GS1 Australia

Formal submission

Submission to the Cargo Reporting System Transformation Discussion Paper

Regulatory Cargo Reporting Systems, Capability Exploration and Market Options

Submitted to: Australian Border Force - CRST team (CRST@abf.gov.au)

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About this submission. GS1 Australia is a neutral, not-for-profit standards organisation. This submission responds to the questions in Section 5 of the CRST Discussion Paper.[1] We answer where supply chain standards, data architecture and interoperability expertise add value.

The CRST paper expressly excludes vendor evaluation, product comparison and procurement;[1] consistent with that, we do not promote any product, platform or vendor (including our own), and we do not rank suppliers.

Several questions in Section 5 are directed at technology providers and system integrators about their own offerings and commercial models; we are not best placed to answer those and say so, deferring to ICT vendors, system integrators and the operational trade community.

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1. Introduction and overall position

GS1 Australia welcomes the CRST initiative and the decision to engage industry early on capabilities, architecture and delivery before any procurement.[1] Our central message is one of **sequencing and discipline**: the reporting *model* (the subject of the parallel FCRM consultation) should be settled before the *system* is procured, and modernisation should proceed as a staged, standards-based transition rather than a single monolithic replacement.[2]

This position is grounded in evidence. The CRST paper itself estimates incremental delivery across 7–10 years and describes ICS as deeply integrated and complex.[1] Australia's audit history of major cargo system re-engineering, and international experience (the EU is phasing its data-centric reform across more than a decade), both reinforce that staged change with coexistence and fallback is the lower-risk path.[3][4] We summarise our recommendations against each Section 5 question below, repeating each question for clarity.

Summary of GS1's recommendations to CRST

- Adopt a hybrid, staged delivery pathway: stabilise ICS as system of record, add a standards-based data and identity layer, pilot new models, then progressively migrate - avoid a big-bang replacement.
- Anchor the data architecture in open international standards (WCO Data Model for regulatory data; persistent identifiers for products, parties and locations) to maximise interoperability and avoid lock-in.
- Treat DAFF biosecurity and whole-of-government reuse as first-order design constraints, aligned with the Simplified Trade System.
- Design for coexistence and reuse of source-generated commercial data; build trust through identity assurance, data lineage and verifiable credentials (piloted, with safeguards).
- Use a discovery → pilot → staged-rollout delivery model with strong joint ABF–DAFF governance and sustained funding.

2. Solution approach and product type (CRST Q5.1)

Q5.1.1. *In your experience, which of the buy/build/dual pathways have you encountered? Which of these have proven to achieve the most appropriate outcomes?*

As a standards body rather than a system builder or integrator, GS1 is not best placed to recommend a buy, build or dual pathway from delivery experience, and we defer to ICT vendors and system integrators on that question. We can, however, offer a design principle that applies across all three pathways: **decouple the data and identity layer from the application layer.** Whichever pathway is chosen, basing the data architecture on open international standards (rather than bespoke, application-specific semantics) preserves optionality, reduces lock-in and lowers the cost of later change.[5]

International experience suggests the most durable outcomes come from *hybrid* approaches that combine reuse of existing capability, standards-based integration and staged build - rather than a single all-at-once replacement.[6][7][8] This is consistent with the CRST paper's own 7–10 year, incremental framing.[1]

Q5.1.2. *We are also interested in alternative commercial/delivery models; benefits and risks for border regulators; options that best meet operational requirements; international market solutions suitable for Australia; key lessons learned; and how current offerings align with the Australian context and likely adaptations required.*

Commercial and delivery models are matters for vendors and integrators; we do not comment on specific offerings or pricing, consistent with the CRST paper's scope.[1] On the parts where standards expertise is relevant:

- **International solutions and their adaptation.** New Zealand's Trade Single Window (government-centred reuse), Singapore's Networked Trade Platform (networked commercial-data reuse) and the EU Customs Data Hub (data-centric, multi-submission) are three distinct archetypes.

[7][8][6] None is directly portable. Australian adaptation must account for DAFF biosecurity integration, customs revenue, the Trusted Trader context and ICS dependencies. The most transferable elements are the underlying *principles* - submit once and reuse, source-based contribution, shared data standards - not the specific platforms.

- **Benefits and risks for border regulators.** A standards-based, modular approach improves interoperability and whole-of-government reuse and reduces lock-in; the main risk is that, without strong data governance, a multi-source architecture can add complexity. This is a governance problem with known mitigations (identifiers, data lineage, responsibility allocation), not a reason to avoid the approach.
- **Lessons learned.** Australia's own audit record and international experience consistently favour staged delivery, coexistence and fallback over big-bang cutover.

Q5.1.3. *With regard to technical solutions and product types on the market, how could emerging and established technologies (such as cloud-based platforms, automation, advanced analytics and artificial intelligence) be applied to support a modern cargo reporting environment, including associated benefits, risks and constraints?*

We comment at the level of standards and data, not specific products. Established and emerging technologies can support a modern environment in the following ways, each with limits:

- **Persistent identification and structured data.** Globally-unique identifiers for products, parties and locations, and shared data semantics (the WCO Data Model for regulatory data), are the foundation

that makes automation and analytics reliable. Without trustworthy, well-identified data, AI and analytics amplify noise.

- **Verifiable credentials and distributed trust.** Cryptographically verifiable claims (W3C standard) can support identity assurance and trusted reuse of source data across the supply chain. Governance, legal recognition, liability, privacy and revocation require testing before border reliance.
- **Automation and AI.** Useful for decision support, anomaly detection and triage in classification, valuation and origin - but as support for, not a replacement for, legal accountability and regulatory judgement; explainability and clear liability allocation are essential.

[5910] Cloud platform, hosting and AI tooling choices are matters for vendors, integrators and ABF's own ICT and security functions.

3. System capabilities and features (CRST Q5.2)

Q5.2.1. *What services or capabilities does the system offer? (software products, system integrator services, governance support)*

This question is directed at technology and integration providers describing their own offerings. GS1 does not provide a cargo reporting system and is not best placed to answer. We are an industry-neutral standards organisation; our "capability" is the provision and stewardship of open global standards for identification, data capture and data sharing, and the supporting registries and guidance that help trading parties and regulators use them interoperably.

Q5.2.2. *At a high level, what emerging capabilities, trends, or service approaches could influence future cargo reporting systems over time?*

The clearest trend is the global shift toward **granular, source-generated, verifiable, machine-readable data** and data-centric regulation. Specific capabilities likely to shape future systems:

- Multi-party / source-based data contribution, with information progressively assembled into a complete regulatory dataset (as in the EU Customs Data Hub direction).
- Reuse of commercial and logistics data already generated upstream, rather than recreating it through sequential reporting ("Tell Us Once").
- Persistent identification of products, parties and locations as the basis for reliable linkage and analytics.
- Verifiable credentials and distributed trust models for identity assurance and trusted document/data reuse.
- Risk-tiered, entity-based treatment supported by post-border audit and assurance.

[689] These align with WCO and WTO directions and with Australia's Simplified Trade System.[1112]

Q5.2.3. *Where relevant, what system or service characteristics may be important to consider in a regulatory cargo reporting context?*

- **Standards-based and interoperable.** Use open international standards (WCO Data Model for regulatory data; global identifiers) to support whole-of-government reuse and avoid bespoke semantics and lock-in.
- **Data lineage and accountability.** Capture who provided each data element and when, so confidence in data is auditable and responsibility for correction is clear.
- **Coexistence and fallback.** Ability to operate alongside ICS and DAFF systems during a long transition, with reconciliation and fallback.
- **Multi-agency by design.** Built for DAFF and other agencies as co-equal users, not as downstream integrations.
- **Security, privacy and proportionality.** Strong identity, access control and governance; data sharing scoped, lawful and proportionate.

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4. Delivery models and implementation approaches (CRST Q5.3)

Q5.3.1. *Which delivery pathway do you recommend for a modern customs and cargo reporting environment (COTS, bespoke, or dual)? Including feasibility, market maturity, prerequisites (data access, partnerships, integration dependencies), main cost drivers, and opportunities to streamline delivery and reduce cost and risk (e.g. phasing, reuse, standards-based approaches).*

The choice between COTS, bespoke and dual is a delivery question best answered by integrators and ABF's ICT function. GS1's recommendation is about *how* to reduce delivery cost and risk under any pathway: phase the work, reuse existing capability, and standardise the data layer.

- **Prerequisite - settle the model first.** Decide what data is needed, when, from whom and for what decision (the FCRM questions) before procuring a system. Building before the model is settled is a primary source of delivery risk.
- **Standards-based integration.** Adopting the WCO Data Model and persistent identifiers reduces integration cost and rework and supports reuse across agencies.
- **Phasing and reuse.** A data/identity layer around a stabilised ICS lets new capability be added and proven incrementally, reusing ICS as the system of record during transition - lowering risk versus replacement.

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Q5.3.2. *What funding approach is recommended to support sustainable investment across the technology lifecycle, including ongoing maintenance, enhancements, integration costs and long-term digital capability uplift?*

Detailed funding design is a matter for government and is outside GS1's expertise; the CRST paper also notes respondents need not address budget processes.[1] At the level of principle, sustained, multi-year funding (not one-off capital) is essential because a 7–10 year staged transition requires continuity of capability, coexistence costs during overlap, and ongoing standards maintenance. Aligning funding and governance with the Simplified Trade System would reduce duplication across the broader trade-modernisation portfolio.[121]

Q5.3.3. *What might implementation look like (e.g. discovery → pilot → rollout), including anticipated timeframes for each stage?*

We recommend a discovery → pilot → staged-rollout model mapped to three horizons (developed more fully in our discussion paper):

Stage	Focus	Indicative horizon
Discovery + Horizon 1	Stabilise ICS; establish standards-based data and identity layer; identity/anti-piggybacking sandboxes; improve data quality.	0–3 years
Pilots + Horizon 2	Source-based, event-based and shared shipment records for bounded streams; entity-based/tiered treatment; verifiable credential pilots.	3–7 years
Staged rollout + Horizon 3	Progressive migration of functions to a modern environment built on assembled, source-verified data, only where benefit and risk are proven.	7–15 years

Specific timeframes within each stage depend on scope and funding and are best refined with delivery partners; the CRST paper's 7–10 year estimate is consistent with this shape.[1]

Q5.3.4. *Are there governance and project/program management models used in comparable international programs that have proven effective, and which is recommended for an ABF–DAFF partnership (including decision rights and cadence)?*

We do not prescribe a specific program-management methodology, which is a delivery matter. On governance principles relevant to standards and multi-agency reuse:

- Joint ABF–DAFF governance with DAFF as a co-equal decision-maker, not a consulted stakeholder, given biosecurity's dependence on cargo data and release signalling.
- A standing data-governance function owning identifiers, semantics, change control and responsibility allocation - the issues most likely to cause rework if left unmanaged.
- Alignment with the Simplified Trade System's whole-of-government governance to avoid parallel, duplicative structures.

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Q5.3.5. *Are there transitional approaches or phased pathways that could be supported to assist government in moving from current arrangements to a future cargo reporting model?*

Yes - this is the core of our submission. The lowest-risk transition is a **data and identity layer around a stabilised ICS**, enabling new reporting models to run *in parallel* with current cascade reporting for selected streams, with clear fallback. This manages inertia while enabling reform and protects trade continuity. Candidate parallel pilots include identity assurance / anti-piggybacking, low-value e-commerce data enhancement, trusted-importer release, and export-certificate reuse.[11][4]

Q5.3.6. *How does your organisation typically engage with government stakeholders? Is there a preferred approach for working with ABF, DAFF and ICT delivery groups during design, transition and operational phases?*

GS1 Australia engages as a neutral, not-for-profit standards partner. We typically contribute by: convening industry around shared standards; running and supporting sandboxes and pilots with industry associations; and providing standards, registries and implementation guidance. A current example is the industry-led sandbox on data validation and identity (supported by IFCBAA, ACITI and ECA) testing global identifiers and verifiable credentials to address the piggybacking problem.[14] Our preferred approach is co-design through bounded, measurable pilots, with ABF, DAFF and delivery partners, rather than advocacy for any particular product.

Q5.3.7. *What information or access would be required from ABF, DAFF or other stakeholders to enable a more tailored view at a later stage (e.g. data samples, interface information, key contacts)?*

To support standards-aligned pilots, useful inputs at a later stage would include: representative (de-identified) data samples and current message/interface specifications; the points where DAFF biosecurity data and hold/release signalling integrate with ICS; the data elements ABF and DAFF most need earlier and with higher assurance; and access to relevant industry working groups. The specific access required is best scoped jointly when a pilot is defined.

5. Cost efficiency and delivery timeframes (CRST Q5.4)

Q5.4.1. *Based on previous experience, what realistic timeframes are anticipated for onboarding, implementation and transition to steady-state operations?*

GS1 does not deliver large regulatory systems and cannot offer first-hand delivery timeframes; system integrators and ABF's ICT function are best placed to answer. We note only that the CRST paper's own 7–10 year estimate, the depth of ICS integration, and international phasing (the EU's data hub becomes mandatory only in 2034) all indicate a multi-year, staged transition rather than a short delivery.[14]

Q5.4.2. *Any cost-saving opportunities or levers that have proven effective in comparable implementations (e.g. reuse of components, standards-based integration, sequencing)?*

- **Standards-based integration.** Adopting the WCO Data Model and global identifiers reduces bespoke mapping, rework and integration cost, and supports reuse across agencies.
- **Reuse of source data.** Reusing commercial data already generated upstream avoids the cost of recreating it through reporting.
- **Sequencing and coexistence.** Phasing around a stabilised ICS avoids the cost and risk concentration of a big-bang cutover.
- **Alignment with STS.** Reusing whole-of-government building blocks (e.g. shared digital and data infrastructure) avoids duplicative investment.

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Q5.4.3. *In your experience, the average time and design and development of a modern mature trade system?*

This is a delivery-experience question for vendors and integrators; GS1 cannot provide a reliable figure and defers to them. We would caution against benchmarking to any single number, as scope, coexistence requirements and governance maturity drive timeframes more than technology alone.

6. Maturity and technical sophistication (CRST Q5.5)

Q5.5.1. *How mature are the relevant solutions in terms of operational use? (with references to deployments and scale, emerging capabilities expected, and your organisational experience developing a CRS or comparable system, including regulatory outcomes and certifications.)*

GS1 has not developed a cargo reporting system, so we cannot speak to product maturity or offer deployment references for such systems - vendors and integrators are best placed to do so. On the maturity of the *standards and approaches* relevant to CRST, we can be precise about what is proven versus emerging:

- **Mature / proven.** Global identification standards and the WCO Data Model are widely deployed internationally; single-window and pre-arrival/risk-management approaches are well established.
- **Emerging.** Data-centric, multi-submission customs models (e.g. EU Customs Data Hub) are being implemented but are not yet at full scale; "trust-and-check" trader models are new.
- **Early / needs testing.** Verifiable credentials and distributed-trust models for border use are promising but immature operationally; they should be piloted with safeguards, not relied upon yet.

[569] The honest position is that the foundational standards are mature, while the data-centric regulatory architectures that would use them are still maturing - which is precisely why a staged, pilot-led approach is appropriate.

7. Further considerations (CRST Q5.6)

Q5.6. *Please outline any additional technical, operational, regulatory or commercial considerations - including insights, dependencies or risks - that may inform a comprehensive and sustainable future cargo reporting system.*

- **Settle the model before the system.** The single most important dependency: CRST's system choices should follow FCRM's model decisions, not precede them.
- **Biosecurity integrity is non-negotiable.** Any architecture must preserve DAFF hold/release signalling and treat DAFF as a co-equal user.
- **Avoid lock-in.** Favour open international standards and modular architecture over platform-first or single-vendor designs.
- **Data quality and identity are prerequisites for AI/analytics.** Investing in identification, structured data and data lineage first makes later automation reliable.
- **Equity.** Design for both enterprise API integration and low-tech SME/broker-assisted pathways so reform does not disadvantage smaller participants.
- **Measure before you migrate.** Use sandboxes and bounded pilots to generate evidence (including independent validation of any economic claims) before migrating core functions.

We would welcome the opportunity to support standards-aligned pilots and to contribute to data-architecture and interoperability design as CRST progresses.[1]

References

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