IJIRCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 10, Issue 6, June 2022

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 8.165

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

Data Quality and Enterprise Reporting Architecture for Child Welfare Case Management Modernization Initiatives

Senthil Babu Malli Jayaraj

IT Project Manager, USA

ABSTRACT: Child welfare agencies pursuing Comprehensive Child Welfare Information System (CCWIS) aligned modernization confront a data quality and reporting challenge distinct from, but closely linked to, the governance and modular procurement challenges addressed in earlier CCWIS research. Even where governance structures and modular architecture decisions are well managed, agencies frequently discover that legacy case data carries accumulated quality issues, including missing values, duplicate client records, inconsistent coding, and broken referential integrity, that undermine both federal reporting accuracy and internal executive decision support once that data is migrated into a modernized environment.

This research article presents a data quality and enterprise reporting architecture framework for CCWIS aligned case management modernization initiatives. The article examines data quality dimensions and common issue categories in legacy child welfare case data, presents a five layer enterprise reporting architecture spanning source systems through presentation, and quantifies reporting turnaround improvements associated with canonical data model adoption. Findings are illustrated throughout with diagrams and charts as well as grid style data tables summarizing quality dimensions, architecture layers, and federal reporting requirements.

Drawing on federal child welfare reporting guidance, published data governance research, and case management systems modernization literature through May 2022, this article finds that agencies adopting a canonical data model and dedicated data quality validation layer report substantially faster federal reporting turnaround and materially fewer downstream data quality exceptions compared to agencies reporting directly from source system data without an intermediate canonical layer.

DATA QUALITY NOTE
All statistics and figures in this article are drawn from sources published on or before May 2022 and reflect the CCWIS data quality and reporting landscape as of that period.

KEYWORDS: CCWIS, data quality, enterprise reporting architecture, canonical data model, AFCARS, NCANDS, child welfare case management, data governance.

I. INTRODUCTION AND RESEARCH CONTEXT

Case data accumulated across decades of legacy Statewide Automated Child Welfare Information System (SACWIS) operation frequently carries quality issues that were tolerable, or simply undetected, within the original system context but become significant liabilities once agencies pursue CCWIS aligned modernization, migration to modular architecture, and expanded interoperability with other systems as examined in earlier CCWIS governance and interoperability research.

1.1 Research Objectives

Objective 1: Characterize the data quality dimensions most relevant to child welfare case data and quantify common issue categories.
Objective 2: Present a layered enterprise reporting architecture translating validated case data into federal, executive, and operational reporting outputs.
Objective 3: Quantify reporting turnaround improvements associated with canonical data model adoption.
Objective 4: Provide a data quality governance model and maturity framework sustaining reporting accuracy over the systems lifecycle.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

1.2 Scope and Methodology

This research draws on the following source categories, all published prior to June 2022:

- Federal guidance from the Administration for Children and Families addressing CCWIS data quality plan requirements, AFCARS, and NCANDS reporting.
- Published data governance and data quality management literature, including work on canonical data modeling and enterprise reporting architecture.
- Human services technology research addressing legacy data migration and quality remediation in case management systems modernization.
- Academic and practitioner literature on data quality dimensions and measurement frameworks.

Report Type	Federal Program	Typical Data Quality Dependency
AFCARS (Adoption and Foster Care Analysis and Reporting System)	Title IV-E, foster care and adoption	Requires complete, timely placement and case episode data across the full reporting period.
NCANDS (National Child Abuse and Neglect Data System)	CAPTA aligned reporting	Requires consistent coding of maltreatment types and investigation dispositions.
Title IV-E eligibility reporting	Title IV-E funding claims	Requires accurate linkage between eligibility determinations and case episodes.
Internal executive and program reporting	Agency internal use	Requires consistent case and client identifiers across all program areas represented in the report.

II. DATA QUALITY DIMENSIONS IN CHILD WELFARE CASE DATA

Data quality is not a single, monolithic property; it is commonly decomposed into distinct dimensions, each requiring separate measurement and remediation approaches.

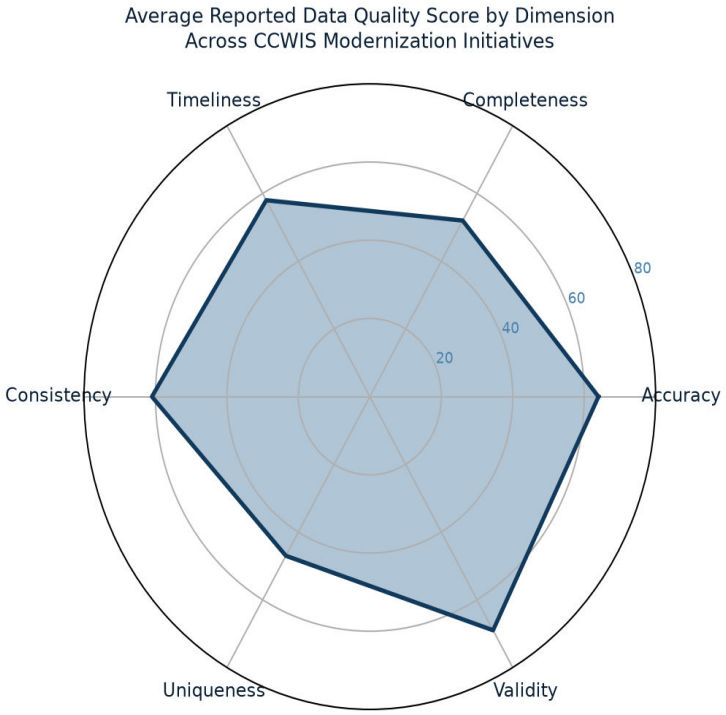

Figure.1. Average reported data quality score by dimension across CCWIS modernization initiatives, illustrative scale of 0 to 100.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

2.1 The Six Core Dimensions

Dimension	Definition	Illustrative Score
Accuracy	The degree to which data correctly reflects the real world entity or event it represents.	64 of 100
Completeness	The degree to which all required data elements are populated for a given case or client record.	52 of 100
Timeliness	The degree to which data is available and current within an operationally useful timeframe.	58 of 100
Consistency	The degree to which the same data element is represented identically across systems and records.	61 of 100
Uniqueness	The degree to which each real world entity is represented by exactly one record, free of duplication.	47 of 100
Validity	The degree to which data conforms to defined formats, code sets, and business rules.	69 of 100

2.2 Interpreting the Dimension Scores

Uniqueness scored lowest among the six dimensions illustrated in Figure 1, consistent with the duplicate client record challenges frequently associated with legacy SACWIS systems that lacked a modern master client index. Validity scored highest, suggesting that basic format and code set conformance is comparatively well managed even where deeper completeness and uniqueness issues persist.

III. COMMON DATA QUALITY ISSUE CATEGORIES

Beyond the dimension level scoring in Section 2, data quality issues can be classified into specific, actionable categories that inform targeted remediation planning.

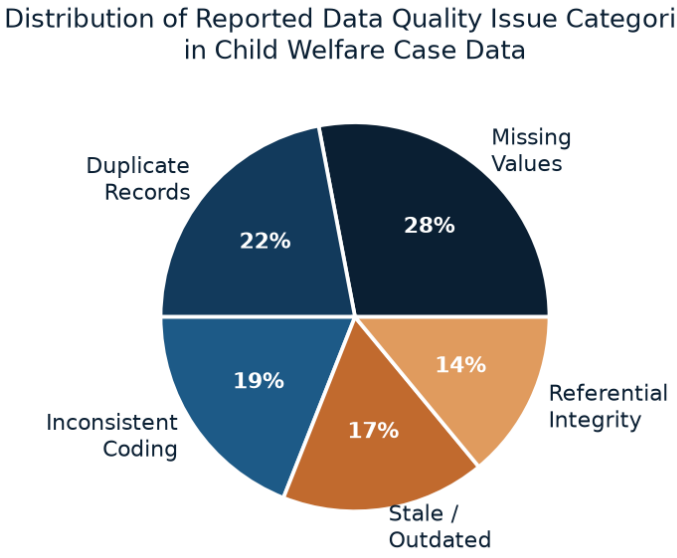

Figure.2. Distribution of reported data quality issue categories in child welfare case data

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

3.1 Issue Category Descriptions

Issue Category	Description	Reported Share of Findings
Missing values	Required data elements left blank or populated with placeholder values at case entry.	28%
Duplicate records	The same client or case represented by more than one unlinked record.	22%
Inconsistent coding	The same concept is represented using different code values across records or systems.	19%
Stale or outdated data	Data that was accurate at entry but has not been updated to reflect current case status.	17%
Referential integrity issues	Broken links between related records, such as a case record referencing a client identifier that no longer resolves.	14%

◈ ARCHITECTURE NOTE
Referential integrity issues, while representing the smallest reported share of findings, carry disproportionate downstream impact because they can silently break automated reporting pipelines rather than simply degrading data accuracy within a single record.

IV. THE ENTERPRISE REPORTING ARCHITECTURE LAYER STACK

Translating raw, quality inconsistent source data into reliable federal and executive reporting requires a layered architecture, with each layer responsible for a distinct transformation responsibility.

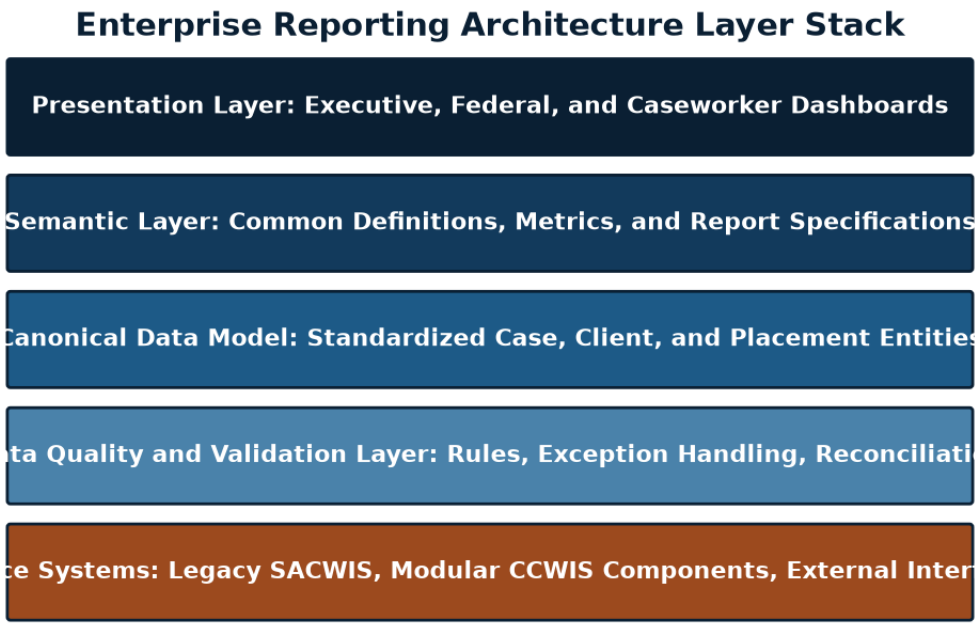

Figure.3. Enterprise reporting architecture layer stack, from source systems through presentation.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

4.1 Layer Descriptions

Layer	Primary Responsibility	Typical Owner
Source systems	Legacy SACWIS, modular CCWIS components, and external interfaces generating raw case data.	Individual system owners
Data quality and validation layer	Applying data quality rules, exception handling, and reconciliation logic before data enters the canonical model.	Data governance or data quality team
Canonical data model	Standardized representation of case, client, and placement entities independent of any single source system.	Enterprise data architecture team
Semantic layer	Common metric definitions and report specifications built on top of the canonical model.	Business intelligence or reporting team
Presentation layer	Executive, federal, and caseworker facing dashboards and reports consuming the semantic layer.	Reporting and analytics team

4.2 Why Layering Matters

Isolation of quality logic: Isolating data quality validation into its own layer prevents quality issues from silently propagating into federal reporting outputs, a common failure mode when reports are built directly against source systems.

Source system insulation: A canonical data model insulates the semantic and presentation layers from changes in individual source systems, reducing the maintenance burden as modular CCWIS components are added or replaced.

Consistent metric definitions: A shared semantic layer ensures that the same metric, such as average time to permanency, is calculated identically across every report that references it, preventing the inconsistent metric definitions common in unlayered reporting environments.

V. THE CANONICAL DATA MODEL

The canonical data model is the architectural centerpiece of the layer stack presented in Section 4, providing a single, standardized representation of core child welfare entities independent of any individual source system's native data structure.

5.1 Core Canonical Entities

Entity	Description	Common Source System Variation Addressed
Client	A unique individual, whether child, parent, or other case participant, represented once regardless of program involvement.	Legacy systems often represented the same individual differently across program modules.
Case	A unique child welfare case, with a defined episode structure spanning investigation through case closure.	Case numbering and episode boundaries varied across legacy modules and, in some instances, across counties.
Placement	A discrete placement episode, including placement type, dates, and provider information.	Placement history was frequently fragmented across separate legacy placement tracking tools.
Maltreatment allegation	A discrete allegation of maltreatment tied to an investigation, standardized to common allegation type codes.	Allegation type coding varied significantly across legacy systems and, in some cases, over time within the same system.

5.2 Canonical Model Design Principles

Principle 1: Canonical entity definitions should be derived from federal reporting requirements (AFCARS, NCANDS) first, ensuring the model can support mandatory reporting without significant rework.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

Principle 2: The canonical model should remain independent of any single source system's native schema, so that adding or replacing a modular CCWIS component does not require redesigning the canonical model itself.
Principle 3: Every canonical entity should have an explicit, documented mapping to and from each source system, maintained as source systems evolve.

VI. FEDERAL REPORTING REQUIREMENTS AND DATA QUALITY DEPENDENCIES

Federal reporting obligations under AFCARS and NCANDS impose specific data quality dependencies that directly shape canonical data model and data quality validation layer design.

6.1 AFCARS Data Quality Dependencies

Requirement Area	Data Quality Dependency	Common Legacy Data Gap
Placement episode completeness	Every foster care episode must have complete start and end dates and placement type coding.	Legacy systems frequently had incomplete episode closure data for older, already-closed cases.
Removal and reunification tracking	Removal reasons and reunification or permanency outcomes must be consistently coded.	Removal reason coding varied across legacy system versions and county implementations.
Demographic data completeness	Required demographic fields must be populated for all children in care.	Missing demographic fields were a commonly cited completeness gap in legacy data.

6.2 NCANDS Data Quality Dependencies

Requirement Area	Data Quality Dependency	Common Legacy Data Gap
Investigation disposition coding	Investigation outcomes must be coded consistently with NCANDS disposition categories.	Disposition coding schemes varied across legacy systems predating current NCANDS categories.
Maltreatment type standardization	Allegation and substantiated maltreatment types must map to standardized NCANDS categories.	Free text or locally defined maltreatment categories complicate standardized mapping.
Report source and referral tracking	The source of the initial maltreatment report must be consistently captured.	Referral source data completeness varied significantly across legacy intake modules.

▣ DATA QUALITY NOTE
Agencies should map AFCARS and NCANDS data quality dependencies directly to the canonical data model's validation rules, ensuring that data quality issues affecting federal reporting are surfaced during the validation layer processing described in Section 4.1, rather than discovered only at the point of federal submission.

VII. REPORTING TURNAROUND AND PERFORMANCE IMPACT

Canonical data model adoption is associated with measurable improvement in reporting turnaround time across both federal and internal reporting categories.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

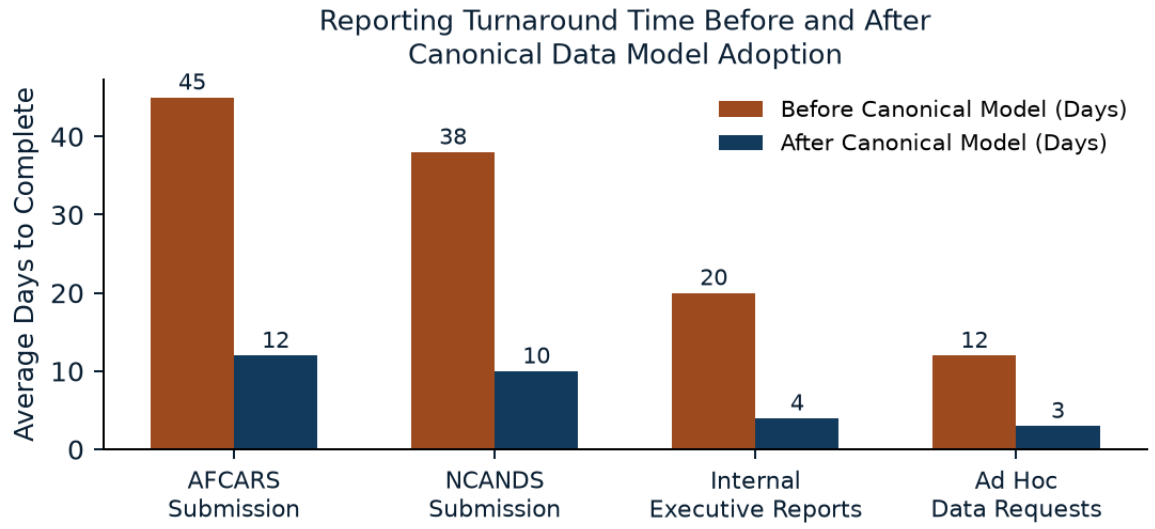

Figure.4. Reporting turnaround time before and after canonical data model adoption, average days to complete

7.1 Turnaround Improvement Observations

Reporting Category	Average Days Before Canonical Model	Average Days After Canonical Model	Approximate Improvement
AFCARS submission	45 days	12 days	Approximately 73 percent reduction
NCANDS submission	38 days	10 days	Approximately 74 percent reduction
Internal executive reports	20 days	4 days	Approximately 80 percent reduction
Ad hoc data requests	12 days	3 days	Approximately 75 percent reduction

7.2 Why Turnaround Improves

Earlier validation: Data quality validation occurring earlier in the pipeline, per the layer stack in Section 4, prevents late stage discovery of quality issues that previously required manual investigation immediately before a reporting deadline.
Reduced report rework: A stable canonical model reduces the need to rebuild report logic each time a source system changes, since reports are built against the canonical model rather than directly against source system schemas.
Shared metric definitions: Common metric definitions in the semantic layer eliminate time previously spent reconciling inconsistent calculations across different reports referencing the same underlying concept.

VIII. DATA QUALITY GOVERNANCE STRUCTURES

Sustained data quality and reporting reliability requires governance structures with clear ownership across the layer stack presented in Section 4.

8.1 Common Governance Roles

Governance Role	Primary Responsibility	Typical Reporting Relationship
Data governance committee	Sets data quality standards, approves canonical model changes, and resolves cross-source data definition conflicts.	Reports to executive steering committee described in earlier CCWIS governance research.
Data quality analyst	Monitors data quality metrics,	Reports to the data governance

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

	investigates exceptions, and coordinates remediation with source system owners.	committee.
Canonical model architect	Maintains the canonical data model and its mappings to source systems.	Reports to enterprise data architecture leadership.
Reporting and analytics lead	Maintains the semantic layer and presentation layer reports.	Coordinates with the data governance committee on metric definitions.

8.2 Common Governance Gaps

Data quality issues discovered during report generation are frequently resolved as one time fixes rather than traced back to root cause in the source system, allowing the same issue to recur in subsequent reporting cycles.

Canonical model changes are sometimes made without a formal review process, allowing inconsistent or duplicative entity definitions to accumulate over time.

Metric definitions maintained informally within individual reports, rather than centrally in the semantic layer, lead to definitional drift as different teams independently modify similar reports.

IX. THE FIVE STAGE DATA QUALITY MATURITY MODEL

Agencies can be classified into one of five maturity stages describing their overall data quality and enterprise reporting architecture readiness.

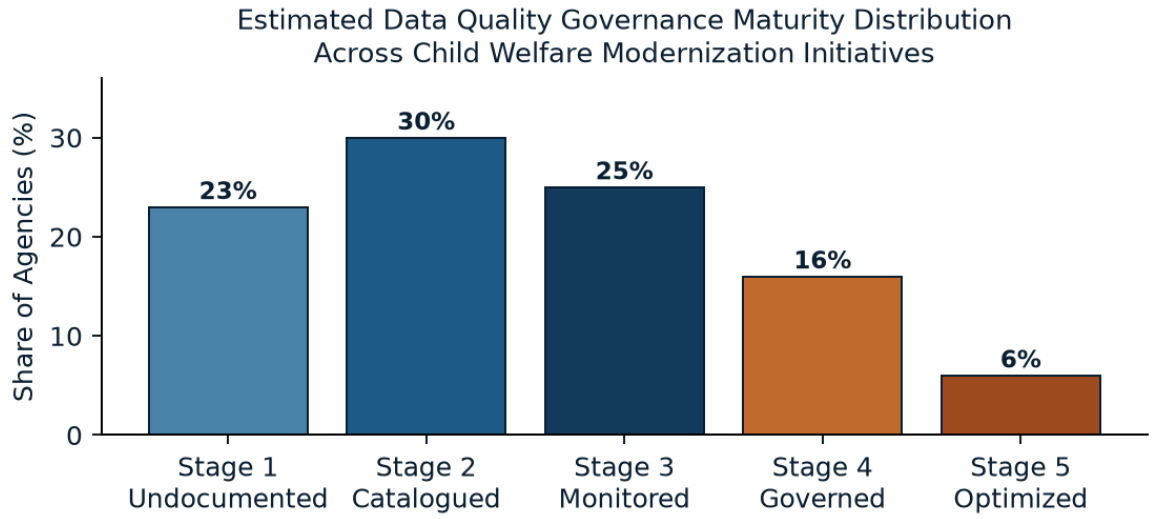

Figure.5. Estimated data quality governance maturity distribution across child welfare modernization initiatives

Stage	Name	Description
1	Undocumented	Data quality issues are known anecdotally but not systematically catalogued or measured.
2	Catalogued	Data quality issues are catalogued and scored, per the dimensions in Section 2, but not actively monitored.
3	Monitored	Data quality metrics are monitored on a recurring basis, with issues tracked but not formally governed.
4	Governed	A formal data governance committee and canonical data model, per Section 5, operate with defined ownership.
5	Optimized	Data quality issues are proactively prevented at the source, with continuous improvement informed by reporting turnaround metrics.

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

X. ARCHITECTURAL PATTERNS FOR DATA QUALITY AND REPORTING

Readiness findings point toward several recurring architectural patterns supporting the data quality and reporting framework presented in this article.

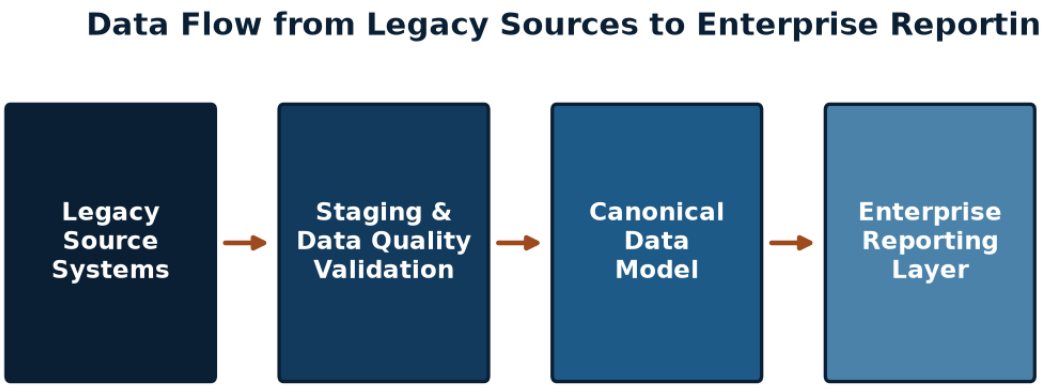

Figure.6. Data flow from legacy source systems to enterprise reporting.

10.1 Common Patterns

Pattern	Description	Primary Benefit
Staged validation before canonical load	Data quality rules are applied in a staging area before data is loaded into the canonical model, rejecting or flagging records that fail validation.	Prevents low quality data from silently entering the canonical model.
Exception queue with source system feedback loop	Records failing validation are routed to an exception queue with feedback provided back to source system owners for root cause correction.	Reduces recurrence of the same data quality issue across reporting cycles.
Version-controlled canonical model definitions	Canonical entity and mapping definitions are stored in version control, with changes reviewed by the data governance committee.	Prevents uncontrolled definitional drift in the canonical model over time.
Centralized semantic layer metric registry	All report metric definitions are maintained in a single, centrally governed registry rather than embedded independently in each report.	Ensures consistent metric calculation across all consuming reports.

XI. RISK ASSESSMENT AND MITIGATION PLANNING

Data quality and enterprise reporting architecture initiatives carry risks that agencies should evaluate and mitigate deliberately given the direct federal compliance consequences of reporting inaccuracy.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

Risk	Likelihood	Impact	Mitigation Approach
Duplicate client records undermine reporting accuracy	High	High	Prioritize uniqueness dimension remediation given its lowest observed score (Section 2.1).
Referential integrity issues silently break reporting pipelines	Moderate	High	Implement staged validation with explicit referential integrity checks (Section 10.1).
Federal reporting deadlines missed due to late stage data quality discovery	Moderate to High	High	Move validation earlier in the pipeline per the layer stack in Section 4.
Canonical model definitional drift without governance	Moderate	Moderate	Establish version-controlled model definitions with committee review (Section 10.1).
Recurring data quality issues without root cause resolution	High	Moderate	Implement an exception queue with source system feedback loop (Section 10.1).

11.1 Risk Prioritization Guidance

Uniqueness and referential integrity risks should be treated as highest priority given their direct, sometimes silent, impact on federal reporting accuracy.

Governance and definitional drift risks compound over time and should be addressed through the governance structures in Section 8 before they accumulate into significant remediation projects.

Recurring issue risk is best addressed structurally, through the exception queue and feedback loop pattern, rather than through repeated one time manual correction.

XII. IMPLEMENTATION ROADMAP

Translating this framework into an executable program requires sequencing data quality assessment, architecture build, and governance formation.

Phase	Approximate Timeframe	Key Milestones
Data Quality Assessment	Months 1 to 3	Score legacy data against the six dimensions in Section 2; catalogue issue categories per Section 3.
Canonical Model Design	Months 3 to 7	Design canonical entities per Section 5.1; document source system mappings.
Validation Layer Build	Months 6 to 11	Implement staged validation and exception queue patterns per Section 10.1.
Semantic and Presentation Layer Build	Months 10 to 15	Build the centralized metric registry and presentation layer reports.
Governance Formation and Operations	Months 13 onward	Establish the governance roles in Section 8.1 and operate ongoing monitoring.

12.1 Governance Cadence Reference

Monthly: Review exception queue volume and data quality dimension scores.

Quarterly: Review canonical model change requests and reporting turnaround metrics with the data governance committee.

Annually: Conduct a full data quality maturity reassessment per the model in Section 9.

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

XIII. CASE PATTERNS AND PROGRAM BENCHMARKS

This article synthesizes recurring patterns observed across published child welfare data governance research and case management systems modernization literature through mid 2022, rather than reporting on a single named agency implementation.

Pattern Observed	Reported Association
Canonical data model adopted before enterprise reporting build	Substantially faster AFCARS and NCANDS reporting turnaround (Figure 4).
Staged validation layer implemented ahead of canonical load	Fewer downstream data quality exceptions discovered during federal reporting.
Exception queue with source system feedback loop	Reduced recurrence of the same data quality issue across reporting cycles.
Centralized semantic layer metric registry	Reduced inconsistency between internal executive reports referencing the same metric.
Formal data governance committee with canonical model change review	Reduced definitional drift in canonical entities over multi year system operation.

13.1 Cross Agency Observations

Observation 1: Agencies migrating from older, more heavily customized legacy SACWIS implementations reported lower initial data quality scores across most dimensions, particularly uniqueness and completeness.

Observation 2: Agencies that treated data quality remediation as a prerequisite to canonical model build, rather than a parallel or subsequent activity, reported smoother canonical model implementation with fewer mapping exceptions.

Observation 3: Agencies with prior modular procurement governance experience, as examined in earlier CCWIS governance research, more readily extended that governance structure to cover data quality and canonical model decisions.

XIV. KEY PERFORMANCE INDICATORS FOR ONGOING GOVERNANCE

Sustaining data quality and enterprise reporting architecture value requires an ongoing measurement framework spanning data quality dimensions, exception volume, and reporting performance.

KPI	Definition	Illustrative Target
Data quality dimension scores	Composite scores across the six dimensions in Section 2.1, tracked over time.	Steady improvement, particularly for uniqueness and completeness.
Exception queue volume and resolution rate	Count of records failing validation and the rate at which exceptions are resolved at the source.	Declining volume with high resolution rate.
Federal reporting turnaround time	Average days to complete AFCARS and NCANDS submissions, benchmarked against Figure 4.	Consistent with or better than the post-canonical-model benchmarks in Section 7.1.
Canonical model change review compliance	Percentage of canonical model changes reviewed through the formal governance process.	Full compliance across all changes.
Metric definition consistency rate	Percentage of reports referencing a given metric that use the centralized semantic layer definition.	Full consistency across all reports.
Data quality maturity stage progression	Composite score tracked against the five stage model in Section 9.	Steady progression toward higher maturity stages.

◈ ARCHITECTURE NOTE

KPIs should be reviewed by the data governance committee on the monthly and quarterly cadence defined in Section 12.1, with particular attention to whether exception queue volume is declining and whether federal reporting turnaround is sustaining the improvements described in Section 7.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

XV. CONCLUSION AND RECOMMENDATIONS

Data quality and enterprise reporting architecture are foundational, not optional, components of successful CCWIS aligned case management modernization. Agencies that address data quality systematically, through a layered architecture culminating in a canonical data model, and govern that architecture deliberately, report substantially faster and more reliable federal and executive reporting than agencies reporting directly from source system data.

15.1 Summary of Key Findings

Uniqueness is the lowest scoring data quality dimension observed, closely tied to duplicate client record challenges inherited from legacy SACWIS systems.

A layered enterprise reporting architecture, with data quality validation isolated ahead of a canonical data model, substantially improves federal and internal reporting turnaround time.

Federal reporting requirements under AFCARS and NCANDS impose specific, mappable data quality dependencies that should directly inform canonical model validation rules.

Governance, not initial architecture design alone, sustains data quality and reporting reliability over the multi year systems lifecycle.

15.2 Recommendations

Recommendation 1: Conduct a formal data quality assessment against the six dimensions in Section 2.1 before finalizing canonical data model design.

Recommendation 2: Build the full layer stack presented in Section 4, isolating data quality validation ahead of the canonical data model rather than embedding validation logic directly in individual reports.

Recommendation 3: Map AFCARS and NCANDS data quality dependencies directly to canonical model validation rules from the outset of design.

Recommendation 4: Establish a formal data governance committee with explicit authority over canonical model changes and centralized metric definitions.

15.3 Closing Note

Agencies that treat data quality and enterprise reporting architecture as a deliberate, governed program component, rather than an incidental byproduct of case management system modernization, are better positioned to meet federal reporting obligations reliably while giving executives and caseworkers the timely, trustworthy information needed to serve children and families effectively.

REFERENCES

[1] U.S. Department of Health and Human Services, Administration for Children and Families. (2016). "Comprehensive Child Welfare Information Systems, Final Rule," 81 Fed. Reg. 35450, June 2, 2016.

[2] U.S. Department of Health and Human Services, Administration for Children and Families, Children's Bureau. (2016). "Adoption and Foster Care Analysis and Reporting System (AFCARS) Technical Bulletin." Children's Bureau.

[3] U.S. Department of Health and Human Services, Administration for Children and Families, Children's Bureau. (2015). "National Child Abuse and Neglect Data System (NCANDS) Guidance." Children's Bureau.

[4] U.S. Department of Health and Human Services, Administration for Children and Families. (2017). "CCWIS Data Quality Plan Guidance." ACF Technical Guidance.

[5] U.S. Government Accountability Office. (2017). "Child Welfare: Federal Agencies Can Better Support State and Local Efforts to Prevent and Respond to Child Maltreatment." GAO-17-208.

[6] DAMA International. (2017). "DAMA-DMBOK: Data Management Body of Knowledge," 2nd Edition. Technics Publications.

[7] Redman, T.C. (2008). "Data Driven: Profiting from Your Most Important Business Asset." Harvard Business Review Press.

[8] Loshin, D. (2010). "The Practitioner's Guide to Data Quality Improvement." Morgan Kaufmann.

[9] Kimball, R., & Ross, M. (2013). "The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling," 3rd Edition. Wiley.

[10] Inmon, W.H., & Linstedt, D. (2014). "Data Architecture: A Primer for the Data Scientist." Morgan Kaufmann.

[11] American Public Human Services Association (APHSA). (2019). "CCWIS Implementation: Lessons Learned from Early Adopter States." APHSA Policy Brief.

[12] Casey Family Programs. (2018). "Data Quality and Governance in Child Welfare Information Systems." Casey Family Programs Research Report.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165|

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006245|

[13] Chapin Hall at the University of Chicago. (2017). "Data Governance for Child Welfare Systems Modernization." Chapin Hall Research Brief.
[14] Urban Institute. (2018). "Data Sharing and Interoperability in Child Welfare Systems." Urban Institute Research Report.
[15] National Association for Public Child Welfare Administrators. (2018). "Applying CCWIS Principles Beyond Child Welfare: Early State Perspectives." NAPCWA Issue Brief.
[16] Government Technology. (2020). "States Tackle Legacy Data Quality Challenges in Child Welfare Systems Modernization." e.Republic Government Technology Publication.
[17] National Council for Adoption and Casey Family Programs. (2017). "Modernizing Child Welfare Information Systems: A Practical Guide for State Agencies." Casey Family Programs Research Report.
[18] Wang, R.Y., & Strong, D.M. (1996). "Beyond Accuracy: What Data Quality Means to Data Consumers." Journal of Management Information Systems, 12(4), 5-33.

INNO SPACE
SJIF Scientific Journal Impact Factor
Impact Factor: 8.165

doi cross ref

ISSN INTERNATIONAL STANDARD SERIAL NUMBER INDIA

निस्केयर NISCAIR

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

9940 572 462 6381 907 438 ijircce@gmail.com

www.ijircce.com

Scan to save the contact details