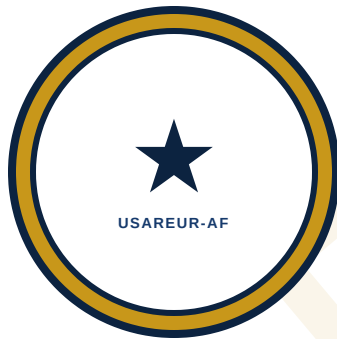


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CONCEPTS GUIDE

# SL 5J



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## CONCEPTS GUIDE — SL 5J: ADVANCED DATA PROGRAM MANAGER — MAVEN SMART SYSTEM (MSS)

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*Specialist Course Manual*

HEADQUARTERS  
UNITED STATES ARMY EUROPE AND AFRICA  
(USAREUR-AF)  
Wiesbaden, Germany

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# CONCEPTS GUIDE — SL 5J: ADVANCED DATA PROGRAM MANAGER — MAVEN SMART SYSTEM (MSS)

**Forward:** SL 5J is not about managing more programs. It is about operating at a level where your decisions shape what the enterprise data architecture becomes — and advising senior leaders on portfolio strategy, not execution status. **Purpose:** Extends mental models from TM-40J Concepts Guide to advanced data program management on MSS. Prerequisite: TM-40J Concepts Guide and SL 4J qualification. *HQ USAREUR-AF · v1.0 · 2026 · DISTRIB: USG only*

## SECTION 1 — FROM PROGRAM MANAGER TO DATA PROGRAM LEADER

### 1-1. The Distinction That Matters

**BLUF:** SL 5J is not about managing more programs. It is about operating at a level where your decisions shape what the enterprise data architecture becomes — and advising senior leaders on portfolio strategy, not execution status.

SL 4J qualified you to run a project: define scope, manage a team, deliver a data product, hand it to operations. That is execution. Execution is necessary. It is not sufficient for SL 5J.

At SL 5J, you are a data program leader. When you approve an Ontology schema, that schema becomes the foundation other products build on. When you accept a vendor deliverable, those technical choices become part of the enterprise. When you brief GO/SES leadership on portfolio strategy, your framing shapes what they fund, defer, and cancel. This is not executional authority extended upward — it is a qualitatively different function.

### 1-2. What Changes at SL 5J

Dimension	SL 4J	SL 5J
Time horizon	Sprints and quarters	Program increments and fiscal years
Unit of analysis	Tasks, features, team velocity	Programs, dependencies, organizational capacity

Dimension	SL 4J	SL 5J
Stakeholder interface	Within a program	Across organizations (III Corps, V Corps, 21st TSC, 10th AAMDC, 56th MDC-E, SETAF-AF, USAREUR-AF HQ, EUCOM, coalition)
Consequence scope	One project	Entire portfolio; poor Ontology design propagates to every downstream product

### 1-3. Developing the Analytical Perspective

SL 5J PMs advise the C2DAO and senior leadership on portfolio strategy — synthesizing across programs, identifying patterns, and constructing a coherent strategic picture. This perspective must be built deliberately.

**Weekly practice:** Review the full portfolio and ask: (1) What is the most important thing we are not doing? (2) What are we doing that we should stop? (3) What dependency, if it breaks, takes down multiple programs?

**Consume broadly.** Read CCIR products, exercise AARs, and commander's priorities — not just PM dashboards. The operational context is the environment your data products serve.

**Test your models.** When you brief portfolio strategy to C2DAO, pay attention to questions you cannot answer. Those gaps reveal the limits of your understanding — fill them.

## SECTION 2 — ENTERPRISE PORTFOLIO STRATEGY — SEQUENCING FOR OPERATIONAL IMPACT

### 2-1. Not All Data Products Are Equal

**BLUF:** Portfolio strategy is the art of sequencing investment to maximize operational impact, respect dependencies, and avoid overcommitting organizational capacity. Senior leaders need honest tradeoff analysis — not a list of everything the team wants to build.

A portfolio of requests will always exceed organizational capacity. Three frameworks, used in combination:

Framework	What It Answers	When to Use
Impact vs. Effort	What maximizes value for the cost?	Initial triage of competing requests
Strategic Alignment vs. Dependency Chain	What must be built before we can build what leadership wants?	Sequencing foundational investments

Framework	What It Answers	When to Use
Quick Wins vs. Foundational Investments	What builds credibility now vs. pays off long-term?	Communicating tradeoffs to leadership

## 2-2. Impact vs. Effort Analysis

Plot every candidate investment on two axes: operational impact (what it enables, how many users, how directly it affects mission decisions) and implementation effort (complexity, duration, dependency on unfinished infrastructure).

Quadrant	Disposition
High impact, low effort	Deliver immediately. Do not deprioritize in favor of complex work.
High impact, high effort	Strategic investment. Plan carefully, resource properly, protect from scope creep.
Low impact, low effort	Batch. Do not let them consume significant PM attention.
Low impact, high effort	Challenge the requirement. Verify stated impact is real and effort estimates are accurate.

**Vignette.** During DEFENDER 2027 portfolio planning, the data team receives 14 product requests simultaneously from V Corps, 21st TSC, 10th AAMDC, 56th MDC-E, SETAF-AF, and USAREUR-AF HQ. Impact-effort analysis identifies three high-impact/low-effort items (readiness dashboard updates completable in one sprint each), two high-impact/high-effort items (logistics forecasting model and personnel movement tracker requiring new Ontology schemas), and nine low-impact items. The PM presents to C2DAO with a recommendation: deliver the three quick wins immediately, initiate the two strategic investments with dedicated teams, defer the remaining nine pending bandwidth. Leadership approves. The team enters the exercise cycle with clarity about what they are building and why.

## 2-3. Dependency Chain Analysis

Impact-effort analysis ignores a critical dimension: dependencies. A high-impact, low-effort product may be impossible to build because its upstream infrastructure does not exist.

Map prerequisite relationships before committing to a portfolio sequence. For each planned product, list technical prerequisites and organizational prerequisites (approvals, data-sharing agreements, access grants). A product with no unresolved prerequisites is ready to start. A product with unresolved prerequisites needs a resolution track first.

Attempting to deliver a downstream product before its upstream dependencies are ready is the most common cause of portfolio delays — and it compounds: a stalled downstream product blocks the next item in the chain, creating cascading schedule risk.

## 2-4. Presenting Portfolio Strategy to Senior Leadership

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A decision-ready portfolio brief surfaces three things:

1. **What we are doing:** Investments currently in motion, expected delivery dates, and operational impact.
2. **What we are deferring and why:** What is not in the current plan, with a clear tradeoff explanation (capacity, dependency, lower priority).
3. **What decisions we need:** Any portfolio decisions above PM authority — funding, access, policy, organizational alignment.

Be honest about tradeoffs. If the strategic sequence requires deferring a capability a senior stakeholder wants, say so directly, explain the dependency or capacity reason, and offer a realistic timeline. Do not bury the deferral in a footnote — hiding tradeoffs removes leadership's ability to make informed decisions and damages credibility when the gap surfaces.

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## SECTION 3 — ARCHITECTURAL DEBT AS A STRATEGIC RISK

### 3-1. What Architectural Debt Is

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**BLUF:** At enterprise scale, architectural debt — poor data models, uncoordinated Ontology growth, undocumented pipelines — is a readiness risk. SL 5J PMs must quantify and communicate it in terms leadership understands.

Architectural debt accumulates when:

- Data models are built independently without coordination, creating redundant, inconsistent representations of the same operational concepts.
- Ontology schemas grow by accretion — each team adds Object Types and properties without governance review — until the Ontology is too large and inconsistent to maintain reliably.
- Pipelines are deployed without documentation, making the builder the single point of failure.
- Integration points between data products are undocumented, so a change to one breaks another only when the downstream product stops working.

In combination, at scale, these create an enterprise architecture that is expensive to maintain, slow to modify, and fragile under operational pressure.

### 3-2. Translating Debt into Leadership Language

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Presenting debt in technical terms guarantees it will be deprioritized in favor of new capabilities. Three translation vectors:

Vector	How to Frame It
Maintenance cost	"We can deliver two new capabilities per quarter today. Without debt reduction, we will be at one per quarter by Q3 as maintenance burden grows."
Development velocity	Trend time-to-deliver new products over 18 months. Degradation traceable to architectural debt — show the data.
Operational risk of failure	Map high-debt, high-criticality pipelines. "If this pipeline fails during DEFENDER, the manual workaround takes 72 hours" — that is a briefable operational risk.

### 3-3. Making the Case for Debt Reduction

Effective framing: debt reduction is not maintenance — it is re-investment to sustain and accelerate future delivery. A well-governed Ontology makes the next five products faster to build. A documented pipeline with automated tests can be handed to any engineer without a six-week knowledge transfer. Debt reduction is capacity generation.

Frame the ask accordingly: "Investing one sprint per quarter in architectural cleanup will recover 15% delivery capacity by year's end — net result is more new capability delivered, not less." Then hold the team to it — measure whether velocity improves and report it.

## SECTION 4 — CROSS-ORGANIZATIONAL DATA PROGRAM COORDINATION

### 4-1. The Federated Command Structure Problem

**BLUF:** Data programs spanning III Corps, V Corps, 21st TSC, 10th AAMDC, 56th MDC-E, SETAF-AF, USAREUR-AF HQ, and coalition partners operate in a federated command structure where no single authority controls all stakeholders. Coordination without authority is the defining challenge of SL 5J data program leadership.

USAREUR-AF cannot direct other organizations to comply with program requirements. V Corps has its own command authority, its own data priorities, and its own C2DAO relationship. 21st TSC operates under a different chain with different mission requirements. 10th AAMDC, 56th MDC-E, and SETAF-AF each have distinct mission sets — IAMD, multi-domain operations, and Africa AOR engagement respectively — with corresponding data requirements. Coalition partners are sovereign. This creates a coordination environment where requirements are negotiated, governance decisions require consensus, and a disagreement between two stakeholder organizations can stall a program indefinitely.

## 4-2. How to Coordinate Without Authority

Principle	Application
Build relationships before you need them	Introduce yourself to V Corps, 21st TSC, 10th AAMDC, 56th MDC-E, and SETAF-AF data teams during steady state. When you need their cooperation on a schema decision, you are calling a contact — not a stranger.
Frame coordination as mutual benefit	Identify the benefit to V Corps of a shared Ontology schema before presenting the governance proposal. If there is no benefit to them, you have a harder case — understand that before the meeting.
Document agreements explicitly	After every coordination meeting that produces a decision, send a written summary within 24 hours: what was agreed, who is responsible, and by when. Creates an audit trail; protects all parties.
Escalate through the right channels	Escalate to the lowest level that has authority over both parties. Do not take a V Corps / 21st TSC / 10th AAMDC disagreement to the four-star before trying to resolve it at the one-star level.

## 4-3. Differing Governance Maturity

Organizations in a multi-stakeholder data program will not have the same governance maturity. USAREUR-AF HQ may have a functioning data governance board, clear metadata standards, and established data steward roles. A subordinate brigade may have none of these.

Governance mismatches create data quality problems downstream: if an upstream producer does not validate against the agreed schema, every product that consumes that data inherits the quality problem.

The SL 5J PM must assess governance maturity across stakeholder organizations at program initiation and design accordingly. Build a maturity development plan for lower-maturity organizations with specific milestones and data team support. A federated data program is only as strong as its weakest upstream contributor.

# SECTION 5 — DATA PROGRAM RESOURCING — MAKING THE CASE

## 5-1. Translating Technical Requirements into Operational Language

**BLUF:** Senior leaders do not fund technical requirements. They fund operational outcomes. Translate resource needs into the language of readiness, risk, and mission impact.

"We need two more data engineers" will not win resources from a GO. "Without two additional engineers, the readiness pipeline will not scale to support DEFENDER 2027 — we will be processing reports manually at T+72 hours, degrading the COP at the moment the commander needs it most" — that might. This is not spin. The technical requirement is real. The operational consequence is real. Connect them explicitly so leadership understands what they are deciding when they approve or deny the request.

## 5-2. Resource Planning Dimensions

Dimension	Key Considerations
Personnel	Distinguish organic military/DA Civilian billets (persistent, slow to hire/develop) from contractor support (faster to surge, but ceiling and labor category constraints apply). Know your contract ceiling and labor categories before briefing a resource need.
Platform	Compute, storage, and licensing are not free or infinite. New model training workloads may require dedicated compute not in the original platform budget. Track consumption by program; surprises in platform costs are avoidable with proactive monitoring.
Time	Build a deferral analysis into every resource request: if not approved, what is the revised delivery timeline and operational consequence? Forces clarity about actual priorities; gives leadership a decision with defined consequences.

## 5-3. The Resource Case Format

Element	Content
Operational requirement	Mission task or commander requirement driving the need
Current gap	What the program cannot do today because of the resource constraint
Request	Specific resource ask (FTE, funding, compute)
Consequence of denial	Operational outcome at risk if the request is not approved

Keep it to one page maximum. Attach a backup slide with technical detail for staff engagement. The GO brief is about the decision, not the technical explanation.

## SECTION 6 — CHANGE MANAGEMENT IN DATA PROGRAMS

### 6-1. Delivery Is Not Adoption

**BLUF:** A data product is not operational until users have changed their behavior. Technical delivery is the beginning of the PM's adoption work, not the end.

At SL 4J, the job ends at deployment. At SL 5J, you own the organizational transition from old process to data-enabled workflow — because if users do not adopt the product, the operational impact promised in the resource case never materializes.

Common adoption failure modes:

- Users continue the old process in parallel "just to be safe."
- Senior leaders do not reference the dashboard in update briefs, signaling to subordinates that it is optional.
- Users encounter friction in the first week and revert without reporting it.
- No one understands how to interpret the data product and it becomes a visual with no analytic value.

### 6-2. Adoption Strategy

Component	Method
Champion identification	Before deployment, identify one credible user per major stakeholder organization. Give them early access, training, and direct support. Peer credibility accelerates adoption more efficiently than any other channel.
High-value visible wins	Design the first 30 days post-deployment to surface wins explicitly. Where did the product save time or change a decision? Capture examples, get permission to share, brief to leadership.
Measurement and reporting	Track active user counts, session frequency, query volume. Report adoption metrics alongside operational impact metrics. Surface lagging adoption as a risk — do not hide it.
Address resistance with evidence	When data product analysis matches or outperforms the manual process, document it and share it in the operational context the resistant user cares about. Do not debate the value of data in the abstract.

### 6-3. Vignette — Transitioning from Email SITREPs to MSS Dashboard

A G3 section at USAREUR-AF HQ has submitted readiness SITREPs by email for six years. The MSS readiness dashboard now covers the same information with better fidelity and reduced lag. Initial adoption is low — staff officers continue emailing SITREPs alongside the dashboard.

SL 5J PM response: (1) Identify a champion in the G3 — a junior officer who sees the efficiency gain and is willing to advocate. (2) Coordinate with the G3 to include the dashboard in the next senior leader update brief, with the G3 explicitly referencing it. (3) Document two specific instances where the dashboard surfaced readiness data faster than the email report. (4) Propose a 60-day transition plan with a defined date after which the email SITREP is optional, then discontinued — get explicit leadership approval for the timeline.

At 60 days, if adoption metrics show 80% of stakeholders are using the dashboard, retire the email process. If below threshold, do not retire — investigate the barrier and address it before cutover.

## SECTION 7 — COALITION AND PARTNER NATION DATA PROGRAM CONSIDERATIONS

### 7-1. The NATO-Integrated Environment

**BLUF:** USAREUR-AF operates in a NATO-integrated environment. Data programs serving coalition requirements must be designed around classification, data-sharing agreements, and interoperability constraints from the start — not retrofitted after the fact.

Coalition data programs are not US data programs with more users. They involve classification boundaries, data sovereignty concerns, different national data handling policies, and interoperability standards that may not align with MSS native formats. A product designed for US users may be technically impossible to share with coalition partners without redesign.

### 7-2. Classification and Data Sharing

Before designing any data product that may serve coalition users, answer four questions:

Question	Guidance
What is the classification of the underlying data?	US CONFIDENTIAL is not releasable to coalition partners without specific release authority. UNCLASSIFIED data may still carry CUI handling requirements that restrict sharing — verify.

Question	Guidance
Is there a data-sharing agreement in place?	The US has bilateral and multilateral agreements with NATO allies governing operational data exchange. PM responsibility: verify the agreement exists before coalition access is granted. Coordinate with J6, the Foreign Disclosure Officer (FDO), and C2DAO legal advisor.
What are the partner nation's data handling requirements?	Some nations (particularly Germany and other EU members) have national restrictions on where their data can be processed or stored. Ingesting partner nation data requires compliance with their requirements.
What interoperability standards apply?	NATO data exchange standards (under the NATO Architecture Framework) apply to operationally integrated data programs. If the product feeds a NATO-integrated operational picture, it must comply.

### 7-3. Designing for Coalition Requirements

Design data programs for their most constrained user from the beginning. If a program will eventually serve coalition users, build the data model, classification handling, and access control for coalition access upfront — do not build US-only and retrofit later.

This does not reduce capability for US users. It means the architecture explicitly handles classification tiers, access control by nationality, and data segregation from the start. More work upfront; significantly less work than retroactive redesign.

**Coalition coordination is a design constraint, not a compliance exercise.** A PM who treats coalition requirements as a checkbox will consistently underdeliver to coalition stakeholders. A PM who treats them as design inputs will build programs that serve the actual NATO-integrated operational environment — which is a strategic requirement, not a compliance obligation.

## SECTION 8 — PROGRAM HEALTH REPORTING TO SENIOR LEADERSHIP

### 8-1. What a Good Program Health Report Actually Communicates

**BLUF:** A good program health report is a decision-support product, not a status update. It tells the reader what they need to decide or act on — not just what is happening.

Most program health reports fail by reporting facts without synthesis. A GO does not need to know that Sprint 14 achieved 87% velocity and three tickets slipped. They need to know: Is the program on track to deliver the DEFENDER 2027 capability milestone? If not, what is the risk and what needs to happen to

recover?

## 8-2. The Three-Category Discipline

Maintain a clear internal categorization of every active risk and issue:

Category	Definition	How to Report
Problems you are managing	Risk understood, mitigation in progress, PM has authority and resources to resolve	Report status. Do not escalate. Provide timeline to resolution.
Problems you need help with	Issue identified but PM lacks authority or resources to resolve independently	Escalate with options. Present two or three COAs with tradeoffs. Make a recommendation.
Decisions above your authority	Requires GO/SES authority — funding, policy, organizational changes	Escalate with recommendation. State the decision needed, relevant facts, and your recommendation. Do not brief the problem without a proposed solution.

This categorization prevents two failure modes: over-escalating (consuming senior leader bandwidth and signaling lack of PM competence) and under-escalating (managing problems above your authority unilaterally, creating risk the command does not know about).

## 8-3. Honest Risk Communication Without Triggering Micromanagement

Practice	Application
Distinguish managed from unmanaged risk	A red metric with a defined mitigation plan and realistic recovery timeline is managed risk — report the plan alongside the metric. A red metric with no mitigation plan is a genuine crisis. Do not let them look the same.
Lead with the recommendation	State the recommended response before the detailed analysis. Leaders who receive a problem statement first will form their own conclusions before reaching your recommendation.
Set reporting cadence appropriately	Agree with your senior leader on what triggers an out-of-cycle report vs. what waits for the regular update. A PM who sends urgent escalations for every minor variance trains leadership to ignore them. Reserve urgency for genuinely urgent situations.

## SECTION 9 — ADVANCED FAILURE MODES — WHAT SL 5J PMS GET WRONG

### NOTE

TM-40J Section 9-6 now addresses dependency mapping mechanics, cascading friction from unmanaged inter-team dependencies, and enforcement standards for product retirement. The advanced failure modes below assume familiarity with that foundation; SL 5J PMs are expected to manage these dynamics at portfolio scale across organizations, not just within a single program.

Failure Mode	What Happens	The Correct Approach
Over-promising to win resources	Promises made to secure budget come due during execution; delivery falls short; credibility is damaged and the program may be cancelled — not for technical failure, but for failing the expectation set.	Present honest capability with honest timelines. If leadership pushes for more, explain the tradeoff: more delivery requires more resources or more time. Give them the choice.
Under-communicating risk until crisis	Optimism, command climate pressure, or loss aversion causes a deteriorating program situation to go unreported until it is visible to external stakeholders. Recovery is harder, more expensive, and trust is lost.	Bad news does not improve with age. Surface risk early, with a mitigation plan, at a moment when there is still time to act.
Managing to schedule at the expense of quality	Under pressure, low-quality deliverables enter production — undocumented assumptions, no automated tests, unapproved Ontology schemas. "Later" never comes; the shortcuts become permanent architectural debt.	Define quality standards at program initiation. Under schedule pressure, choose between slipping the date or descoping — not between the date and shipping something that costs more to fix later.
Failing to plan for program transitions and handoffs	PM treats transition as an event at program end rather than a planned phase. Receiving organization holds undocumented systems they did not build; operational risk increases; capability degrades.	Build the handoff into the program plan from the beginning. Documentation is an ongoing product of program execution, not a closeout task. Standard: any new PM or engineer should be able to understand the architecture and support requirements from documentation alone.

Failure Mode	What Happens	The Correct Approach
Treating coalition coordination as a compliance exercise	Getting FDO approval and confirming data-sharing agreements exist satisfies the minimum standard — but coalition partners who receive no operational value from the program disengage, taking their data and cooperation with them.	Coalition partners are operational stakeholders with legitimate requirements. Design programs that genuinely serve the NATO-integrated operational environment — it is a strategic requirement, not a compliance obligation.

## CLOSING NOTE — THE ENTERPRISE DATA PROGRAM LEADER'S STANDARD

The five failure modes above share a common root: optimizing for the short term at the expense of the long term. Over-promising wins resources today and loses credibility tomorrow. Under-communicating risk avoids a difficult conversation today and creates a crisis tomorrow. Managing to schedule at the expense of quality meets the date today and creates architectural debt for the next PM.

SL 5J program leadership is the discipline of making decisions with a long time horizon — accepting short-term friction in exchange for long-term health of the enterprise data architecture. This requires honesty with leadership, rigor in execution, and the professional confidence to surface bad news early and make resource cases based on fact rather than politics.

The theater data enterprise that supports DEFENDER 2027 and the operations that follow will be built, piece by piece, by SL 5J PMs making these decisions well. That is the standard.

## GOVERNING REFERENCES

Publication	Title	Relevance
Army CIO Memorandum	Data and Analytics Policy (April 2024)	Data governance authority
UDRA v1.1	Unified Data Reference Architecture (February 2025)	Technical reference architecture
DoD Data Strategy	DoD Data Strategy (2020)	Enterprise data management framework
USAREUR-AF C2DAO Guidance	Command governance for data operations	Operational governance

Publication	Title	Relevance
Army DIR 2024-03	Digital Engineering Policy	Army digital transformation directive
AR 25-1	Army Information Technology	IT governance and data management policy
learn-data.armydev.com	CDA Portal	Training platform reference

## PEER SL 5 CROSS-REFERENCES AND WFF INTEGRATION

**Peer SL 5 Publications.** SL 5J program managers oversee work across all advanced specialist tracks. Understanding the conceptual challenges in each companion publication is essential for effective program leadership.

Publication	Track	Coordination Point
SL 5G	Advanced ORSA	Portfolio-level analytical program governance; OR product review
SL 5H	Advanced AI Engineer	AI program lifecycle; governance acquisition
SL 5M	Advanced ML Engineer	ML program portfolio management; automated pipeline governance
SL 5K	Advanced Knowledge Manager	KM system program oversight; knowledge program management
SL 5L	Advanced Software Engineer	Platform engineering program coordination; SWE team structure
SL 5N	Advanced UI/UX Designer	Design team coordination; UX requirements management
SL 5O	Advanced Platform Engineer	Platform capacity planning; infrastructure program management

**WFF Operational Consumer Note.** All MSS data programs managed by SL 5J program managers ultimately serve the six Warfighting Function (WFF) tracks: Intelligence (SL 4A), Fires (SL 4B), Movement and Maneuver (SL 4C), Sustainment (SL 4D), Protection (SL 4E), and Mission Command (SL 4F). WFF staff sections define the demand signal for the portfolio. The program health questions addressed in this guide — adoption, architectural debt, resource cases, coalition coordination — must ultimately be evaluated against whether WFF practitioners are making better operational decisions as a result of the data program.

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