

PROJECT SCOPE: An advanced distribution management system (ADMS) is the software platform that supports the full suite of distribution management and optimization. An ADMS includes functions that automate outage restoration and optimize the performance of the distribution grid. ADMS functions being developed for electric utilities include fault location, isolation and restoration; volt/volt-ampere reactive optimization; conservation through voltage reduction; peak demand management; and support for microgrids and electric vehicles. – *Gartner Glossary*

ADMS Topic Focused Breakout Groups

- **Project management/Costs and schedules**
 - Determining costs
 - Project schedule and timeline
 - Risk assessment
- **Organizational and workforce considerations**
 - Organizational changes/Change management
 - Business process changes
 - Impact to internal organizations
- **System requirements**
 - Determine the right technology and components for your utility
 - EMS/Transmission integration
 - Data communications
- **Operational considerations**
 - Integrating with legacy systems/interoperability
 - Data management
 - System models
 - Use-case considerations
- **Vision and business case**
 - Developing an integrated roadmap
 - Developing a business case
- **Impacts and metrics/Measuring results**
 - Determining the value of DMS
 - Communicating system benefits internally and externally
 - Unintended consequences or unexpected benefits
- **Vendor relationships: Contracts/proposals/procurement**
 - The RFP process – what to include/expect
 - Collaborating with your vendor/Vendors as partners
- **Post Implementation**
 - Managing the system (internal versus external)
 - Storm restoration (data integrity - accurate system mapping/keeping GIS current)

ADMS TOPIC FOCUSED GROUPS WITH GUIDING QUESTIONS

Project management/Costs and schedules

- Determining costs
 - What costs need to be considered and included?
 - Did you have any costs that were unexpected or that were significantly underestimated (e.g., integration or data cleanup costs)
 - How were costs categorized on the project (e.g., capital versus O&M)?
 - Why did you categorize them the way you did?
 - Which items were treated as capital versus O&M costs?
 - Were costs shifted between departments?
 - How were long term budgets impacted?
 - What cost recovery method was used?
 - Were there any internal hurdles that had to be overcome? (mindsets to change?)
- Project schedule and timeline
 - How was project governance handled?
 - What type of integrated project schedule did you develop?
 - Was a phase-gate approach used?
 - Were projects coordinated between departments to demonstrate value throughout the process? How was this accomplished?
 - Looking back, would you have implemented phases of the project differently?
 - What were key milestones?
 - Did you begin with pilot projects before full-scale implementation? Did this help to validate vendor specifications or capabilities?
 - How did you manage project scope and overlap among departments?
- Risk Assessment
 - What integration risks were identified?
 - What issues arose that you wish you would have known/thought about earlier?
 - When new risks arose, how were those handled? Integration risks
 - What workforce considerations presented a risk to successful project completion?
 - What issues related to the usability of the system posed risks? How were these handled or mitigated?

Organizational and workforce considerations

- Organizational changes /change management
 - What organizational changes were needed to support ADMS integration?
 - How was the change handled within the company?
 - What organizational changes were necessary to integrate ADMS, EMS, and NOC? Were processes or required?

- What workforce considerations needed to be taken into account?
- What job classifications changed (e.g., craft versus management) as a result of project implementation? How were these handled? How were they communicated to employees? What was the reaction to these changes? Is there something you would have done differently?
- What new training requirements were needed?
- Did work crews need to be managed differently? What needed to change?
- How did you work together with the union?
- Business process changes
 - What business process changes were required to integrate ADMS, EMS, and NOC?
 - What business process changes were necessary for project implementation?
 - How did the project impact other business processes (i.e.; outside of the distribution system)? Were any corporate-wide changes needed?
- Impact to internal organizations
 - ADMS implementation cuts across department, how did your organization address the need for specialized subject matter experts? How was support for ADMS handled?
 - What incentives were developed for impacted organizations? How was accountability addressed for impacted organizations?

System requirements

- Determine the right technology and components for your utility
 - What is included in your ADMS (or your planned ADMS)?
 - Is OMS a part of your ADMS?
 - Is it ADMS if OMS is not part of the system? Is that called something else?
 - What needs to be considered if SCADA is or is not already installed?
 - How does SCADA (or not having it) impact implementation?
 - What modules does your ADMS interface to?
 - Possible interface points: GIS, SCADA, OMS, AMI, Workforce Management, Asset Management, Fault Location, Isolation and System Reconfiguration (FLISR), Volt/VAR Management, Meter Data Management System (MDMS)
 - Were there reasons you integrated to one versus another? (Did you find more value integrating to one versus the other?)
 - How seamless was your integration? What needs to be considered when determining how seamless you want the system to operate?
 - Is your ADMS integrated with an AMI? Why or why not? How was cyber security handled? Overlaid on to the system or built in from the beginning?
- Data Communications
 - What type of data communications did you use?

- How do various modules communicate with the ADMS? How are differing languages or nomenclatures between modules resolved?
- Did you use an enterprise service bus? If so, what were the advantages? If not, why did you decide not to use one?
- EMS/Transmission integration
 - Is your ADMS integrated with or to your EMS?
 - What things did you have to take into account or handle differently due to the different considerations for transmission versus distribution? Cybersecurity requirements (T vs D)? Change control requirements (T vs D)?
 - What Network Operations Center (NOC) integration considerations did you have to address?

Operational considerations

- Integrating with legacy systems
 - What types of considerations were necessary to integrate ADMS to legacy systems (GIS, CIS, Meter Data Management, OMS, AMI, Volt/VAR optimization, CVR, work crew management)?
 - What sort of integration issues did you encounter when integrating to various modules? Were some modules easier to integrate to? Were there bigger obstacles for some modules versus others?
 - What type of interoperability issues did you face? How were these resolved?
 - What constraints did you encounter?
- Data management
 - What aspects need to be considered regarding data management?
 - How did you handle data analytics?
 - What considerations were necessary for data validation?
 - What system of record did you use? Was a different system of record used for different situations? Defining systems of record for different activities (GIS versus ADMS role)
 - How do you handle data storage?
 - Do you have special PUC mandates for data and how long to store? How are you addressing these?
 - What new data characteristics are needed?
- System models
 - How are you maintaining system model accuracy? How often do you do system updates?
 - What is the biggest challenge for maintaining accuracy?
 - How do you reconcile the optimal system design model versus the current/real-time model?

- Are you including distributed energy resources (DER) in your system model? What are the major considerations for doing this?
- How are you controlling change to system models?
- Are there processes in place when field personnel make changes to the system that allow the model to be updated How is the model updated?

Vision and business case

- Developing an integrated roadmap
 - Did you develop an integrated roadmap as part of the process for project development?
 - Did you have executive sponsorship? Was your senior executive a champion for the change? Was executive sponsorship critical for the success of your project? If your project did not have executive sponsorship, did this create hurdles? How were they overcome?
 - What did you include as part of your roadmap? Starting point? Future state – short term/long term? Define your stakeholders?
 - Did you identify legacy requirements (customer systems) that had to be maintained as a part of ADMS implementation? What impact did that have on the project? Were there systems or capabilities that were lost (ones you had before but not after ADMS implementation)?
 - Did you coordinate with other company roadmaps or vision of systems outside your distribution system? Was this a critical component?
 - Are there questions that would help utilities considering an ADMS to define your system?
 - Did you use the Smart Grid Maturity Model or some other resource to help develop your roadmap? Were they helpful? Are there things that must be considered (internal versus external tools?)
- Developing a business case
 - What were the key components to developing your business case?
 - What cost recovery method did you use when developing your business case?
 - How was asset life handled? Is this different from previous projects?
 - What benefits did you site in your business case? Were these hard to achieve?
 - Did you use or consider costs or benefits to society as part of the business case? What were these? How were they quantified or accounted for?
 - How did you demonstrate due diligence (e.g., evaluating/viewing other utility systems)? Do you have a recommendation for doing this?
 - What type of regulatory reporting requirements/considerations did you include?

Impacts and metrics/ Measuring results

- Determining the value of ADMS
 - What part of the ADMS system have you found to be most valuable?
 - Was there unexpected value that you didn't anticipate?
- Measuring the impact on operations
 - How are you measuring the value of your ADMS? (Reduced truck rolls?, Improved ETRs?, Increased asset utilization?)
 - What is the process you are using for measuring results?
 - Who are the metrics being reported to? (e.g., executive officers, PUC, etc.)
- Communicating system benefits internally and externally
 - Have you had to manage external expectations (e.g., when lines are down/poles broken and ADMS won't help)? How was this done?
 - Were expectations from customers, management, the PUC unrealistic? How did you deal with this?
 - How were internal expectations managed?
- Unintended consequences (both positive and negative)
 - Have there been unintended consequences (e.g., more accurate measurement of outages might mean SADI/MAFI numbers go up)?
 - How have performance thresholds been impacted?

Vendor relationships: Contracts/proposals/procurement

- The RFP process – what to include/expect
 - What do you wish you would have asked your vendors from the beginning?
 - What items need to be included in the RFP?
 - Milestones for performance,
 - Blueprinting process/detailed specifications
 - Performance period
 - Vendor personnel support (list key people in your contract)
 - Did you include the requirement for open interface (allows for modular step-wise implementation process); open standards/adapters/adaptable for future (proof of concept)? If you did, how did vendors react?
 - What would you leave out of the RFP?
 - Does anyone have examples of procurement language that they found useful and that could be included?
 - Would a standard procurement language document be worthwhile and helpful? Could one be developed as a supplementary part of this effort for others to use as a resource?
- Collaborating with your vendor/Vendors as partners
 - Was there an executive relationship between companies? Was it necessary?

- What limitations (i.e., gaps in functionality or interfaces) did you encounter?
- Were there methods you found to be especially effective in working with your vendor?
- Did your agreement include provisions for operating the new system?
- Were consultants expected to be onsite for an extended period?

Post Implementation

- Managing the system
 - How are you keeping your GIS system current? What new processes did you need to put in place?
 - Are you using cloud computing or managed services to maintain the system? What evaluation criteria did you use for making this decision?
 - What mobile applications are you using?
 - How does your system interface with the customer/front office technology
 - What is the role of 3rd parties?
- Storm restoration
 - How is restoration process different after implementing an ADMS?
 - What new considerations are needed for mutual aid situations?
 - Do you have new processes in place for utilizing outside crews?
 - How are you handling data integrity? How is the system kept accurate or reconciled? How do you keep your GIS system current? Were new processes required?