Child Welfare Services – New System (CWS-NS)

System Roadmap – Information Architecture

March 2016

Beta

Presentation Goals

- Describes and supports a project-wide Information Architecture Roadmap including structured and unstructured data preparation, modeling and provisioning strategy

- Presentation Goals:
    - Initiate discussion about data readiness, modeling and module support

    - Improve vision and engagement of project, program and agency stakeholders

    - Help align the team and establish an understanding of the organization's strategic intent

    - Align execution with strategy

Information Architecture Definition

The fundamental organization of the data and information (structured, semi-structured and unstructured) that support an enterprise's business processes and enabling application systems

Note: For CWDS, the definition of Information Architecture is aligned with the term used in the California Enterprise Architecture Framework

Information Architecture Approach
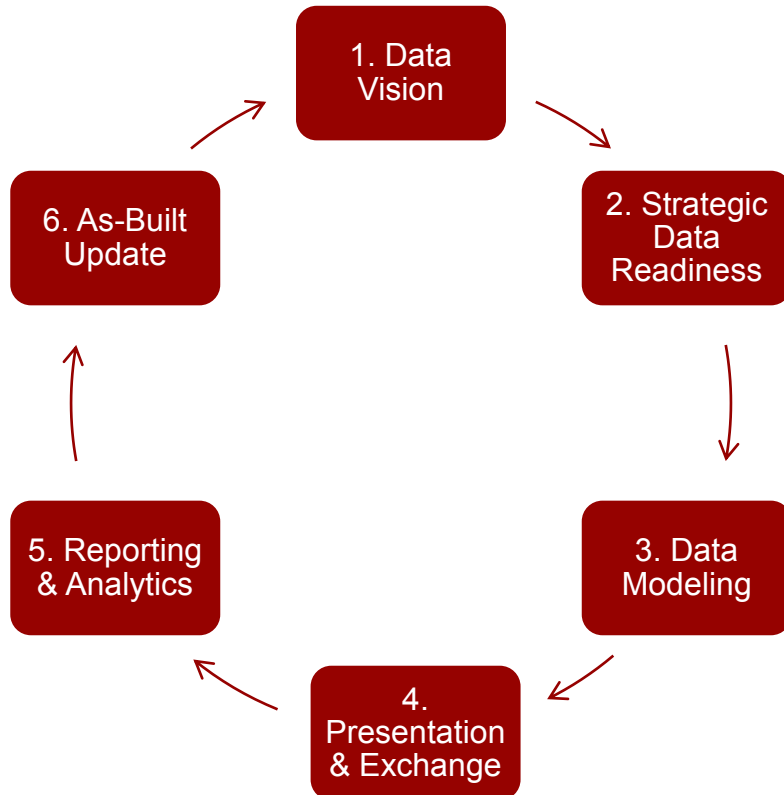
1. Data Vision
   - Requirements, Program Needs, Roadmap

2. Strategic Data Readiness

3. Data Modeling
   - Data Dictionary, Conceptual & Logical Data Model
   - Model Standard, Data Abstraction Layer

4. Presentation & Exchange
   - Website Information Architecture[1]
   - Data Exchange Formats

5. Reporting & Analytics
   - Data Warehouse, Business Intelligence
   - Business Analytics,

6. As-Built Update
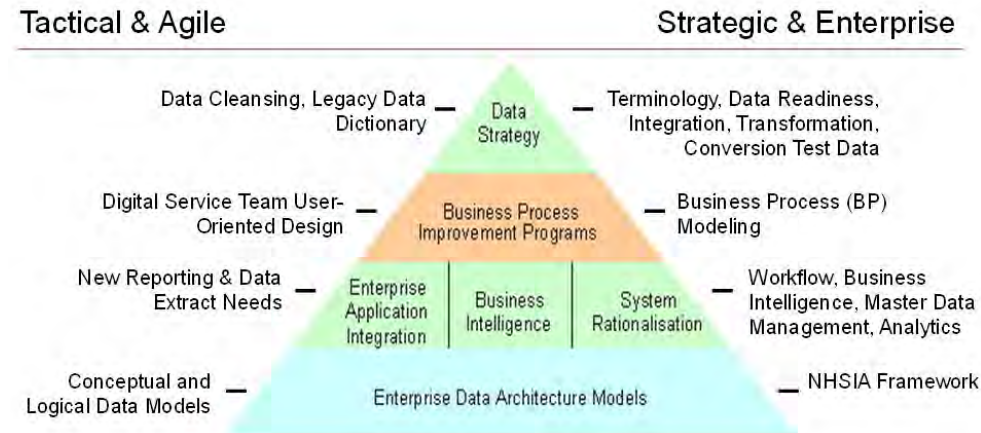   - Update and Refine Models

1. Data Vision

Tactical & Agile — **Strategic & Enterprise**

- Data Cleansing, Legacy Data Dictionary
- Data Strategy
- Terminology, Data Readiness, Integration, Transformation, Conversion Test Data
- Digital Service Team User-Oriented Design
- Business Process Improvement Programs
- Business Process (BP) Modeling
- New Reporting & Data Extract Needs
- Enterprise Application Integration | Business Intelligence | System Rationalisation
- Workflow, Business Intelligence, Master Data Management, Analytics
- Conceptual and Logical Data Models
- Enterprise Data Architecture Models
- NHSIA Framework

Module-Focused Project-Specific Enterprise-Aligned

- **Requirements**
  - Monolithic RFP
  - Net New Capabilities
    - Data Visualization
    - Children's Residential - Data Warehouse, BI and Data Analytics - Decision Support System

- **Program Needs**
  - Data Extensions
    - Capture Data Currently Outside of CWS/CMS
  - Test Data Creation Process
    - Test Plan in Progress (Implementation Team)

- **Roadmap**
  - Define Compelling Business Imperatives:
    - Future State Vision
    - Quantify and Measure Benefits and the Return on Investment (ROI)
  - Information Architecture Framework
  - Module Support Approach
  - Integrating External Systems Data

2. Strategic Data Readiness

- **Readiness – Module Focused**
  - Legacy Data Identification
  - Data Issue Identification

- **Characterization**
  - Data Audit
  - Data Cleansing and Mitigation
  - Data Owner Single-Point-of-Contact
  - CCWIS-Alignment

- **Support & Guidance**
  - Cleansing Communication, Instructions and Infrastructure
  - Outline Long-Term County Involvement

- **Progress Monitoring**
  - Monitor Cleansing Progress
  - Cleansing Metrics

Data Dictionary – Legacy Intake

CWS-NS Conceptual Data Model

3. Data Modeling

Definition

Data modeling is the first step in database design progressing from conceptual model (e.g., how data items relate to each other) to logical model to physical schema
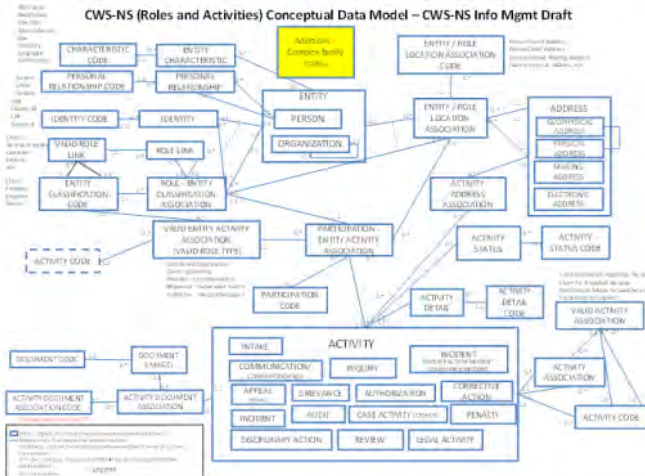
- **People**
  - Data Management Team. Coordination with Solution Architect

- **Data Dictionary**
  - Legacy Data Identification - Module-by-Module
  - All CWS-NS Data Sources
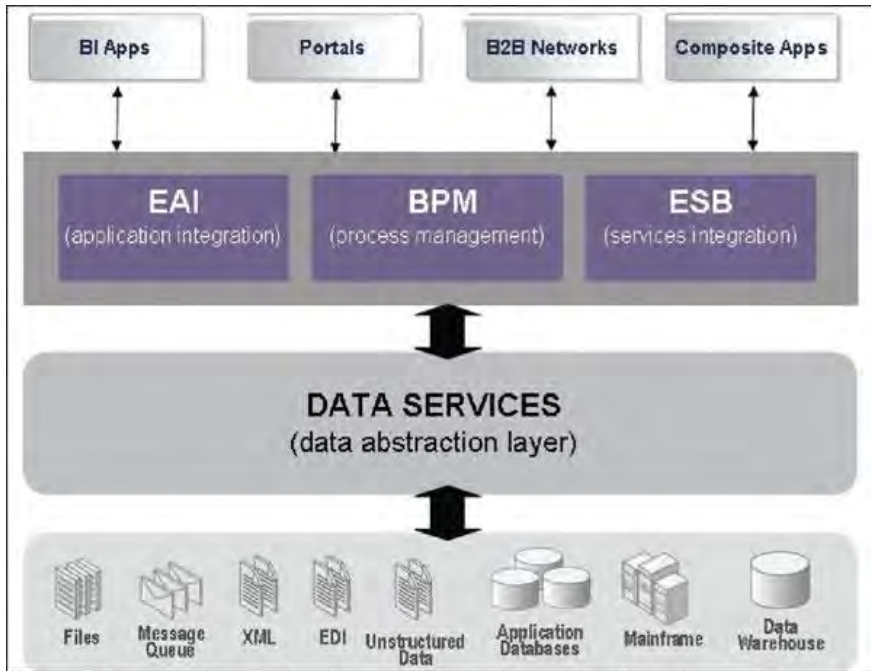 - Metadata and Mapping to Reports, Forms, etc.

- **Conceptual & Logical Data Model**
  - Derived from Business Process models
  - Aligned with Agency to Support Interoperability

3. Data Modeling (cont.)


Data Abstraction Layer

- **Model Standard**
  - ❑ Proposing National Information Exchange Model (NIEM) – Assessment in Progress

- **Data Abstraction Layer**
  - ❑ APIs unify the communication between the CWS-NS application and Legacy DB2 databases
  - ❑ Separates Code from Data
  - ❑ Reduces the amount of rework by providing the developer a consistent API that hides database specifics

Early simple site diagram for planning

Mature site diagram for the technical team
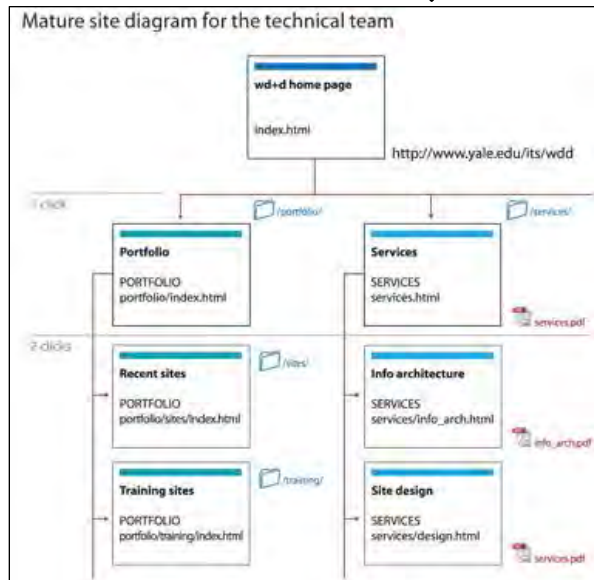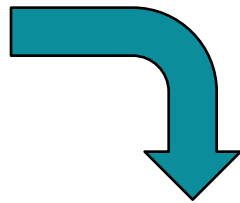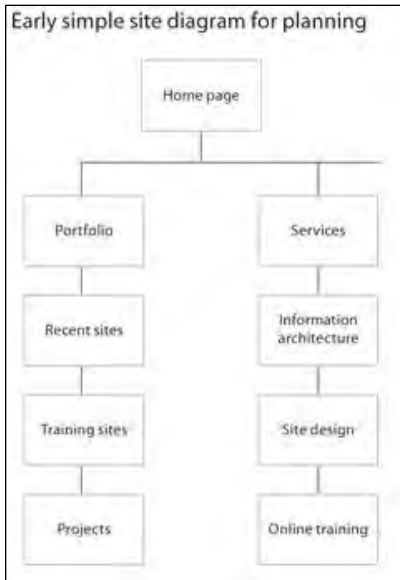
Example Site Diagram – Simple and Mature

4. Presentation & Exchange

- **Website Information Architecture[1]**
  - Definition
    - *Site Content & Functionality*
  - Product:
    - CWS-NS User Interface "Organization Chart"
    - User-Centered Relationships and Hierarchy
    - Common Business Terms (Taxonomy)
    - Ability to Generate "Related Link" Lists

- **Data Exchange Formats**
  - NIEM Information Exchange Package Documentation (IEPD)
  - HL7, HIPAA EDI transaction, Pharmacy Claim
  - Robust Data Stewardship and Governance

[1] Source: https://www.nngroup.com/articles/ia-vs-navigation/
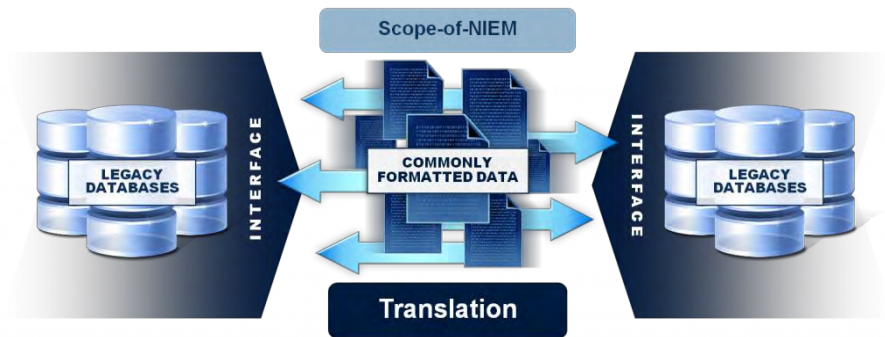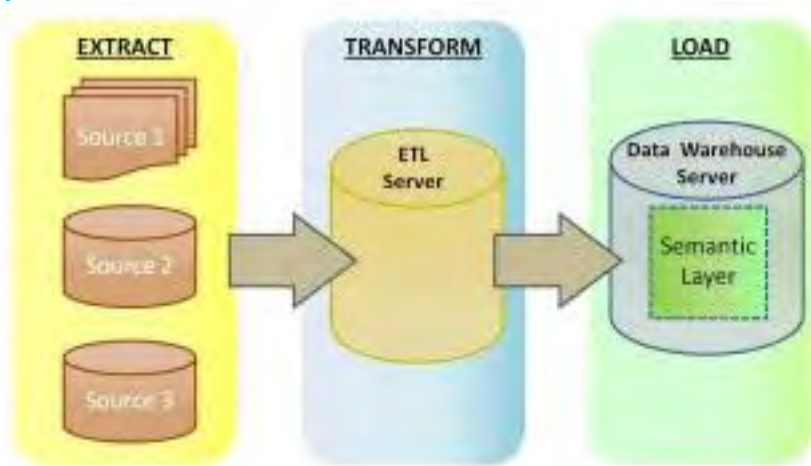
Data Warehouse Population and Usage

Dashboard Example

5. Reporting & Analytics

- **Data Warehouse**
    - Cornerstone of Reporting & Extract
        - Incorporate New Fields

- **Business Intelligence**
    - Creates operational efficiency through access to real time data (e.g., Dashboards)

- **Business Analytics**
    - Exploration of historical data from many source systems through statistical analysis, predictive modelling, etc.
    - A Program View

6. As-Built Update

- Update and Refine Models via User Stories and Implemented Products

Client View API - New and Old Data Provided to User Interface (UI)

Reporting Data View

Example - Reporting
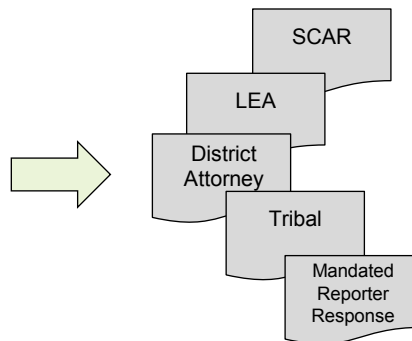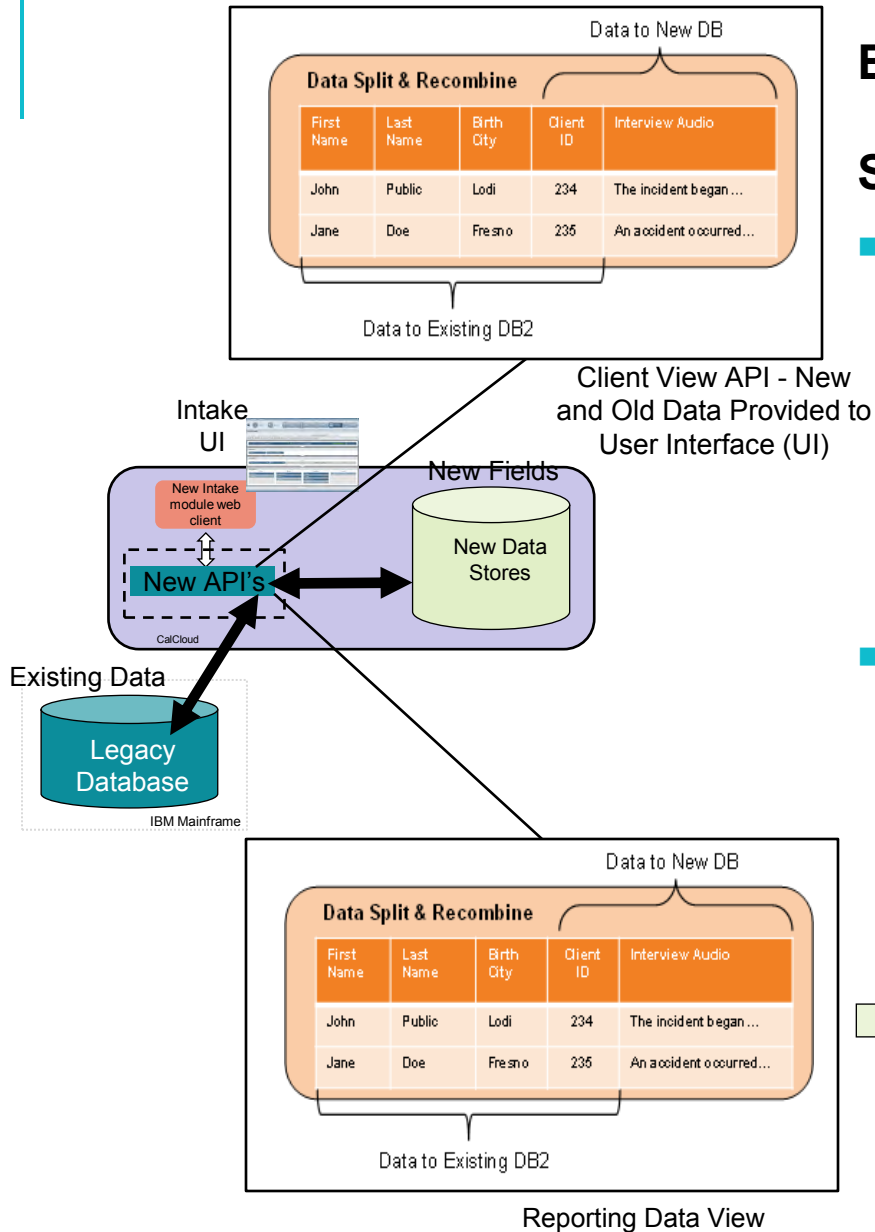
Serving Data Stored in Two Databases

■ User Interface Data

❑ Legacy API Pulls Legacy Data Fields

❑ New Data Store API Pulls New Data Fields Per Legacy Identifier

❑ Data Transformed and Consolidated "View" Used by Developers

■ Reporting Data

❑ Data Warehouse Populated via Consolidated "View" Above

Example – Business Analytics

Child Welfare Referral Data Cube

Referrals

- Multidimensional
  - Time, County and Referral Event Dimensions

- Fast
  - Summarized data provides quick results

- Intuitive
  - Clean, structured views that anyone can understand

- Supports Analysis
  - Longitudinal (Time) Study of Referral Processing By County
  - Decision Support – What if Questions
    - If I have two staff going out on leave in November, can I still process the average number of Referrals received?

Questions?