



midwest  
architecture community  
collaboration

**Data and Analytics**



# Aligning Business and Data Strategy

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Architecture

Security

Metadata



Data Storage

Data Modeling

Data Integration

Master Data

Data Warehouse

Business Intelligence



IoT Data

Big Data

Data Science

AI



Data Quality

# ENTERPRISE DATA MGMT



# Architecture

## Goal

- **Map Business Capabilities to Data Mgmt Systems**

## Input

- **Architecture**
  - Business
  - Security
  - Application
  - Infrastructure
- **Best Practices**

## Process

- **Data Assessment**
- **GAP Analysis**
- **Project Mgmt**
- **Integrate/Develop**

## Output

- **Data Architecture**
- **Contextual Inventory**
- **Cross Function Data Model**
- **Integration**

## Feedback

- **Data Utilization**
- **Data Maturity**



# Data Security

## Goal

- **Meet Regulator & Contractual obligations**
- **Appropriate data access**

## Input

- **Regulatory Requirements**
- **Business Policies**
- **Best Practices**

## Process

- **Risk Assessment**
- **GAP Analysis**
- **Project Mgmt**
- **Integrate/Develop**

## Output

- **Security Architecture**
  - **Network**
  - **Identity**
- **Security Rules**
- **Access Rules**

## Feedback

- **Audit Metrics**
- **Policy to Implementation tracking**



# Metadata

## Goal

- **Data in context**
- **Data usage standards**

## Input

- **Business Metadata**
- **System Metadata**
- **Process Metadata**
- **Org Metadata**

## Process

- **Metadata Assessment**
- **Gap Analysis**
- **Project Mgmt**
- **Integrate/Develop**

## Output

- **Metadata Architecture**
- **Meta Model**
- **Data Usage**
  - **Contextual**
  - **Conceptual**
  - **Logical**
  - **Physical**
  - **Detailed**

## Feedback

- **Scorecard**
- **Repo growth & usage**



# Data Storage

## Goal

- **Availability**
- **Performance**
- **Accuracy**

## Input

- **Service Level Agreements**
- **Data Requirements**
  - **Volume**
  - **Variety**
  - **Velocity**

## Process

- **Data Storage Assessment**
- **Gap Analysis**
- **Project Mgmt**
- **Integrate/Develop**

## Output

- **Data Storage & Operations Strategy**
- **Data Model Criteria**
- **Continuity & Performance**

## Feedback

- **Storage Growth**
- **Operation & Performance Metrics**



# Data Modeling

## Goal

- **Data aligns with requirements**
- **Data viewed in perspective**

## Input

- **Data Requirements**
- **Data Flows**
- **Data Elements**
- **Business Requirements**

## Process

- **Data Model Assessment**
- **Gap Analysis**
- **Project Mgmt**
- **Integrate/Develop**

## Output

- **Data Model Architecture**
- **Conceptual Model**
- **Logical Model**
- **Physical Model**

## Feedback

- **Data Model Scorecard**



# IoT

## Goal

- **Improve Product/Solution based on Actual Usage Telemetry**

## Input

- **Sensor Best Practices**
- **Telemetry Data**
- **Device Models**

## Process

- **IoT Assessment**
- **Gap Analysis**
- **Project Mgmt**
- **Integrate/Develop**

## Output

- **IoT Architecture**
- **Telemetry Recommendations**
- **Capture**

## Feedback

- **Telemetry Rate**
- **Device Coverage**
- **Value**





# Data Integration

## Goal

- **Share data**
- **Reduce complexity**
- **Drive innovation**

## Input

- **System Req.**
- **Regulation Req.**
- **Innovation Req.**
- **Best Practices**
- **Specification Standards**

## Process

- **Integration Assessment**
- **Gap Analysis**
- **Project Mgmt**
- **Integrate/Develop**

## Output

- **Integration Architecture**
- **Integration Flows and Types**
- **SLA & Access Agreements**

## Feedback

- **Data flow rate**
- **Complexity Score**



# Master Data Mgmt

## Goal

- **Authoritative Source**
- **Business Domain Asset**

## Input

- Functional Req.
- Source Mapping
- Data Dictionary
- Business Rules
- Best Practices

## Process

- Master Data Assessment
- Gap Analysis
- Project Mgmt
- Integrate/Develop

## Output

- Master Data Architecture
- Reference Data Architecture
- Master Data Mgmt

## Feedback

- **Rate of Change**
- **Outliers**
- **Utilization**



# Big Data

## Goal

- **Capture & Utilize the 3Vs of Data**

## Input

- **Business Req.**
- **Data, Data, Data**

## Process

- **Data Assessment**
- **Gap Analysis**
- **Project Mgmt**
- **Integrate/Develop**

## Output

- **Append Data Model Architecture**
- **Append Integration Architecture**
- **Additional Data Models**
- **Additional Integration Flows**

## Feedback

- **Value**
- **Impact**
- **Attainability**
- **Usage**



# Data Science

## Goal

- **Discover opportunities based what could and should happen**

## Input

- Preliminary Data Analysis
- Hypotheses Use Cases
- Data Sources
- Best Practices

## Process

- Use Case Assessment
- Gap Analysis
- Project Mgmt
- Integrate/Develop

## Output

- Data Science Architecture
- Append Data Arch
  - Model
  - Integration
  - Storage
- Algorithms

## Feedback

- Usage Matrix
- Drift Detection
- Maturity Level



# Business Intelligence

## Goal

- **Understand & Monitor processes**

## Input

- Business Req.
- Supporting Metrics
- Leading Metrics
- Key Performance Indicators

## Process

- Analysis Usage Assessment
- Gap Analysis
- Project Mgmt
- Integrate/Develop

## Output

- BI Architecture
- Dashboards
- Paginated Reports

## Feedback

- Mapped Processes
- KPI Coverage



# Data Quality

## Goal

- **Increase value of data assets**

## Input

- **Data Quality Agreements**
  - Domain
  - Source
  - Etc
- **Best Practices**

## Process

- **DQ Assessment**
- **Gap Analysis**
- **Project Mgmt**
- **Integrate/Develop**

## Output

- **DQ Architecture**
- **DQ Thresholds**
- **DQ Remediation Plans**

## Feedback

- **Accuracy**
- **Completeness**
- **Consistency**
- **Integrity**
- **Reasonability**
- **Timeliness**
- **Uniqueness**
- **Validity**



# Artificial Intelligence

## Goal

- **Scalable human mimicry**

## Input

- Detailed Manual Business Use Case
- Data Sources

## Process

- AI Assessment
- Gap Analysis
- Project Mgmt
- Integrate/Develop

## Output

- AI Architecture
- Automation Practices
  - Text
  - Vision
  - Language

## Feedback

- Accuracy
- Impact
- Value