Contents

IRSB Pain Point Research & Validation Plan

Intent Receipts & Solver Bonds Protocol *Proving the Problem is Real — Evidence, Deliverables, and Partnership Strategy*

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Executive Summary

This document presents concrete evidence that solver accountability is a real, expensive problem — and outlines actionable deliverables to validate IRSB's product-market fit within 2 weeks.

Key Findings: - **$242,965 in documented solver losses** from just two CoWSwap incidents - **70+ protocols** building on ERC-7683 cross-chain intents standard - **Zero standardized accountability** exists across the ecosystem - **DAO governance bottleneck** makes dispute resolution take weeks, not hours

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Part 1: Evidence That The Problem Is Real

Documented Solver Incidents

Incident	Date	Loss	Source
CIP-22: Barter Solver Hack	Feb 2023	$166,182	CoWSwap Forum
CIP-55: GlueX Exploit	Nov 2024	$76,783	CoWSwap Forum
Total Documented Losses		**$242,965**	

CIP-22: Barter Solver Hack (February 2023) The Barter solver was responsible for a hack that caused CoW DAO a loss of 1 week's fee accrual — approximately $166,182 in protocol revenue.

What happened: - Barter solver's infrastructure was compromised - Malicious settlements drained protocol fees - DAO required manual intervention via governance vote - Resolution took 3+ weeks from incident to slashing

Source: https://forum.cow.fi/t/cip-22-slashing-of-the-barter-solver-responsible-for-a-hack-causing-cow-dao-a-loss-of-1-week-fee-accrual/1440

CIP-55: GlueX Solver Exploit (November 2024) The GlueX solver was slashed for an exploit resulting in $76,783 in user losses.

What happened: - GlueX solver executed settlements that violated user constraints - Users received less than their specified minimum output - Manual forensic analysis required to prove violations - DAO governance vote required for slashing

Source: https://forum.cow.fi/t/cip-55-slashing-of-the-gluex-solver/2649

Systemic Problems Validated by Protocol Teams

1. CoWSwap DAO Governance Pain CoWSwap has documented ongoing governance challenges:

- **CIP-13:** Debates over pennying/overbidding rules
- **CIP-72:** Aligning quoting and solving behavior
- **Manual DAO votes** required for every dispute

The Problem: Every slashing event requires: 1. Forum post with evidence 2. Community discussion (days) 3. Snapshot vote (3-7 days) 4. Execution (additional delays)

Total resolution time: 3-4 weeks minimum

IRSB Solution: Deterministic slashing — if `outcome < minOut`, automatic slash within 24 hours.

2. UniswapX Filler Accountability Gap Anoma Research's analysis of UniswapX identified a critical gap:

> "The question is whether there is an accountability framework such that fillers can be permissionless while ensuring they do not collude to offer users sub-optimal fills."

The Problem: UniswapX has: - No filler bonds - No slashing mechanism - No standardized receipts - No reputation system

IRSB Solution: Standardized bond/receipt infrastructure for any ERC-7683 compatible protocol.

3. 1inch Resolver Blind Spot From 1inch Fusion FAQ:

> "1inch does NOT assess resolvers' private backend code"

The Problem: - Resolvers can secretly implement unfair pricing - Only ex-post legal enforcement available - No real-time monitoring of resolver behavior - Opaque "Unicorn Power" reputation system

IRSB Solution: On-chain IntentScore oracle with transparent scoring methodology.

4. Network Liveness Risk Across Protocol documented their improvement from 18% to 2.3% failure rate — but:

The Problem: - No standardized timeout penalties - Failed fills have no automatic recourse - Users must manually file disputes

IRSB Solution: Block timestamp > deadline = automatic 100% bond slash.

Part 2: Actionable Deliverables

Deliverable 1: Accountability Gap Report (3-5 days)

Objective: Quantify the exact problem using on-chain data.

Methodology: 1. Create Dune Analytics query for CoWSwap intent failures (past 7 days) 2. Categorize failures by type: - Timeout (expiry passed, no settlement) - MinOut violation (received < promised) - MEV extraction (slippage beyond bounds) - Non-delivery 3. Calculate dollar value at risk 4. Breakdown by solver

Output: 3-page PDF report showing: - "X% of intents had violations with no recourse" - Dollar value at risk per month - Solver-by-solver breakdown

Outreach Template After Report:

```
Hi [Solver Name],

We analyzed CoWSwap intents for the past week:
- 4.2% of fills had constraint violations
- Average user recovery time: 18 hours
- $2.3M in uncompensated failures

IRSB would have prevented 100% via automatic slashing.

[Report PDF attached]

Interested in piloting?
```

Deliverable 2: Solver Reputation Dashboard (5-7 days)

Objective: Public dashboard showing solver performance from on-chain data.

Tech Stack: - The Graph subgraph (CoWSwap events) - Next.js + Vercel (free tier) - No backend needed

Metrics to Display:

Solver	IntentScore	Fill Rate	Avg Speed	Slashing Events
Beaver	94	99.8%	12s	0
PMM	91	99.2%	15s	1
CowDAO	87	98.1%	18s	3

IntentScore Formula:

```
IntentScore = (SuccessRate × 0.4) + (SpeedScore × 0.2) +
              (SlippageScore × 0.2) + (DisputeScore × 0.2)
```

Value Proposition: - Solvers see competitive advantage from good scores - Data-driven proof that differentiation is real - Live URL to share in outreach

Deliverable 3: Solver Interview Campaign (1-2 weeks)

Target: Top 10 CoWSwap solvers by volume

Interview Template (30 min):

1. Current State (10 min) - "How do you prove intent execution to users today?" - "How do you handle disputes or failed fills?" - "What % of daily fills could fail due to network/MEV/timeout?"

2. Economic Pain (7 min) - "What does proving your execution cost you?" - "How much time on post-execution disputes?" - "Biggest reputational risk in your operation?"

3. Validation (8 min) - "If you could post cryptographic receipts, would that change your business?" - "What would cause you to adopt a standardized format?" - "How would a reputation oracle affect your position?"

4. Partnership (5 min) - "Would you pilot this for [specific benefit]?" - "What would a 3-month trial need to prove?"

Where to Find Solvers: - CoWSwap Telegram: #solvers channel - On-chain: Top addresses by settlement volume - Twitter: @CoWSwap mentions

Deliverable 4: Demo Video (1 week)

Objective: 5-minute click-through showing failure scenario.

Scenario Script:

WHAT HAPPENS TODAY: 1. User submits 100 USDC → 1 ETH intent 2. Solver executes 3. Settlement: user gets 0.97 ETH (< minOut of 0.99) 4. User has no recourse 5. Solver keeps fees

WHAT HAPPENS WITH IRSB: 1. Same intent submitted 2. Solver posts cryptographic receipt + bond 3. User/anyone challenges (outcome < minOut) 4. Automatic slashing (no DAO vote) 5. User refunded 80% of slash 6. Solver loses reputation

Format: Figma prototype or Loom recording

Part 3: Partnership Outreach Strategy

CoWSwap Approach

Phase 1: Soft Signal (Week 1)

```
CoWSwap Telegram #solvers:

"Hi team,
```

```
Building IRSB - standardized accountability for ERC-7683 solvers.
Piloting with 5 CoWSwap solvers on Sepolia.

Zero cost: we handle integration, solvers opt-in, UX unchanged.

[Link to Dashboard / Report]

Interested solvers: DM us."
```

Phase 2: Direct Outreach to Top 3 Solvers

```
Subject: Pilot Opportunity - Solver Reputation System

Hi [Solver Name],

You're top 5 CoWSwap by volume. We're launching a standardized
reputation system for intent solvers.

Pilot:
- 8 weeks (Sepolia → L2)
- 0.1 ETH bond minimum
- 1-2 dev days integration
- Public reputation score + reduced disputes

Taking 5 pilots. First-come-first-served.

[Calendar Link]
```

Across Protocol Approach

```
Subject: IRSB + Across Cross-Chain Receipts

Hi Across Team,

Across relayers are gold standard for cross-chain. IRSB adds
reputation + accountability layer.

Pilot: 5 relayers, cross-chain receipt attestation, no economic changes.

Success = lower user dispute rates + higher trust.

[Calendar Link]
```

1inch Approach

```
Subject: IRSB - Cross-Intent Reputation Standard

Hi 1inch,
```

```
You're largest intent router ($28.6B monthly). IRSB solves your
support problem: proving resolver execution.

Proposal: Optional receipts, opt-in resolvers, license IntentScore API.

Early win: Reduce dispute volume + improve resolver stickiness.

[Calendar Link]
```

Part 4: Differentiation — The Gaps IRSB Uniquely Fills

The Core Problem Statement

> "ERC-7683 explicitly delegates accountability to fillers. No standard exists." — ERC-7683 Specification, Section 4.2

Every intent protocol faces the same question: **Who enforces solver promises?**

Gap Analysis: What Exists vs What's Missing

Capability	CoWSwap	1inch	UniswapX	Across	IRSB
Solver bonds	Protocol-specific	Staked 1INCH	None	Relayer deposits	**Standardized**
Slashing	DAO vote required	Ranking penalty only	None	Manual	**Deterministic, automatic**
Receipts	None	None	None	None	**Cryptographic proofs**
Reputation	Informal	Unicorn Power (opaque)	None	None	**On-chain IntentScore**
Cross-protocol	Locked	Locked	Locked	Locked	**Protocol-agnostic**
Timeout enforcement	None	None	None	None	**Automatic slashing**

The 5 Gaps IRSB Uniquely Fills

Gap 1: No Standardized Receipts **Current State:** Solvers execute intents with no verifiable proof

Evidence: CIP-22 and CIP-55 — when disputes happen, proving what occurred requires forensic analysis

IRSB Solution: Cryptographic receipts with intent hash, constraints hash, outcome hash, and solver signature

```
struct IntentReceipt {
    bytes32 intentHash;        // Original intent
    bytes32 constraintsHash;   // User's requirements
    bytes32 outcomeHash;       // Actual result
    bytes32 evidenceHash;      // IPFS proof bundle
    bytes solverSig;           // Non-repudiable commitment
}
```

Gap 2: DAO Governance Bottleneck **Current State:** Every dispute requires DAO vote (weeks/months)

Evidence: CIP-22 slashing took forum proposal → vote → execution (3+ weeks)

IRSB Solution: Deterministic slashing — if `outcome < minOut`, automatic slash, no governance

CoWSwap Today	IRSB
Dispute → Forum post	Dispute → On-chain challenge
→ Discussion	→ 1-hour evidence window
→ Snapshot vote	→ Automatic resolution
→ Execution	→ Immediate slash/refund
(3-4 weeks)	(< 24 hours)

Gap 3: No Timeout Enforcement **Current State:** If solver times out, user waits indefinitely or manually cancels

Evidence: Across documented 18% → 2.3% failure rate improvement, but no penalty for timeouts

IRSB Solution: Block timestamp > deadline = automatic 100% bond slash

Gap 4: No Cross-Protocol Reputation **Current State:** Solver reputation is siloed — good CoWSwap solver has no reputation on 1inch

Evidence: 1inch uses "Unicorn Power" (opaque), CoWSwap has informal rankings, no interoperability

IRSB Solution: IntentScore oracle queryable by any protocol

```
function getIntentScore(address solver) external view returns (uint256);
```

Gap 5: Protocol Lock-In **Current State:** Each protocol builds custom accountability (if any)

Evidence: CoWSwap has bonds, 1inch has staking, UniswapX has nothing — no standard

IRSB Solution: ERC-7683 compatible, works with any intent protocol

Why Competitors Won't Build This

Competitor	Why They Won't
CoWSwap	Accountability is their competitive moat — they won't open-source it
1inch	Resolver management is proprietary advantage
EigenLayer	Horizontal infrastructure — builds platforms, not applications
Symbiotic	Restaking focus — accountability layer is out of scope
OIF (Ethereum Foundation)	Standards body — defines specs, doesn't ship products

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Part 5: 2-Week Execution Timeline

Week 1

Day	Task
1	Set up Dune query for CoWSwap intent failures
2	Deploy contracts to Sepolia (already done) + verify
3	Publish npm SDK + integration guide
4	Build Solver Dashboard (The Graph + Next.js)
5	Write Accountability Gap Report
6	Create interview templates + LOI
7	Prepare email templates for top 10 solvers

Week 2

Day	Task
8-10	Post in CoWSwap Telegram + direct outreach top 3
11	Schedule first 3 onboarding calls
12	Deploy demo video
13	Send partnership proposals to CoWSwap/Across/1inch
14	Schedule partnership calls + compile results

Part 6: Success Metrics

Metric	Week 2 Target	Week 4 Target
Solvers reached	10	25
Pilot signups	2	5
Partnership calls	1	3
Dashboard views	100	1K
npm SDK downloads	10	100

Part 7: Letter of Intent Template

```
LETTER OF INTENT - IRSB Protocol Pilot Partnership

DATE: __________
PARTIES: IRSB Protocol ("Provider") + [Protocol] ("Partner")

1. PILOT SCOPE
   - Duration: 3 months
   - Network: Sepolia → Arbitrum
   - Solvers: 5-10 (opt-in)

2. PROVIDER RESPONSIBILITIES
   - Deploy IRSB contracts
   - Integrate with Partner's receipt format
   - Technical support for onboarding
   - Weekly metrics (integration time, slashing events)

3. PARTNER RESPONSIBILITIES
   - Nominate pilot solvers
   - Integration guidance (API, settlement format)
   - Surface reputation scores in UI (optional)
   - Feedback on friction

4. SUCCESS METRICS
   - Integration time: <4 hours/solver
   - Slashing accuracy: 0 false positives
   - Adoption: All 5 solvers receipting in 2 weeks
   - Reputation impact: 10%+ improvement in user selection

5. NON-BINDING (except confidentiality)

SIGNATURES: __________
```

Part 8: Key Evidence Links

CoWSwap Slashing Incidents

- CIP-22: Barter Solver — https://forum.cow.fi/t/cip-22-slashing-of-the-barter-solver-responsible-for-a-hack-causing-cow-dao-a-loss-of-1-week-fee-accrual/1440
- CIP-55: GlueX — https://forum.cow.fi/t/cip-55-slashing-of-the-gluex-solver/2649

Governance Discussions

- CIP-13: Pennying — https://forum.cow.fi/t/cip-13-rules-of-the-solver-competition-update-proposal-to-ban-pennying/1119
- CIP-72: Quoting/Solving Alignment — https://forum.cow.fi/t/cip-72-aligning-quoting-and-solving-behavior-of-solvers/3079

Accountability Gap Analysis

- UniswapX Anoma Research — https://anoma.net/research/uniswapx
- 1inch Fusion FAQ — https://help.1inch.com/en/articles/6796085-what-is-1inch-fusion-and-how-does-it-work

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Appendix: Technical Architecture

`SolverRegistry`

- `Registration`
- `Bond mgmt`
- `Slashing`
- `Reputation`

`IntentReceiptHub`

- `Receipt post`
- `Disputes`
- `Finalization`
- `Settlement`

`DisputeModule`

- `Evidence`
- `Escalation`
- `Arbitration`

Key Constants

Parameter	Value	Purpose
MINIMUM_BOND	0.1 ETH	Solver activation threshold
WITHDRAWAL_COOLDOWN	7 days	Bond withdrawal delay
MAX_JAILS	3	Jails before permanent ban
CHALLENGE_WINDOW	1 hour	Time to dispute receipt
EVIDENCE_WINDOW	24 hours	Evidence submission period
ARBITRATION_TIMEOUT	7 days	Default resolution deadline

Slashing Distribution

Recipient	Standard Slash	Arbitration
User	80%	70%
Challenger	15%	—
Treasury	5%	20%
Arbitrator	—	10%

Conclusion

IRSB fills a critical gap in the intent-based transaction ecosystem. With $242K+ in documented losses, no standardized accountability across protocols, and governance bottlenecks delaying dispute resolution by weeks, the market need is clear.

The 2-week execution plan provides actionable deliverables: 1. **Accountability Gap Report** — Quantify the problem 2. **Solver Dashboard** — Public proof of differentiation 3. **Interview Campaign** — Direct validation from solvers 4. **Partnership Outreach** — CoWSwap, Across, 1inch pilots

Next Step: Execute Week 1 deliverables and begin solver outreach.

IRSB Protocol — The Credit Score Layer for Intent Solvers