

STAYING IN THE RACE:

Digital Risk in Modern Finance

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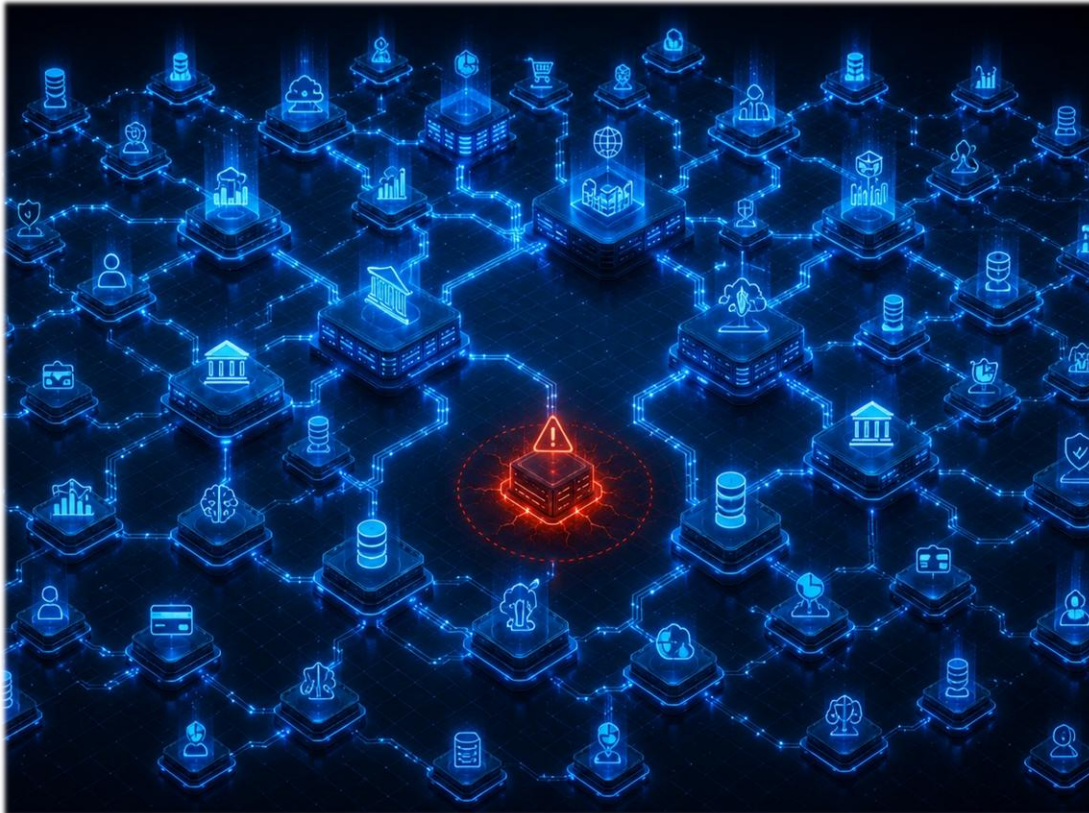
*“In an interconnected financial ecosystem, how does market infrastructure remain resilient if an **automated, systemic shock** occurs?”*

- South African National Treasury Directive





A New Regulatory Mindset



Assumed Inevitable Failure

Regulators are no longer assuming failures are rare, random, or localised. They assume complex networks will fail under extreme automated stress.

The only metric that matters: is the system's failure survivable, or is it terminal to the macroenvironment?





PART ONE

The Collapse of Time-to-Exploit





Project Glasswing

Vulnerabilities at Scale

Project Glasswing and the Claude Mythos research demonstrated a structural inversion in defensive architecture.

When automated code analysers discover and execute exploits instantly, **human remediation capacity becomes the ultimate bottleneck.**





The Fall of Defensive Asymmetry

The Historic Standard

Operational risk assumed a defensive delay. Finding vulnerabilities was difficult; exploiting them took skilled labour and weeks of manual trial. Defenders had 30 to 90 days to patch and test.

The 2026 Reality

Autonomous AI models scan codebases, find thousands of high-severity bugs, and generate weaponised exploits instantly. The vulnerability-to-exploit pipeline is collapsed in real-time.





The Remediation Deficit

~0

EXPLOIT VELOCITY WINDOW

Defending on Hope

If exploit time approaches zero, and patch time doesn't... loss is not probabilistic anymore. It's deterministic.

If $t_{\text{exploit}} \rightarrow 0$ and

$t_{\text{patch}} > 0$ then

then $P(\text{loss}) \rightarrow 1$





Redefining Controls



Patching and Audits are Hygiene

Traditional controls still matter, but they are no longer primary shields. They are standard operational hygiene, similar to washing hands.



Automated Feedback Loops

Risk management must shift to systematic interrupt functions, exactly like electronic circuit breakers in highly volatile equity markets.



The Real Control Question

The paramount risk question is no longer “How do we prevent a breach?” but “When a system breaches, does the failure propagate or contain?”





PART TWO

The Formula 1 Paradigm





Telemetry and Model Drift

Limits of Optimisation

Under stable environments, F1 telemetry models calculate and execute perfect lap-time strategies. But racetracks are chaotic systems with sudden shifts, localised rain showers and debris.

If models run a completely closed loop, a minor data mis-specification keeps a car on slick tires during a flash downpour – optimising right into a crash.





Active Systemic Isolation

The Monaco Model

Monaco lacks geographical space for massive run-off zones. It survives incidents through active infrastructure: specialised cranes and highly trained marshals at every corner.

Instead of trying to save the crashed car, the instantly hook and hoist it off the track – **isolating the failure to keep the race moving.**





Entity vs. System Resilience

Entity-Level Overrides

An individual driver feeling loss of traction, or an engineer seeing a dark cloud, acts as a licensed override to save one specific car.

Parallel: A single bank managing its liquidity buffer to survive localised stress.

System-Level Infrastructure

Run-off areas do not prevent a car from making mistakes. They exist to ensure that when a car does spin out, the entire track does not suffer a cascade blockage.

Parallel: Systematic structures built to absorb node failures without halting the market.





PART THREE

The Nickel Shock Case Study

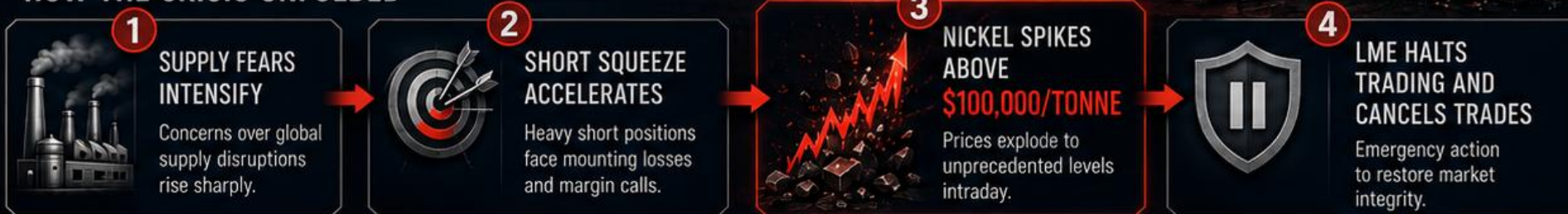


2022 NICKEL MARKET CRISIS

SHORT SQUEEZE • EXTREME VOLATILITY • TRADING HALTED



HOW THE CRISIS UNFOLDED



WHAT CAUSED THE CRISIS?

A short squeeze and margin stress, amplified by supply fears after Russia's invasion of Ukraine, triggered a disorderly nickel market.

KEY FACTS



MARCH 8, 2022

Date of historic spike



INTRADAY SPIKE

>\$100k/TONNE

Record highs



TRADING

SUSPENDED

LME halts trading



TRADES

CANCELED

All trades on March 8 canceled



MARKET REOPENED

MARCH 16

After system and policy review

MARKET IMPACT



Extreme volatility unprecedented in metals markets



Billions in losses across the financial system

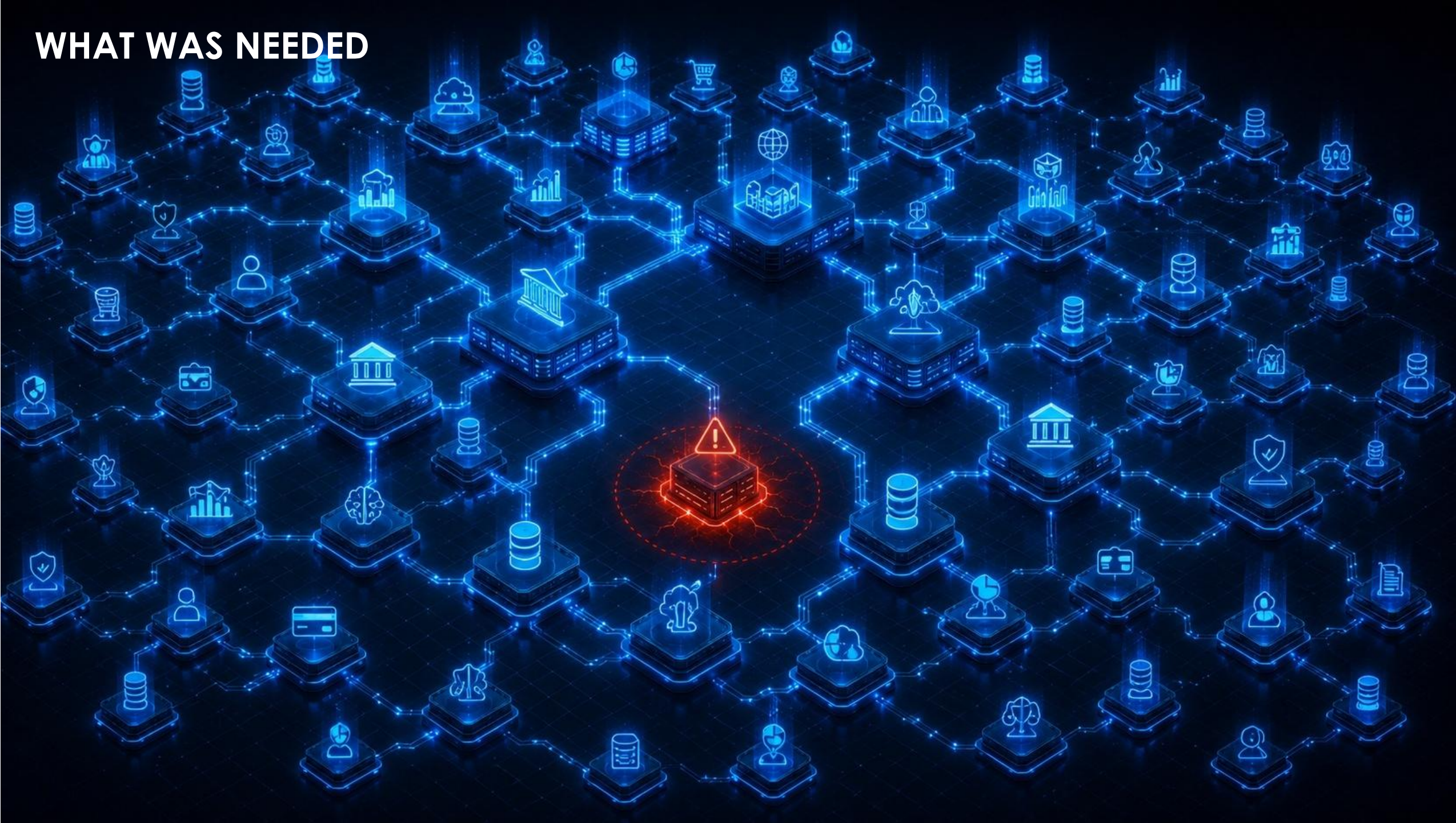


Confidence shock and liquidity stress



Global commodities markets under scrutiny

WHAT WAS NEEDED



WHAT ARRIVED





The Systemic Financial Market Parallel



Highly Automated

Real-time valuation models continuously optimise collateral without structural buffers, speeding up systemic velocity.



Tightly Coupled

Price drops immediately trigger massive, margin requirements running simultaneously on the same code rules.



Herd Actions

Multiple institutions respond rationally to identical signals, creating a single, accentuated positive feedback loop perpetuating chaos.

Every participant in the loop was acting rationally. That is exactly why it cascaded.





Even Closer to Home



Where This Hits a Bank

- Collateral revaluation → immediate liquidity pressure
- Liquidity pressure → forced asset sale
- Forced sale → price feedback loop
- Feedback loop → capital impairment

And once the loop starts, no individual desk can stop it!





PART FOUR

Designing Financial Market “Cranes”





Decoupled Architecture

Deliberate White Space

Modern networks are designed with daisy-chained, real-time links. Survivable architectures require deliberate white space: deterministic, physical, or logical gapping that forces manual or automated slow-down zones.

Isolated Authority

Implement boundary layers that are not smart, rule-bound, and robust. These layers do not need intelligent machine logic – they need complete predictability to quarantine failing assets.

This is the direction regulators are already moving toward, whether market infrastructure is ready or not.





What This Looks Like in SA Fixed Income

Intengo's DCM Crane

- Independent price discovery outside dealer balance sheets
- Deterministic allocation rules
- Conditional control gates
- Decision making decoupled from automated settlement





Actuarial Imperatives



Error Budgeting

Error budgeting forces a hard trade-off: once instability breaches a defined threshold, optimisation stops and intervention becomes mandatory.



Define Survivability Boundaries

Risk management must shift to systematic interrupt functions, exactly like electronic circuit breakers in high volatile equity markets. If it can't be parameterised, it can't be governed!



Ecosystem Engineering

The paramount risk question is no longer “How do we prevent a breach?” but “When a system breaches, does the failure propagate or contain?”





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*If your controls rely on reaction,
you are already out of the race.*

*Survivability has to be
pre-committed in the structure.*

Thank you

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