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Change Management and Release Governance for Multi-System Deployments across CJAMS, Adult Services, and Provider Platforms

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ABSTRACT: State agencies operating interdependent systems across child and adult justice case management, adult protective and aging services, and provider facing platforms face a release coordination challenge that compounds as these systems increasingly share identity, case data, and notification infrastructure. A Court and Justice Automated Management System (CJAMS) or comparable justice case management platform, an Adult Services eligibility and case management system, and a Provider Platform serving contracted service providers may be developed by separate teams, funded through separate authorities, and released on separate schedules, yet share enough underlying infrastructure that an uncoordinated release in one system can silently disrupt the other two.

This research article presents a change management and release governance framework for multi-system deployments spanning these three system domains. The article examines cross-system dependency mapping, change advisory board structures adapted to a multi-system context, release calendar coordination patterns, and a five stage release governance maturity model. Findings are illustrated throughout with diagrams, charts, and grid style data tables summarizing release cadence patterns, change request volume, conflict detection trends, and rollback rates by governance maturity stage.

Drawing on IT service management literature, public sector systems integration research, and change management guidance published through January 2023, this article finds that agencies operating a formal cross-system change advisory process, supported by dependency mapping and coordinated release calendars, report substantially lower release rollback rates and materially fewer cross-system incidents than agencies coordinating releases informally on a system by system basis.

KEYWORDS: change management, release governance, change advisory board, CJAMS, adult services, provider platforms, cross-system dependency, IT service management, deployment coordination.

I. INTRODUCTION AND RESEARCH CONTEXT

State human services and justice agencies increasingly operate case management and provider facing systems that, while owned and developed by distinct program teams, rely on shared underlying infrastructure, including shared identity services, shared case data hubs, and shared notification systems. This shared infrastructure creates a coordination requirement that traditional, single-system change management processes are not designed to address.

1.1 Research Objectives

- **Objective 1:** Characterize the shared dependency landscape across CJAMS, Adult Services, and Provider Platform system domains.
- **Objective 2:** Present a change advisory board structure and release calendar coordination pattern adapted to multi-system deployment.
- **Objective 3:** Quantify change request volume, conflict detection, and rollback rate patterns associated with different governance maturity levels.
- **Objective 4:** Provide a governance model, roles structure, and implementation roadmap for agencies coordinating releases across interdependent systems.



1.2 Scope and Methodology

This research draws on the following source categories, all published prior to February 2023:

- IT service management literature addressing change advisory board structures and release management practice.
- Public sector systems integration research addressing shared infrastructure and cross-system dependency management.
- Published guidance on DevOps and continuous delivery practices adapted to regulated, multi-system government environments.
- Academic and practitioner literature addressing change management governance in complex, interdependent technical environments.

System Domain	Typical Function	Typical Release Cadence
CJAMS (or comparable justice case management)	Court and justice case tracking, docketing, and related workflow support.	Often quarterly or less frequent, reflecting judicial process stability requirements.
Adult Services	Adult protective services, aging services eligibility, and case management.	Often monthly to quarterly, aligned to program policy change cycles.
Provider Platforms	Contracted service provider facing portals for referrals, billing, and reporting.	Often more frequent, monthly or more, reflecting typical modern web application delivery cadence.

II. THE THREE SYSTEM DOMAINS AND THEIR SHARED DEPENDENCIES

Understanding release governance requirements begins with understanding what these three system domains share, structurally, even where their program purposes are distinct.

Shared Dependency Map Across the Three System Domains

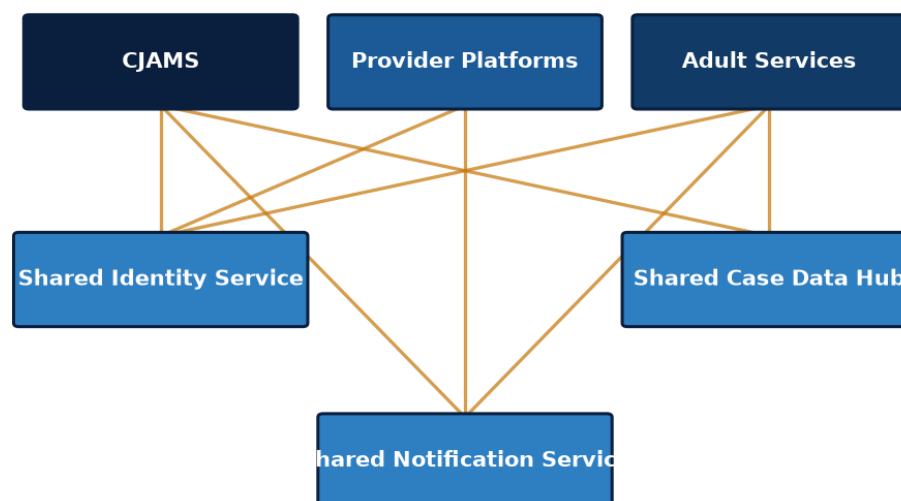


Figure.1. Shared dependency map across the three system domains, illustrating common reliance on shared identity, case data, and notification infrastructure



2.1 Common Shared Infrastructure Components

Shared Component	Description	Systems Depending On It
Shared identity service	Centralized authentication and authorization infrastructure used across systems.	CJAMS, Adult Services, Provider Platforms
Shared case data hub	Common data exchange layer enabling case information sharing between justice and human services systems.	CJAMS, Adult Services
Shared notification service	Centralized infrastructure for outbound notifications to clients, providers, and caseworkers.	CJAMS, Adult Services, Provider Platforms

2.2 Why Shared Dependencies Complicate Release Management

- **Blast radius expansion:** A change to the shared identity service, even one intended to support a Provider Platform feature, can affect authentication behavior for CJAMS and Adult Services users simultaneously.
- **Distributed ownership:** Each system domain in Figure 1 is typically governed by a separate program office, funding authority, and development team, meaning no single team has full visibility into all three systems' release plans by default.
- **Cadence mismatch:** Different release cadences, as shown in Table 1, mean that a shared infrastructure change timed for one system's release window may land in the middle of another system's stable operating period.

2.3 Organizational Patterns Behind the Three Domains

The distributed ownership challenge described above is rarely accidental; it typically reflects the distinct statutory, funding, and oversight lineage of each system domain, which in turn shapes how readily each domain's team can be brought into a shared governance structure.

System Domain	Typical Funding Authority	Typical Oversight Body
CJAMS (or comparable justice case management)	State judicial branch appropriations, sometimes supplemented by federal justice grant programs.	State court administrative office or judicial branch technology governance body.
Adult Services	State human services appropriations, often with federal financial participation tied to Medicaid HCBS or Older Americans Act funding streams.	State health and human services agency IT governance.
Provider Platforms	Program specific appropriations, sometimes shared across multiple human services programs relying on the same provider network.	Varies; sometimes governed jointly by multiple program offices sharing the platform.

- **Observation 1:** Because CJAMS typically sits within the judicial branch while Adult Services and Provider Platforms typically sit within the executive branch human services agency, cross-system governance in practice often requires bridging a branch of government boundary, not merely an intra-agency organizational boundary.
- **Observation 2:** Provider Platforms serving multiple human services programs simultaneously may lack a single, clearly accountable program office, complicating the assignment of the system domain representative role described in Section 5.2.
- **Observation 3:** Where federal financial participation applies to a given system domain, changes affecting that domain's shared infrastructure usage may carry federal reporting or cost allocation implications that should be reflected in the change advisory board's impact assessment.



III. WHY UNCOORDINATED RELEASES CREATE RISK

Absent a coordination mechanism, releases across the three system domains proceed independently, creating specific, recurring risk patterns.

3.1 Common Risk Patterns

Risk Pattern	Description	Typical Trigger
Silent shared service regression	A change to shared infrastructure passes testing within its owning system but breaks a dependent system's integration.	Insufficient cross-system integration testing before release.
Conflicting concurrent changes	Two systems independently modify behavior that depends on the same shared component during overlapping release windows.	Lack of visibility into other systems' release calendars.
Notification service overload	Simultaneous releases in multiple systems each increase notification volume, collectively overwhelming shared notification infrastructure.	Uncoordinated timing of notification-heavy feature releases.
Identity service authentication disruption	A change to authentication configuration in one system inadvertently affects session handling in another system sharing the same identity service.	Changes to shared identity configuration without cross-system impact review.

3.2 The Case for Formal Coordination

Each risk pattern in Table 3 shares a common root cause: the absence of a formal mechanism to surface cross-system impact before a change reaches production. Sections 4 and 5 present the two central components of this research article's proposed governance framework addressing that root cause, dependency mapping and a cross-system change advisory board.

IV. CROSS-SYSTEM DEPENDENCY MAPPING

A documented, maintained dependency map, extending the illustration in Figure 1, is the foundational artifact enabling cross-system impact assessment before a change advisory board can meaningfully evaluate a proposed change.

4.1 Dependency Mapping Components

Mapping Component	Description	Update Trigger
Shared component inventory	A catalogued list of all shared infrastructure components and the systems depending on each.	Whenever a new shared component is introduced or a system begins depending on an existing one.
Interface contract documentation	Documented technical contracts (APIs, data exchange formats) between systems and shared components.	Whenever an interface is modified, versioned, or deprecated.
Impact classification matrix	A matrix classifying which categories of change to a given shared component affect which dependent systems.	Periodically reviewed and updated as system dependencies evolve.

4.2 Using the Dependency Map in Practice

- **Step 1:** Before submitting a change request affecting a shared component, the requesting team consults the dependency map to identify all potentially affected systems.
- **Step 2:** The change advisory board, described in Section 5, uses the impact classification matrix to determine which dependent system owners must review the proposed change.
- **Step 3:** Following release, the dependency map is checked against actual observed impact to confirm the map's accuracy and update it if gaps are found.



◆ SYSTEM CROSSWALK

Interface contract documentation should specify not only the current interface behavior but also versioning and deprecation policy, since a substantial share of cross-system incidents reported in change management literature trace back to undocumented or informally communicated interface changes.

V. THE CHANGE ADVISORY BOARD FOR MULTI-SYSTEM ENVIRONMENTS

A change advisory board (CAB) adapted for a multi-system environment differs from a traditional, single-system CAB primarily in its membership composition and its explicit cross-system impact review step.

Cross-System Change Advisory Workflow

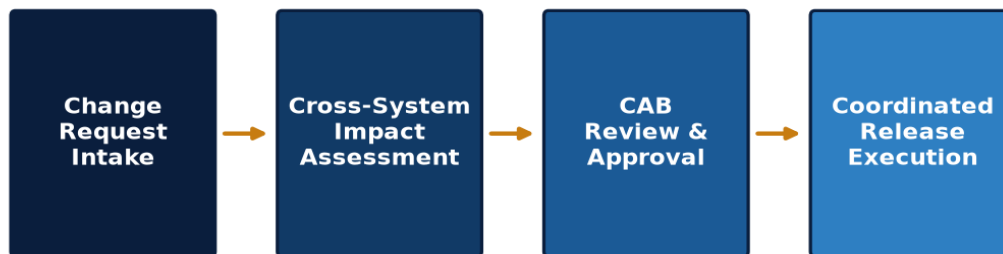


Figure.2. Cross-system change advisory workflow, from intake through coordinated release execution.

5.1 Workflow Stage Descriptions

Stage	Description	Primary Participants
Change request intake	A proposed change is submitted with a description of scope and any known shared component involvement.	Requesting system team
Cross-system impact assessment	The dependency map from Section 4 is consulted to identify potentially affected systems.	Change advisory board coordinator
CAB review and approval	Representatives from all potentially affected systems review the proposed change and approve, request modification, or reject.	CAB members from each system domain
Coordinated release execution	The approved change is scheduled and executed according to the release calendar coordination pattern described in Section 6.	Release management team

5.2 CAB Membership Composition

- **Core membership:** A designated representative from each of the three system domains, with authority to assess impact on their respective system.
- **Shared infrastructure representative:** A representative accountable for the shared infrastructure components identified in the dependency map, distinct from any individual system's representative.
- **CAB coordinator:** A coordinator responsible for facilitating the cross-system impact assessment step and maintaining the dependency map's accuracy over time.



VI. RELEASE CALENDAR COORDINATION PATTERNS

Given the differing release cadences identified in Table 1, a shared, visible release calendar is necessary to prevent the cadence mismatch risk described in Section 2.2.

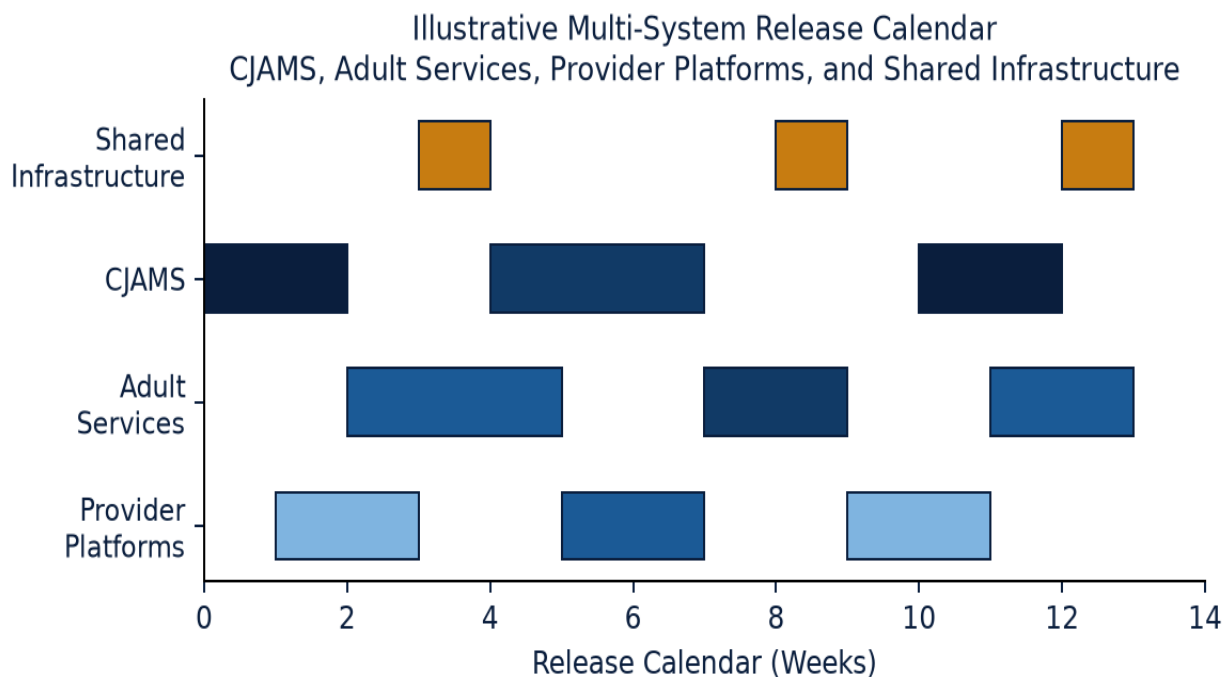


Figure.3. Illustrative multi-system release calendar spanning CJAMS, Adult Services, Provider Platforms, and shared infrastructure.

6.1 Calendar Coordination Principles

- **Principle 1: Shared infrastructure isolation windows:** Shared infrastructure changes, shown as the amber intervals in Figure 3, should be scheduled during windows when no dependent system has a release of its own scheduled, reducing the likelihood of compounding change risk.
- **Principle 2: Sequenced concurrent releases:** Where multiple systems must release concurrently, changes affecting shared components should be sequenced rather than executed simultaneously, allowing issues to be isolated to a single change if they occur.
- **Principle 3: Continuous visibility:** The release calendar should be visible to all three system domains and updated continuously, not simply reviewed at CAB meetings, so that emerging conflicts can be identified as soon as a new release is scheduled.

6.2 Common Calendar Coordination Failures

- Release calendars maintained independently by each system team, without a shared, integrated view, recreate the distributed ownership problem described in Section 2.2 even where a CAB process nominally exists.
- Shared infrastructure changes are scheduled reactively, in response to a single system's urgent need, without checking the calendar against other systems' stable operating periods.



VII. CHANGE REQUEST VOLUME AND CONFLICT DETECTION TRENDS

As multi-system governance matures, change request volume and cross-system conflict detection follow characteristic trends that provide a useful signal of governance program effectiveness.

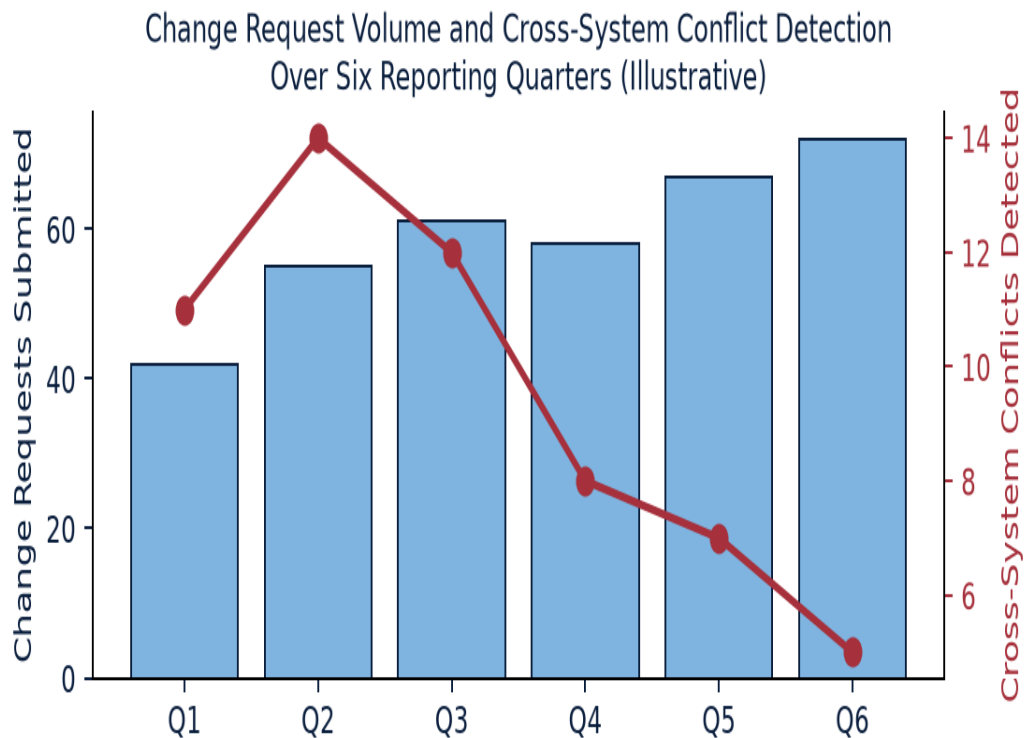


Figure.4. Illustrative change request volume and cross-system conflict detection over six reporting quarters.

7.1 Trend Observations

- **Rising request volume:** Change request volume is illustrated rising from 42 to 72 requests per quarter over the six quarter period shown in Figure 4, a pattern consistent with growing formalization of the change request process itself, as informal changes become tracked and visible for the first time.
- **Declining conflict rate:** Cross-system conflicts detected are illustrated declining from 11 to 5 over the same period, even as request volume rises, consistent with the dependency mapping and CAB review process in Sections 4 and 5 becoming more effective at catching conflicts before release.
- **Interpretation:** The combination of rising request volume and declining conflict rate is a characteristic signature of maturing governance, distinct from simply reducing change activity to avoid risk.

■ GOVERNANCE NOTE

A declining conflict detection count should be interpreted alongside rising or stable change request volume; a declining conflict count paired with declining request volume more likely reflects reduced change activity than improved governance effectiveness.

VIII. ROLLBACK RATES AND GOVERNANCE MATURITY

Release rollback rate, the percentage of releases requiring reversal due to unforeseen issues, provides a direct outcome measure of release governance effectiveness across the maturity stages introduced further in Section 9.

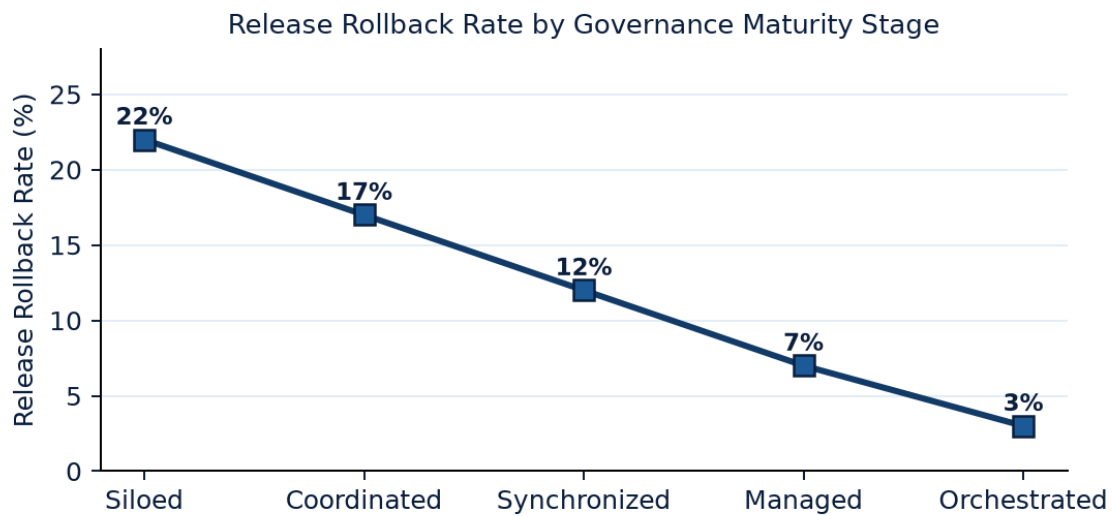


Figure.5. Illustrative release rollback rate by governance maturity stage

8.1 Rollback Rate Observations

- **22%, least mature stage:** Rollback rate is illustrated at 22 percent for agencies at the least mature governance stage examined, reflecting the absence of the dependency mapping and CAB structures described in Sections 4 and 5.
- **3%, most mature stage:** Rollback rate is illustrated declining progressively across each successive governance maturity stage, reaching 3 percent at the most mature stage examined.
- **Steepest improvement:** The steepest illustrated decline occurs between the Coordinated and Synchronized stages, suggesting that the transition from informal coordination to a formal, calendar based synchronization practice, as described in Section 6, may be a particularly high value governance investment.

IX. THE FIVE STAGE RELEASE GOVERNANCE MATURITY MODEL

Agencies can be classified into one of five maturity stages describing their overall multi-system release governance readiness.

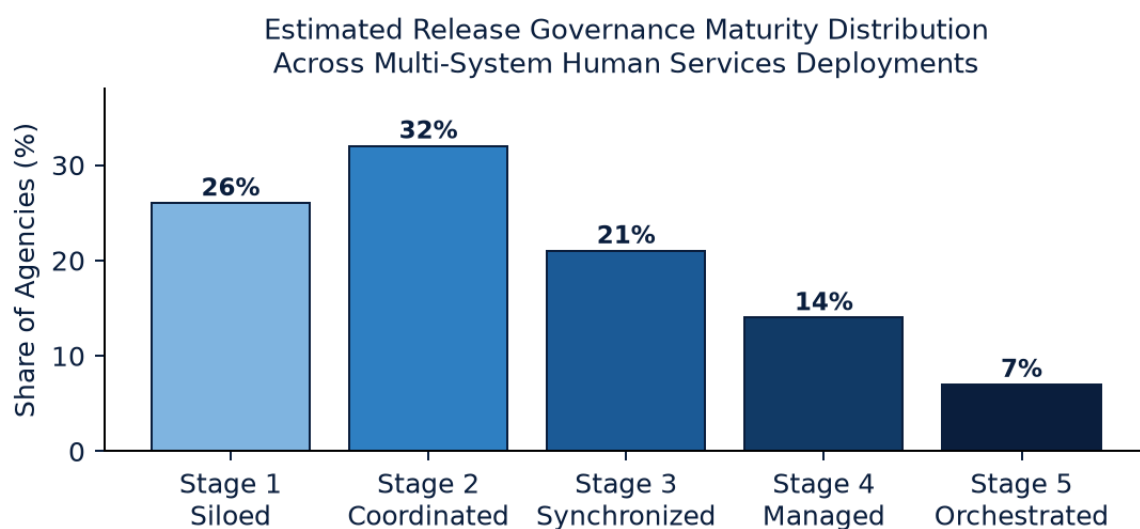


Figure.6. Estimated release governance maturity distribution across multi-system human services deployments.



9.1 Stage Definitions

Stage	Name	Description
1	Siloed	Each system releases independently with no visibility into other systems' release plans or shared dependencies.
2	Coordinated	Informal communication occurs between system teams ahead of releases, but no formal dependency map or CAB process exists.
3	Synchronized	A shared release calendar and basic dependency awareness exist, per Section 6, though CAB review is not yet formalized.
4	Managed	A formal cross-system CAB, per Section 5, operates with a maintained dependency map and defined escalation structure.
5	Orchestrated	Release coordination is proactive and metrics driven, with continuous dependency map validation and predictive conflict detection.

9.2 Estimated Distribution Observations

- 26% of agencies examined were estimated to fall into Stage 1, Siloed.
- 32% were estimated to fall into Stage 2, Coordinated, the largest single stage, representing agencies with informal but not formalized coordination practice.
- 21% were estimated to fall into Stage 3, Synchronized.
- 14% were estimated to fall into Stage 4, Managed.
- 7% were estimated to fall into Stage 5, Orchestrated, the most mature classification observed.

X. GOVERNANCE ROLES AND ESCALATION STRUCTURES

Clear role definition and escalation paths are necessary to operationalize the CAB workflow described in Section 5 at sustained scale.

10.1 Core Governance Roles

Role	Primary Responsibility	Escalation Relationship
System domain representative	Assesses impact of proposed changes on their respective system; represents system interests in CAB review.	Escalates unresolved cross-system disputes to the CAB coordinator.
CAB coordinator	Facilitates cross-system impact assessment; maintains dependency map accuracy; schedules CAB reviews.	Escalates governance process failures to the executive sponsor.
Shared infrastructure representative	Assesses impact of proposed changes on shared components; represents shared infrastructure interests.	Escalates shared infrastructure risk concerns to the CAB coordinator.
Executive sponsor	Provides authority to resolve disputes that cannot be resolved at the CAB level; sets overall governance priorities.	Final escalation point within the governance structure.

10.2 Escalation Triggers

- **Trigger 1:** A proposed change affects a shared component but the requesting system and an affected system disagree on risk classification or required mitigation.
- **Trigger 2:** A release must proceed on an accelerated timeline that does not allow standard CAB review lead time, requiring executive sponsor authorization of an expedited process.
- **Trigger 3:** A post-release incident reveals a dependency map gap, requiring coordinated remediation across multiple system teams.

XI. TESTING AND VALIDATION ACROSS SYSTEM BOUNDARIES

Cross-system integration testing is the technical validation mechanism underlying the CAB review process, confirming that a proposed change behaves as expected across all systems identified in the impact assessment.



11.1 Testing Approach Comparison

Testing Approach	Description	Coverage of Cross-System Risk
Single-system unit and integration testing	Testing conducted entirely within the requesting system's own test environment.	Low; does not exercise actual cross-system interfaces.
Contract testing against documented interfaces	Testing validates that a system's behavior conforms to the documented interface contracts from Section 4.1.	Moderate; catches interface contract violations but not all emergent behavior.
Shared staging environment testing	A shared, persistent staging environment allows testing of actual cross-system interaction before production release.	High; most closely approximates production cross-system behavior.
Post-release synthetic monitoring	Automated synthetic transactions exercise cross-system workflows continuously after release to detect regressions quickly.	High for post-release detection, though it does not prevent pre-release.

11.2 Recommended Testing Sequencing

- **Step 1:** Each system completes standard single-system testing before submitting a change request affecting shared components.
- **Step 2:** Contract testing confirms interface conformance as part of the cross-system impact assessment stage described in Section 5.1.
- **Step 3:** Shared staging environment testing is conducted for any change classified as high impact by the impact classification matrix in Section 4.1.
- **Step 4:** Post-release synthetic monitoring confirms continued cross-system behavior stability following coordinated release execution.

11.3 Shared Staging Environment Governance

A shared staging environment, identified in Table 8 as the testing approach offering the highest coverage of cross-system risk, introduces its own governance requirements distinct from each system's individual test environment practices.

Governance Requirement	Description	Common Failure Mode If Absent
Environment scheduling	A defined process for reserving shared staging environment time across the three system domains.	Teams inadvertently overwrite one another's test data or configuration mid-test.
Data refresh and de-identification policy	A documented policy for refreshing staging data from production sources, including required de-identification given the sensitivity of child welfare and adult services case data.	Stale staging data produces misleading test results, or sensitive data is exposed in a lower-security environment.
Configuration parity tracking	A process confirming that shared staging environment configuration remains representative of production configuration for shared components.	Tests pass in staging but the same change fails in production due to undetected configuration drift.
Access control aligned to production sensitivity	Access to the shared staging environment is governed by controls proportionate to the sensitivity of the case data it may contain.	Staging environment becomes a weaker link in the overall security posture despite production-grade controls elsewhere.



- **Ownership assignment:** Ownership of the shared staging environment itself should be assigned explicitly, typically to the shared infrastructure representative role described in Section 10.1, rather than left to informal agreement among the three system teams.
- **Confidentiality consideration:** De-identification policy for staging data is particularly consequential given that both CJAMS and Adult Services staging data may otherwise contain sensitive case information subject to confidentiality requirements comparable to those examined in prior CCWIS data governance research.

XII. RISK ASSESSMENT AND MITIGATION PLANNING

Multi-system release governance programs carry specific execution risks that agencies should evaluate and mitigate deliberately.

Risk	Likelihood	Impact	Mitigation Approach
Dependency map becomes outdated as systems evolve	High	High	Establish periodic dependency map review as a standing CAB agenda item (Section 4.1).
CAB review perceived as a bureaucratic bottleneck, leading to workarounds	Moderate to High	High	Streamline CAB review for low impact changes; reserve full review for high impact changes only (Section 11.2).
Shared infrastructure representative lacks authority to enforce isolation windows	Moderate	High	Ensure executive sponsor backing for shared infrastructure representative decisions (Section 10.1).
Release calendar maintained inconsistently across systems	Moderate to High	Moderate	Use a single, continuously visible shared calendar rather than independently maintained calendars (Section 6.2).
Testing coverage gaps at system boundaries	Moderate	High	Apply the tiered testing sequencing in Section 11.2 based on impact classification.

12.1 Risk Prioritization Guidance

- Dependency map accuracy risk should be treated as highest priority, since an outdated map undermines every downstream governance activity built on top of it.
- Perceived bureaucratic burden risk should be actively managed through tiered review, since CAB process abandonment reintroduces the siloed risk patterns described in Section 3.1.
- Testing coverage gaps are best addressed through the tiered, impact-based testing sequencing in Section 11.2 rather than applying uniform, maximal testing rigor to every change regardless of risk level.

XIII. IMPLEMENTATION ROADMAP

Translating this framework into an executable program requires sequencing dependency mapping, governance formation, and calendar coordination.

Phase	Approximate Timeframe	Key Milestones
Dependency Discovery	Months 1 to 3	Build the initial shared component inventory and interface contract documentation per Section 4.1.
Governance Formation	Months 3 to 5	Establish the CAB structure and roles per Sections 5.2 and 10.1; formalize the impact classification matrix.
Calendar Integration	Months 4 to 6	Establish a single, shared release calendar per Section 6; migrate all three system domains onto it.
Testing Process Alignment	Months 5 to 9	Implement the tiered testing sequencing in Section 11.2, including shared staging environment access.



Sustained Operations	Months 9 onward	Operate the CAB workflow, monitor the metrics in Section 15, and periodically reassess governance maturity.
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13.1 Governance Cadence Reference

- **Weekly, or as change requests arrive:** Review proposed changes requiring cross-system impact assessment.
- **Monthly:** Review change request volume, conflict detection trends, and rollback rate metrics with the executive sponsor.
- **Quarterly to annually:** Review dependency map accuracy and conduct a full governance maturity reassessment.

XIV. CASE PATTERNS AND INDUSTRY BENCHMARKS

This article synthesizes recurring patterns observed across published IT service management and public sector systems integration literature through early 2023, rather than reporting on a single named agency implementation.

Pattern Observed	Reported Association
Formal dependency map maintained and reviewed regularly	Fewer cross-system conflicts detected relative to change request volume (Figure 4).
Cross-system CAB with shared infrastructure representation	Lower release rollback rates compared to informal, system by system coordination (Figure 5).
Single, continuously visible shared release calendar	Reduced incidence of the cadence mismatch risk pattern described in Section 3.1.
Tiered, impact-based testing sequencing	Reduced testing burden for low impact changes without sacrificing coverage for high impact changes.
Executive sponsor backing for shared infrastructure decisions	Fewer reported instances of isolation window violations.

14.1 Cross-Domain Observations

- **Observation 1:** Agencies where a single state human services or justice technology office oversaw all three system domains reported faster governance formation than agencies where each domain reported through fully separate organizational structures.
- **Observation 2:** Provider Platform teams, given their comparatively frequent release cadence per Table 1, most frequently initiated the shift toward formal cross-system governance, having experienced the cadence mismatch risk pattern most directly.
- **Observation 3:** Agencies that treated the CAB coordinator as a dedicated, resourced role rather than an informal, collateral duty reported more consistent dependency map accuracy over time.

14.2 Lessons from Adjacent Multi-System Modernization Efforts

Patterns observed in CJAMS, Adult Services, and Provider Platform coordination closely parallel lessons from earlier multi-system human services modernization research, including the cross program interoperability work spanning SNAP, Medicaid, and LTSS systems and the data quality and enterprise reporting architecture work addressing CCWIS aligned case management modernization.



Adjacent Modernization Effort	Shared Lesson Applicable to Release Governance
Cross program interoperability across SNAP, Medicaid, and LTSS	The program most structurally similar to a newly integrated domain, historically the most siloed, requires deliberate, resourced attention to avoid remaining excluded from coordination efforts, a pattern echoed by Provider Platforms in Section 14.1.
Data quality and enterprise reporting architecture for CCWIS	A canonical, centrally governed model, whether a canonical data model or a dependency map, degrades without an assigned, resourced ownership role, reinforcing the CAB coordinator staffing lesson in Observation 3.
CCWIS governance model design for case management modernization	Governance structures established before, rather than after, significant technical investment are associated with smoother downstream outcomes, consistent with the phased governance formation sequencing recommended in Section 13.

- **Synthesis:** Taken together, these parallel findings suggest that the coordination challenges addressed in this article are not unique to release management specifically, but reflect a more general pattern in multi-system human services and justice technology modernization: shared infrastructure and shared data require governance investment proportionate to their blast radius, not merely to their individual system's budget or visibility.

XV. KEY PERFORMANCE INDICATORS FOR ONGOING GOVERNANCE

Sustaining multi-system release governance value requires an ongoing measurement framework spanning change volume, conflict detection, and release outcome metrics.

KPI	Definition	Illustrative Target
Change request volume	Number of change requests submitted through the formal CAB process per reporting period.	Rising or stable, reflecting formalized rather than informal change activity.
Cross-system conflict detection rate	Number of cross-system conflicts identified during impact assessment, relative to change request volume.	Declining relative rate, benchmarked against Figure 4.
Release rollback rate	Percentage of releases requiring reversal due to unforeseen issues.	Declining over successive governance maturity stages, benchmarked against Figure 5.
Dependency map accuracy rate	Percentage of post-release incidents that were correctly anticipated by the existing dependency map.	High and consistently improving.
CAB review cycle time	Average time from change request submission to CAB decision.	Short for low impact changes, appropriately longer for high impact changes reviewed with full rigor.
Governance maturity stage progression	Composite score tracked against the five stage model in Section 9.	Steady progression toward higher maturity stages.

■ GOVERNANCE NOTE

KPIs should be reviewed on the weekly, monthly, and quarterly cadence described in Section 13.1, with particular attention to whether the conflict detection rate is declining relative to change request volume, per the interpretation guidance in Section 7.1.



XVI. CONCLUSION AND RECOMMENDATIONS

Change management and release governance across interdependent CJAMS, Adult Services, and Provider Platform systems requires deliberate cross-system coordination mechanisms that traditional, single-system change management processes do not provide. Agencies that build a maintained dependency map, a cross-system change advisory board, and a coordinated release calendar consistently report lower rollback rates and fewer cross-system incidents than agencies coordinating releases informally.

16.1 Summary of Key Findings

- Shared identity, case data, and notification infrastructure create cross-system risk that is invisible to any single system's independent change management process.
- A declining cross-system conflict detection rate, paired with rising or stable change request volume, is a characteristic signature of maturing multi-system governance.
- Release rollback rate declines progressively and substantially across the five governance maturity stages, with the steepest improvement observed in the transition from informal coordination to formal calendar synchronization.
- Tiered, impact-based testing sequencing addresses cross-system boundary risk without imposing uniform maximal testing burden on every change regardless of risk level.

16.2 Recommendations

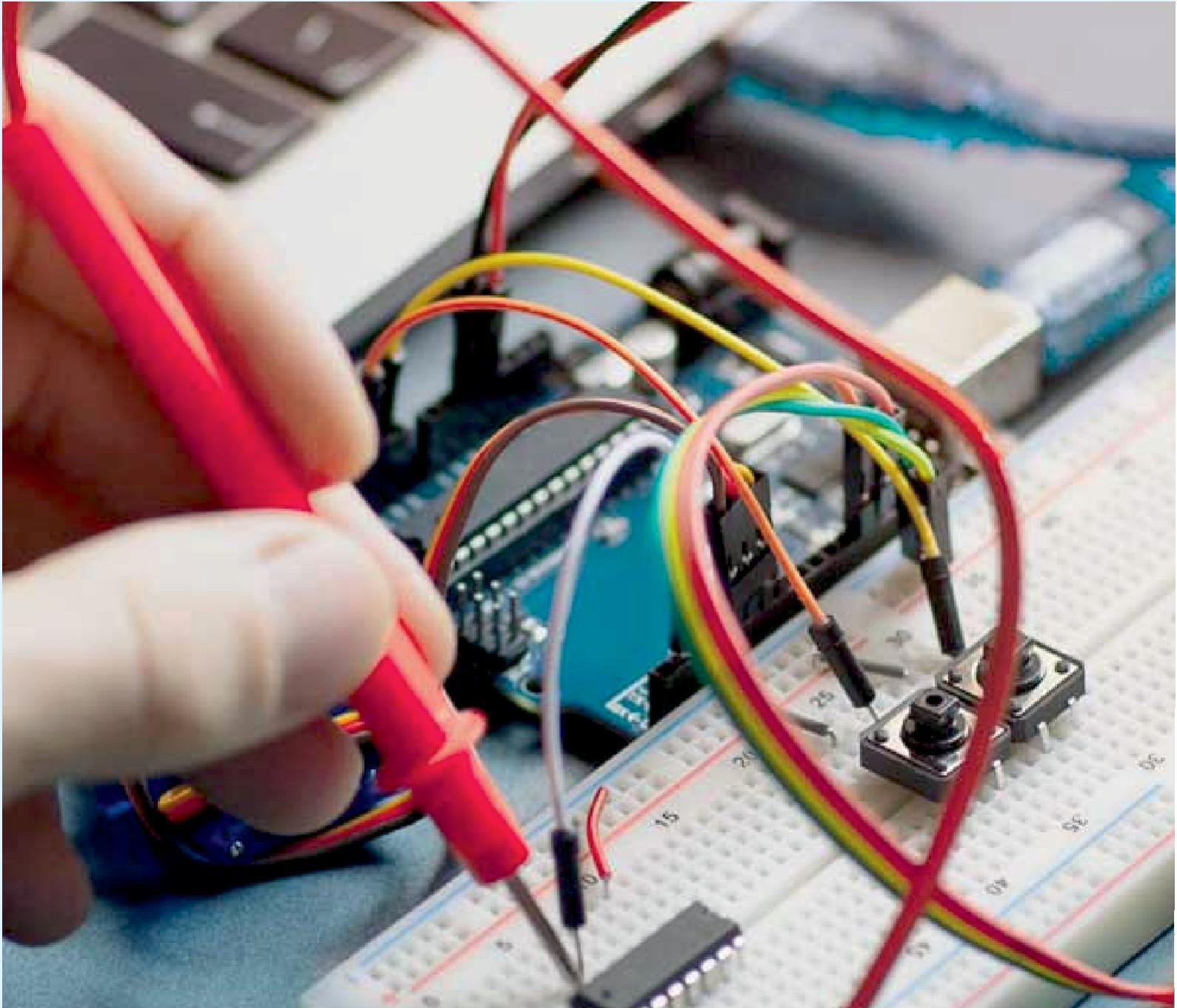
- **Recommendation 1:** Build and maintain a formal dependency map, per Section 4, as the foundational artifact enabling all subsequent cross-system governance activity.
- **Recommendation 2:** Establish a cross-system change advisory board with explicit shared infrastructure representation, per Section 5.2, rather than relying on informal, system by system coordination.
- **Recommendation 3:** Adopt a single, continuously visible shared release calendar, per Section 6, and apply the isolation window and sequencing principles described there.
- **Recommendation 4:** Apply tiered, impact-based testing sequencing, per Section 11.2, to balance cross-system risk coverage against review burden

REFERENCES

- [1] AXELOS. (2019). "ITIL 4 Foundation: IT Service Management." AXELOS Publication.
- [2] Information Technology Infrastructure Library (ITIL). (2011). "ITIL Service Transition," 2011 Edition. The Stationery Office.
- [3] Kim, G., Debois, P., Willis, J., & Humble, J. (2016). "The DevOps Handbook: How to Create World-Class Agility, Reliability, and Security in Technology Organizations." IT Revolution Press.
- [4] Forsgren, N., Humble, J., & Kim, G. (2018). "Accelerate: The Science of Lean Software and DevOps." IT Revolution Press.
- [5] Humble, J., & Farley, D. (2010). "Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation." Addison-Wesley.
- [6] National Institute of Standards and Technology (NIST). (2020). "Security and Privacy Controls for Information Systems and Organizations," NIST Special Publication 800-53, Revision 5, includes change control guidance referenced in public sector release governance literature.
- [7] U.S. Government Accountability Office. (2021). "Information Technology: Agencies Need to Continue Improving Incident Response Practices." GAO Report.
- [8] U.S. Government Accountability Office. (2019). "Information Security: Federal Agencies Need to Address Aging Legacy Systems." GAO-19-471.
- [9] National Association of State Chief Information Officers (NASCIO). (2021). "State IT Governance for Interdependent Systems." NASCIO Research Brief.
- [10] National Association of State Chief Information Officers (NASCIO). (2020). "State IT Operations and Cloud Monitoring Practices Survey." NASCIO Research Brief.
- [11] American Public Human Services Association (APHSA). (2020). "Cross-System Coordination in Human Services and Justice Technology Modernization." APHSA Policy Brief.
- [12] Conference of State Court Administrators (COSCA). (2019). "Court Technology and Case Management System Modernization Guidelines." COSCA Policy Paper.



- [13] National Center for State Courts (NCSC). (2018). "Justice Information Sharing and Interoperability Guidelines." NCSC Technical Report.
- [14] Center for Digital Government. (2021). "Cross-Agency IT Governance in State Government." Center for Digital Government Research Report.
- [15] Government Technology. (2022). "States Confront Release Coordination Challenges Across Shared Justice and Human Services Infrastructure." e.Republic Government Technology Publication.
- [16] Project Management Institute (PMI). (2017). "A Guide to the Project Management Body of Knowledge (PMBOK Guide)," 6th Edition. PMI Publication.
- [17] Beyer, B., Jones, C., Petoff, J., & Murphy, N.R. (2016). "Site Reliability Engineering: How Google Runs Production Systems." O'Reilly Media.
- [18] Behr, K., Kim, G., & Spafford, G. (2004). "The Visible Ops Handbook: Implementing ITIL in 4 Practical and Auditable Steps." IT Process Institute.



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