Center of Excellence for Practical Big Data Analytics at Oncor

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Oncor – By the Numbers

3.4M  AMS Meters
122k  T&D Circuit Line Miles
500k  Switch Points
250k  SCADA Points
1.5 B  SCADA X-actions / month
60 TB  New Data Records/month
250 TB  Current EDW Data storage
Outlines

• Oncor Data Analytics Current State and Platform

• Build Center of Excellence for Data Analytics at Oncor

• Use Case Examples
Oncor Data Analytics Current State and Platform
Use Case Driven Analytics Team Work

Data Engineer

Developer

Data Scientist

Business Analyst

Engineer/Tech
Build Center of Excellence (CoE) for Data Analytics at Oncor
Oncor CoE for Data Analytics

- Support and educate multiple organizations’ key business objectives
- Establish enterprise-wide definitions, calculations, business rules
- Encourage “self-service” analytic models and reporting for business
- Define data analytics directions and technologies for better business outcomes
Oncor CoE for Data Analytics

--- Focus Areas

- Business Strategy Alignment
- Best Practices and Standards
- Advise and Consult
- Technical Architecture
- Training and Support
- Data Governance Alignment
Oncor CoE for Data Analytics

--- Key Factors

• People
  – Create virtual teams and corresponding role maps
  – Cultivate a data and decision science practice
  – Encourage people to develop cutting edge skills

• Process
  – Develop analytics oriented BI architecture
  – Develop data quality process
  – Develop best practices
  – Review and revise processes regularly

• Technology
  – Assess the business needs
  – Engage vendors to build POC for the business case
  – Architect the solution to promote self service
Oncor CoE for Data Analytics
-- Structure

- Committee Chairs
- Committee Experts
  - Data Science
  - Data Management
  - SPARK Implementation
  - SPSS Implementation
  - R Implementation
- Committee Secretary
Oncor CoE for Data Analytic
-- Implementation Process

1. Discuss use case with CoE Council Committee.
2. Recommend the analytics model and implementation platform.
3. Need coaching with the implementation?
   - YES: CoE platform expert provides training and build the use case with you.
   - NO: Build the use case.
4. Review the use case implementation with the CoE Council Committee.
5. Update and post the use case documentation and status in share point.
6. Implementation and testing?
   - NO: Work with CoE Council Committee for use case release and schedule into production.
   - YES: Further steps for implementation and testing.

(Flowchart representation of the process)

(Flowchart includes decision points and actions as described in the steps above)
Production Release Process and Governance

Development
- Release Policy
- Release Planning
- Model Design

Testing
- Build & Configure
- Quality Review
- Results Accepted

Production
- Production Roll Out Plan
- Communicate & Train
- Production Implementation
- Verify Implementation

Change Management Process
Use Case Examples
Implemented Use Cases at Oncor

- [SPARK] Meter-Transformer Connectivity Errors Detection
- [SPARK] Distribution Transformer Load Forecast & Over Load Detection
- [R] Feeder Load Forecast
- [SPSS] Prediction of Weather-Related Damage in Distribution System
- [SPSS] AMS Based SAIDI Calculation
- [SPSS] Non-Technical Losses Detection
- [SPARK] Distribution Transformer Phase Error Detection
- ...
Thank You!

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