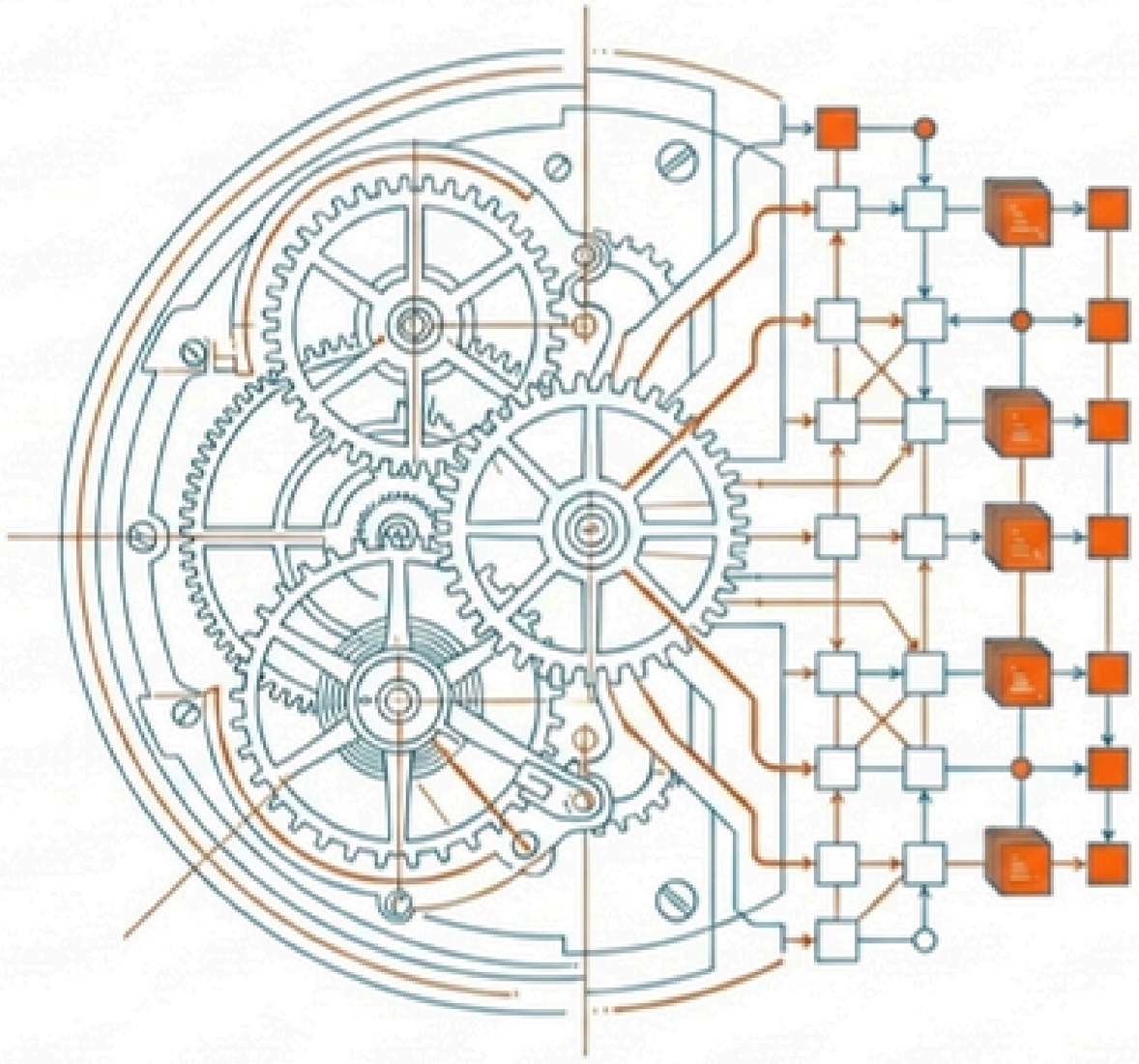
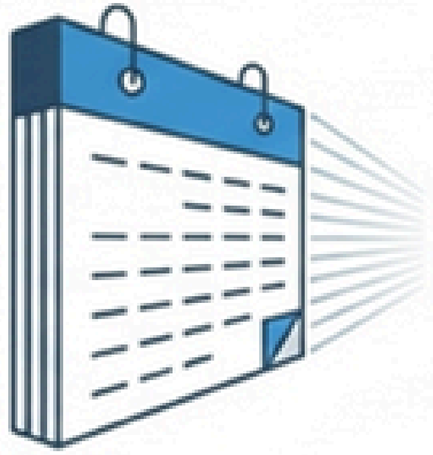
The quantum clock: securing data against future decryption

The cryptographic foundations of the last three decades are reaching the end of their useful life.



The executive illusion vs. the quantum reality



The boardroom assumption

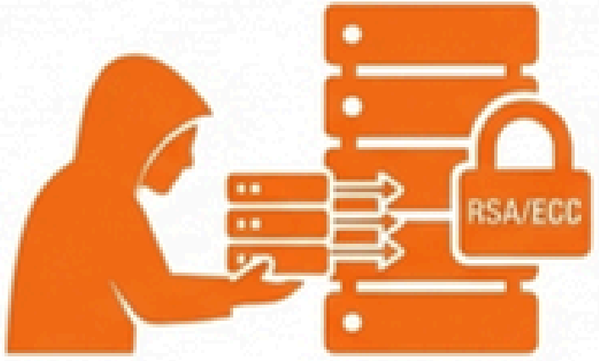
Quantum computing is a decade away. It's a theoretical, future challenge that belongs in the server room, not the boardroom.

The quantum reality

The threat is operational today. State-level and sophisticated criminal actors are actively executing **Harvest Now, Decrypt Later (HNDL)** attacks. It is an active, accelerating existential business risk.

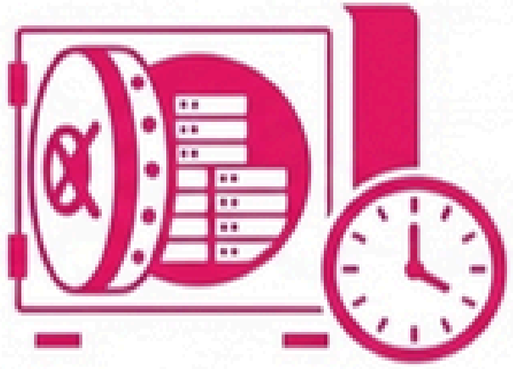
The threat is already operational: Harvest now, decrypt later

Stage 1: Present (capture)



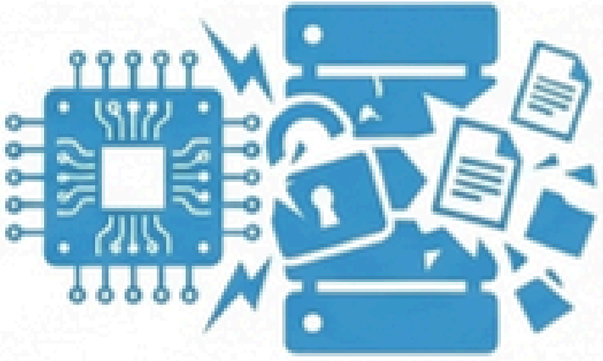
Adversaries bypass current decryption limitations by scraping and exfiltrating fully encrypted, highly sensitive corporate data.

Stage 2: Near-future (cold storage)



Stolen data is stockpiled in adversary archives, waiting for computational maturity.

Stage 3: Tomorrow (exploit)



Once a cryptographically relevant quantum computer comes online, the data is decrypted and exploited.

The shrinking window for action

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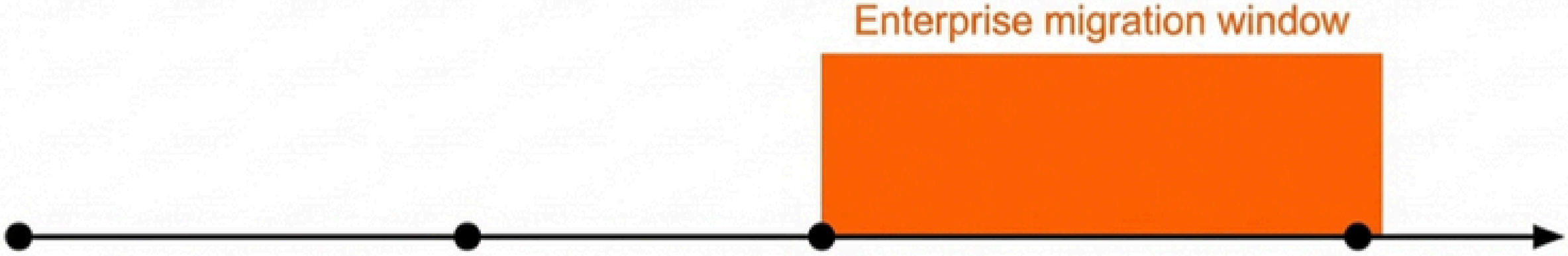

2016
NIST launches post-quantum cryptography standardization project.

2022
Western intelligence confirms active HNDL attacks stockpiling encrypted data.

2024
NIST finalizes first baseline PQC standards (ML-KEM, ML-DSA).

2030–2035
(Estimated Q-day)
A cryptographically relevant quantum quantum computer can break RSA-2048 in hours.

Key takeaway: Regulatory compliance, procurement cycles, and infrastructure migration take years. The time deficit begins now.

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Two fatal blind spots in current strategy

The blind spot	Business consequence & required shift
1. Conflating awareness with action	Organisations know quantum is coming, but without a structured vulnerability assessment, they are flying blind. You cannot know which systems are at risk or where to begin migration.
2. Relegating the threat to IT	Highly targeted data—IP, financials, strategic communications—represents existential risk. This requires boardroom oversight, not just a server room patch.

Transitioning to action: The vulnerability assessment

The Vulnerability Assessment

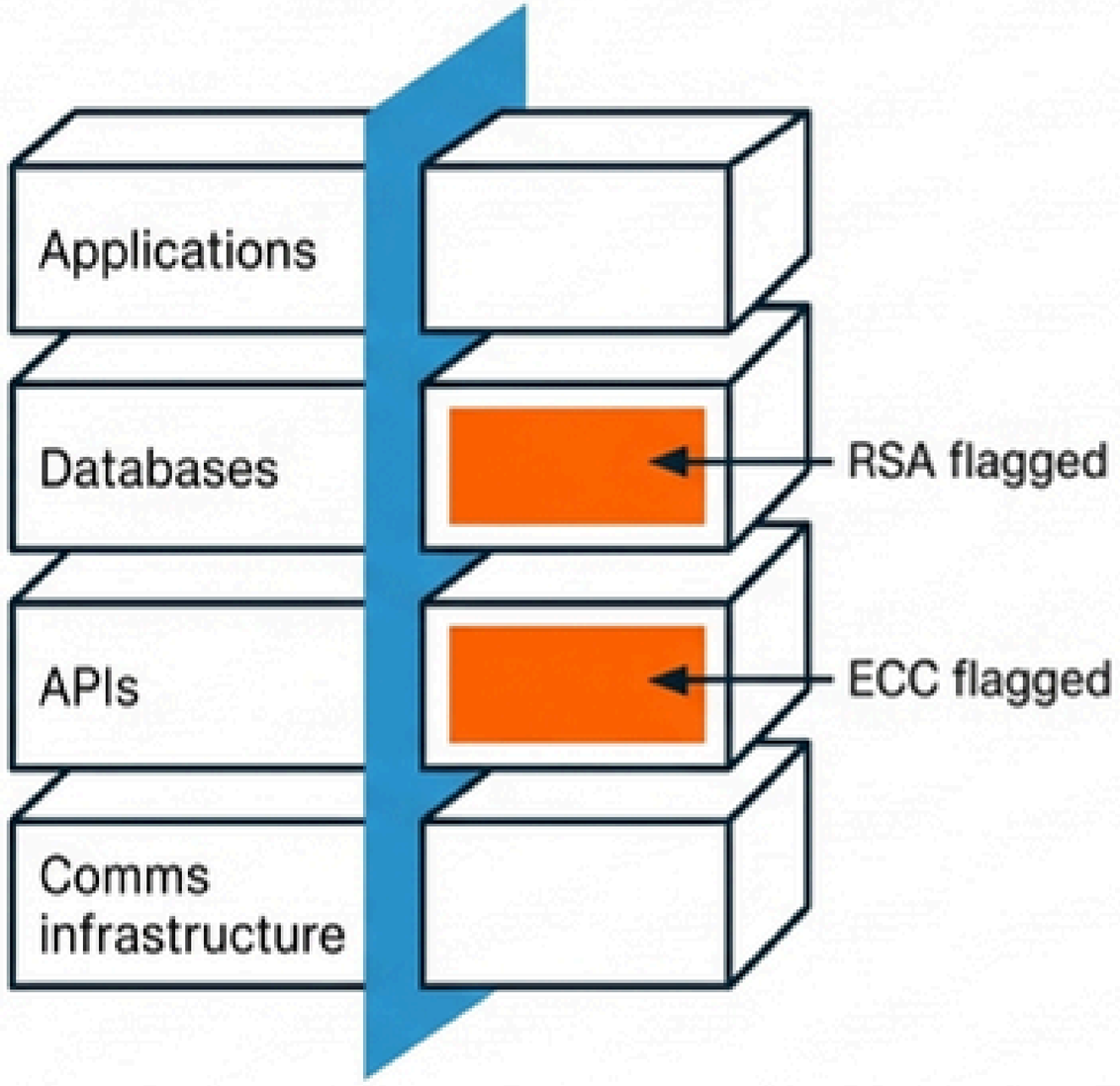
A structured assessment provides a practical, prioritized starting point that can be initiated immediately, regardless of current digital maturity.

Step 01: Conduct a cryptographic inventory

The objective:
Map every encryption algorithm in use across the entire digital estate.

The red flags:
Actively locate and flag RSA, ECC, and Diffie-Hellman protocols.

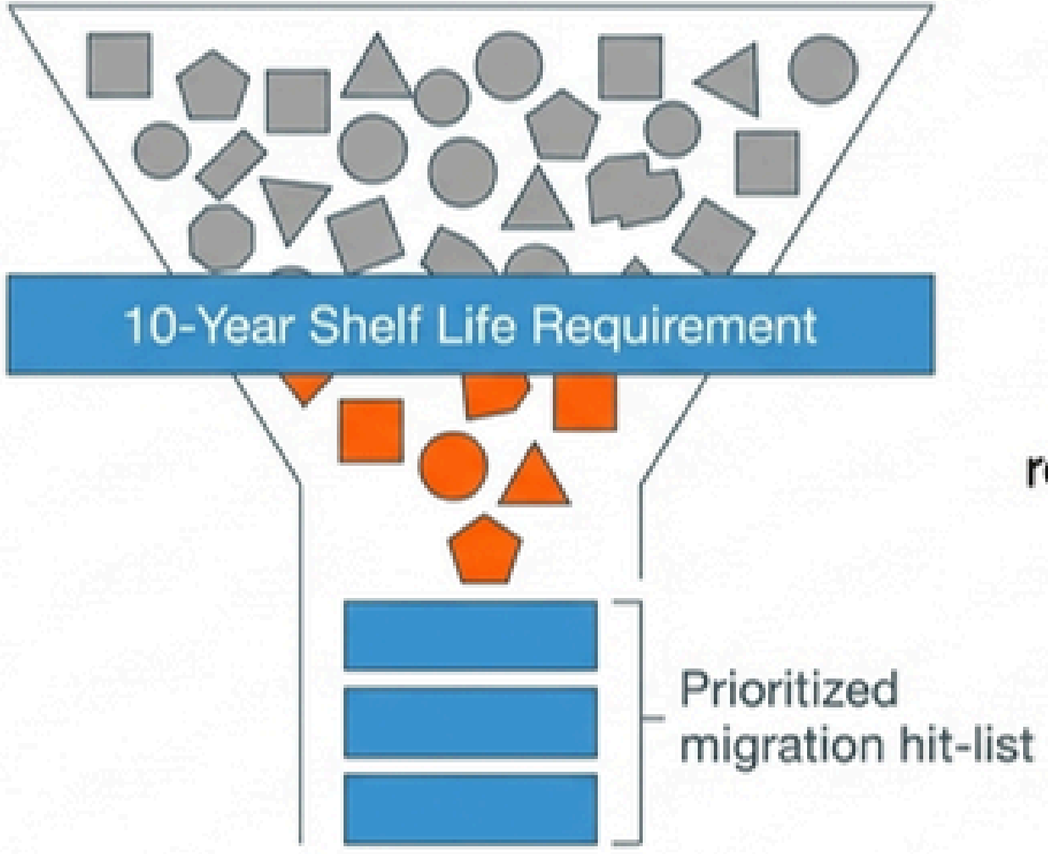
The "why":
These specific legacy algorithms are the ones Shor's algorithm dismantles most efficiently on a powerful quantum machine.



Step 02: Classify data by sensitivity & longevity

The objective:

Acknowledge that not all data carries equal risk.



The filter:

Identify data that must remain strictly confidential for ten years or more.

The outcome: This exact classification dictates your migration priority order, placing critical IP and healthcare data at the front of the line.

Step 03: Audit supply chain & third-party exposure

The objective:

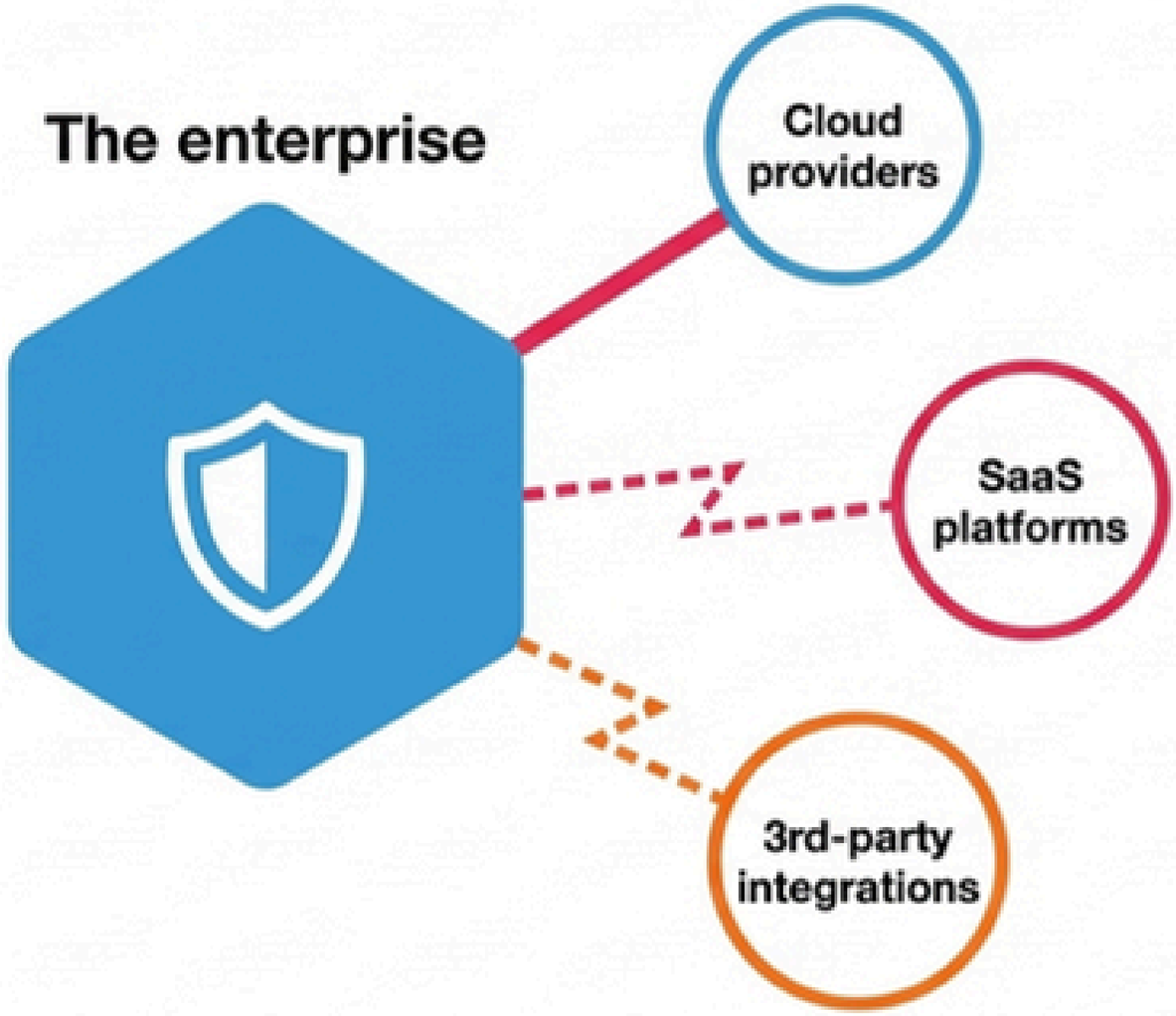
Audit every external vendor for their specific post-quantum readiness.

The reality:

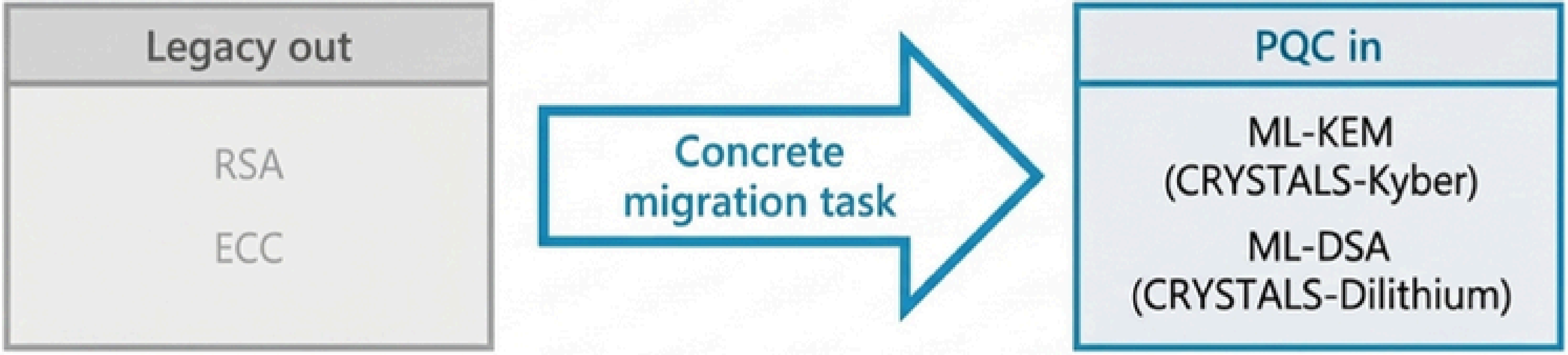
Your quantum security posture is only as strong as your most vulnerable supplier.

The risk:

A single weak link in a third-party integration can undermine internal cryptographic upgrades.



Step 04: Benchmark against 2024 NIST standards

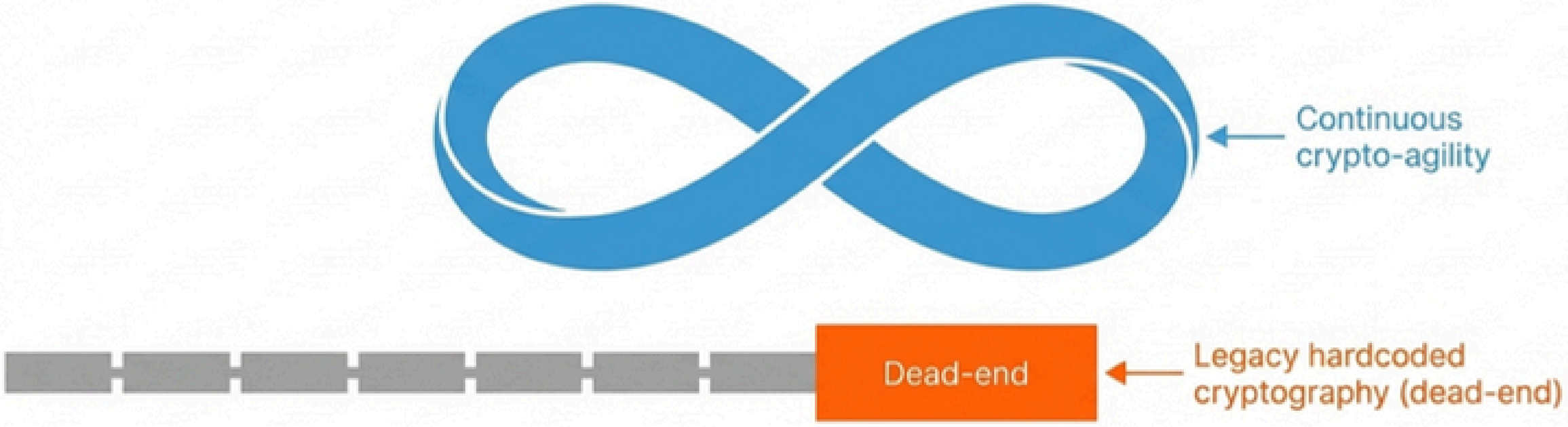


Compare your current cryptographic stack against the newly finalized NIST post-quantum standards.

Every gap identified becomes a measurable task—creating the bridge between assessment and definitive action.

Establish ML-KEM and ML-DSA as the new baseline for quantum-safe encryption.

Step 05: Build a crypto-agility roadmap



The objective:

Design systems with the capacity to swap cryptographic algorithms without requiring heavy re-architecting.

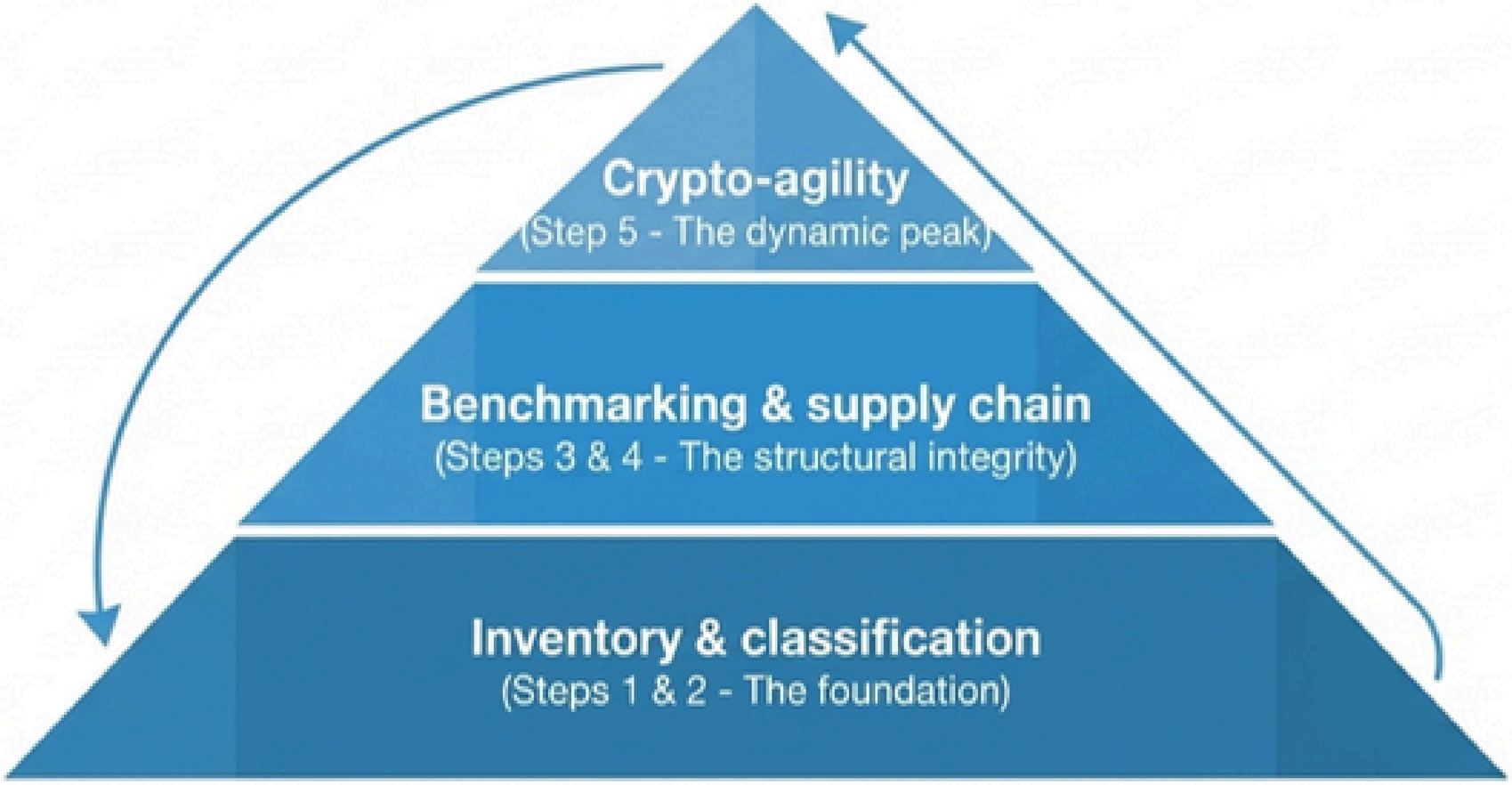
The strategy:

Prioritize highest-risk systems first and set measurable milestones.

The mindset shift:

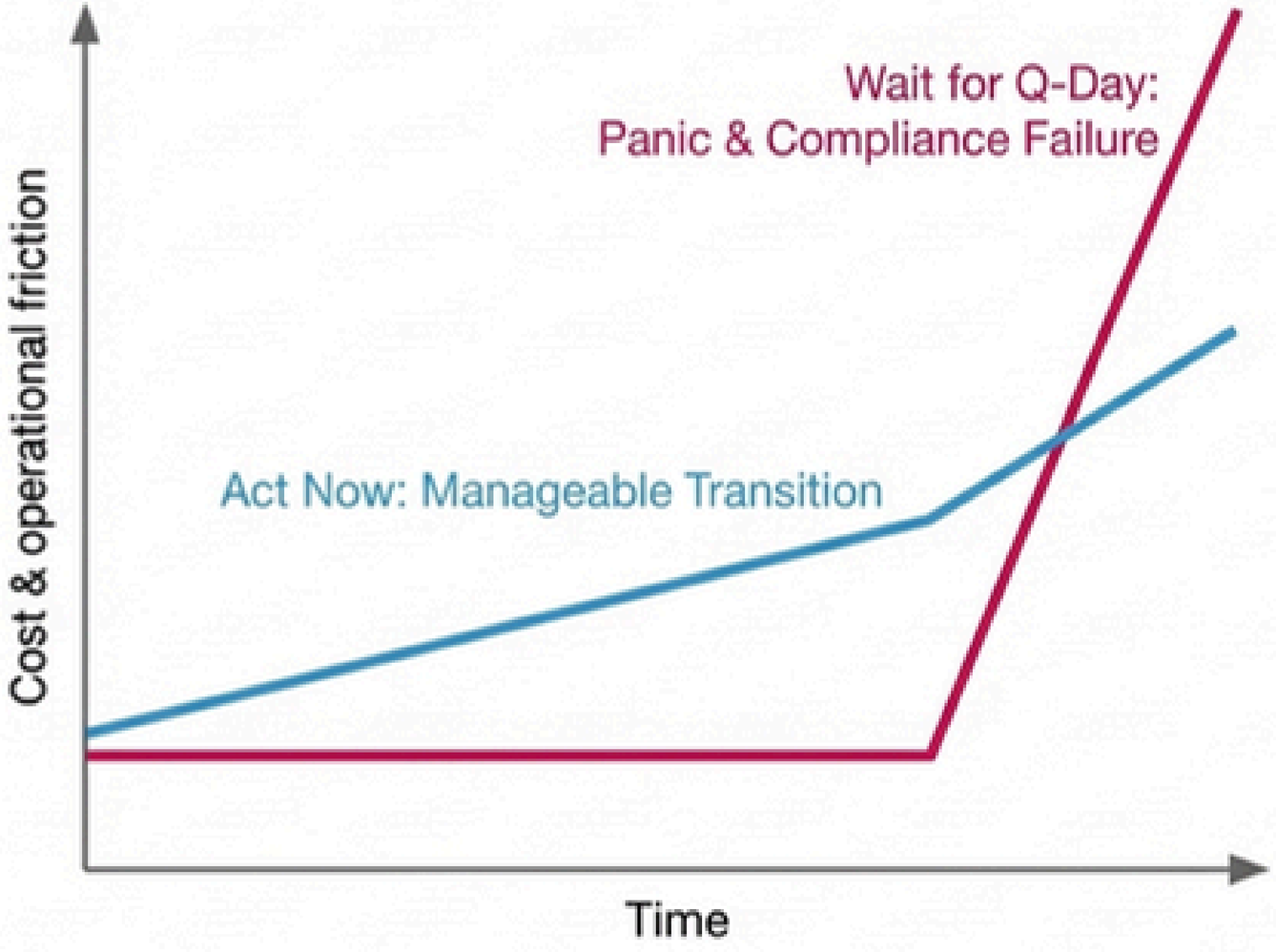
Treat cryptographic migration as a continuous, agile program, not a one-time static project.

The post-quantum readiness blueprint



Synthesis insight: Readiness is not a checklist; it is an integrated architecture. Foundational mapping dictates supply chain audits, which in turn inform the continuous agility roadmap.

The cost of waiting vs. the advantage of acting



The act reality

Methodical resource allocation, prioritized system protection, and structural resilience.

The wait reality

Compressed timelines, intense regulatory pressure, high emergency costs, and the certainty of harvested data sitting in adversary archives.

The quantum clock is ticking

"The organisations that own their response to this threat today will be the ones still standing when the clock strikes."

Initiate your quantum cryptographic inventory today.