation – A Business Change Program

1 Define the Change
- Complete business process designs
- Finalize project scope, approach and work plan
- Communicate with employees leading up to deployment

2 Deploy the Change
- Develop “Case for Change” targeted to each stakeholder group (WIIFM)
- Design communication and training material
- Deliver training content to support transition to new model

3 Sustain the Change
- Evaluate communication and training content and delivery
- Adjust communications, training and knowledge transfer activities to drive lasting adoption and ownership
- Continuous reporting of progress and benefits

Suggest taking a phased approach to change management – it doesn’t stop once meter is installed
Lessons Learned - Smart Meter Implementation

**Strong Program Management**
Effective Efficient Empowered Rigorous

- **Business Capability Focus**
  Deployment of new or updated business processes is the key, not the enabling technology.

- **Cyber Security**
  Cyber must be part of the core project team to avoid any missteps.

- **Customer Adoption**
  Customer enablement and engagement is key – this isn’t just a technology project.

- **Safety First**
  Meter testing, quality assurance and workforce safety, built in.

- **Stakeholder Ownership**
  Leaders must be supportive, and take proactive steps to be advocates.

- **Vendor Dependence**
  Standards insulate the organization from changes introduced down the road.

- **Analytics**
  Analytics must be designed into the program, it cannot be an afterthought.

- **Change Management**
  No benefits are realized, unless the organization is prepared for the new processes and solutions.

Strong Program Management is the foundational element to enable success in other areas.
Lessons Learned – Smart Metering Benefits

Customer Operations Cost Savings

- Meter Reading Costs (~40-60%)
- Dispatch / Field Service Costs
- Restore / Turn-On / Turn-Offs
- Credit & Collections

Potential areas where costs can go up

- Billing & Pricing – particularly when introducing RTP / alternative pricing options / tariff schedules
- Customer Service Costs (especially during implementation)

T&D / System Operations Cost Savings

- Improved grid operations
- Speed of restoration / response time
- Ability to integrate and manage distributed energy resources
- Energy theft reduction

Potential areas where costs can go up

- System Operations Labor costs (more training / higher skilled resources needed)

Most utilities realize value from tactical operational cost savings – less so from system operations and more strategic business transformation benefits
Key Takeaways – Smart Meter Implementations

- Understand and agree the business outcomes of the program and key measures / metrics (e.g. what is the business reason for Smart Metering)

- Develop and implement a structured benefits realization process to ensure business case benefits are realized (and reported to stakeholders)

- Build & develop the right strategic capabilities in your organization to manage the program, vendors and technology changes / innovations that will occur

- Look to “future proof” your program – seek flexible and modular technologies and vendors (technology lifecycles are much shorter than typical utility assets)

- Change management is needed across key internal and external stakeholders (and plan how to manage Intervenor Groups)

- One size does not fit all – may need hybrid solutions / approaches based on unique requirements / service territory / customers / regulatory authorities
Appendix - a wide range of capabilities are needed to successfully implement and realize value from a Smart Metering / Smart Grid Program

**Operations excellence**
- AMI field pilot management
- AMI mass deployment support
- External communications
- Customer experience
- Field services support
- Demand response and energy efficiency program design and support

**Networking and infrastructure**
- AMI network planning
- T&D planning
- Systems modeling and simulation
- Distributed generation planning

**Program management and advisory**
- PMO setup and operations support
- Project management
- Program management
- Communications management
- Grant compliance management
- Regulatory and compliance support
- Tax assessment and analysis
- Benefits tracking and realization

**Stakeholder Change Management**
- Business readiness
- Customer readiness
- Other external stakeholder readiness
- Organization design, governance and talent
- Learning and knowledge transfer
- Communications and branding

**Risk and security management**
- Cyber security assessment
- Cyber security gap remediation and testing
- Risk assessment

**Strategy and planning**
- Vendor evaluation and selection
- Business case management
- Smart grid strategy, vision, and road map
- Technology blueprinting
- Program charter definition
- Renewables assessment and integration planning

**Information management**
- Data management
- Reporting
- Analytics
- Data organization and governance
- Application management

**Technology integration**
- Systems design
- Business process design and reengineering
- System integration — SOA/Middleware
- Test planning and execution
- Requirements management
- SAP IS-U and Oracle utilities
- Go-live and postproduction support
- Data management and conversion
- Solution architecture definition
- MOM implementation support