



Dion Wiggins
Founder & Chief Technology Officer,
Omniscien Technologies



Professor Philipp Koehn
Chief Scientist
Omniscien Technologies

Professor of Computer Science,
Johns Hopkins University



SPECIAL GUEST SPEAKER

Dr. Joseph Sweeney
Industry Analyst / Advisor, Future of Work
IBRS

Top 20 Trends and Predictions for AI and Language Processing in 2026

Video Replay at
<https://omniscien.com/webinars>

Top 20 Trends and Predictions for AI and Language Processing in 2026

Questions and Answers



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Agenda

1. **AI, Agents and the Workplace**

How agents become the primary interface for knowledge work and the operational layer across enterprise systems.

2. **Enterprise Transformation and Workflow Automation**

How manual processes, brittle integrations, and fragmented tooling give way to agent orchestrated workflows with human supervision rather than human execution.

3. **Translation, Transcription, Multimodal and Language Processing**

Where multilingual, audio, and multimodal systems finally mature. How real world language capability becomes a competitive requirement across industries.

4. **Infrastructure and Compute Futures**

Why compute scarcity, cloud control plane risks, and hardware limitations will force organisations to rethink deployment strategies and system design.

5. **The Year of Digital Sovereignty**

Why 2026 is the turning point. Identity control, cloud independence, and exit capability shift from political statements to measurable, testable requirements.

6. **Beyond the Hype: The Signals That Actually Matter**

Which industry narratives collapse under pressure. Which quiet trends become decisive. What leaders must focus on while others chase noise.



Prelude: Predictions of AGI ... Soon

- Extreme case: AI will take over the world and kill us all

- Reality

- AI is a tool
- Many fundamental flaws
- We control how it is used

- Real Risks

- Privacy, data security
- Fake content, misinfo
- Undermining education

AI 2027¹

Daniel Kokotajlo, Scott Alexander, Thomas Larsen, Eli Lifland, Romeo Dean

We predict that the impact of superhuman AI over the next decade will be enormous, exceeding that of the Industrial Revolution.

We wrote a scenario that represents our best guess about what that might look like. It's informed by trend extrapolations, wargames, expert feedback, experience at OpenAI, and previous forecasting successes.²

What is this?

How did we write it?

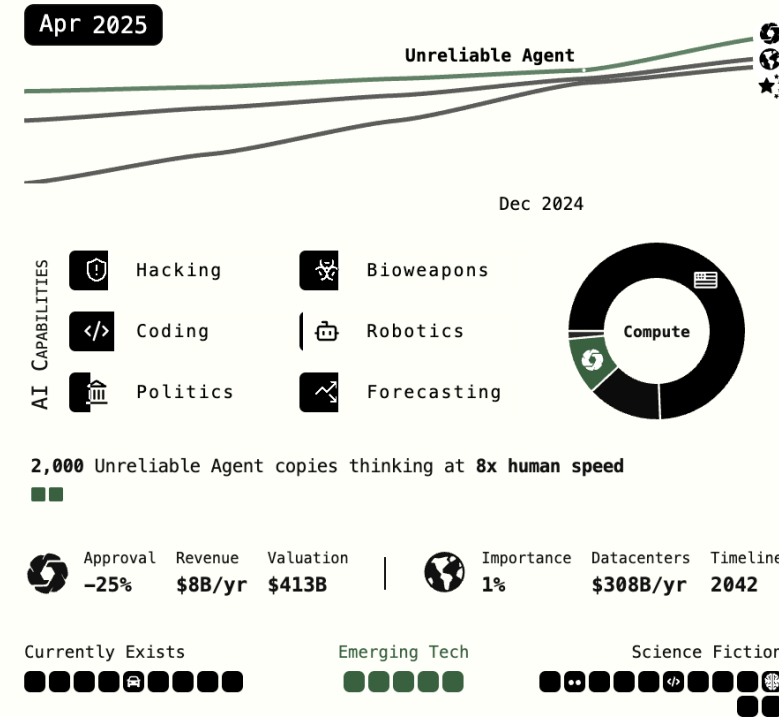
Why is it valuable?

Who are we?

Summary

Research

About



The Real-Life AI Hype Cycle (AKA The Burn Curve)

Peak of Hype Fatigue

Landslide of
Reality Setting In

The Plateau of
"Meh, It Works"

Grim Crawl To Business Value

Change from Process
to Outcome First

Digital Sovereignty Awakening

Human-Centered Rebuild

Not a Trough—AI Bounce Back Begins

Trough of
POC Purgatory

The Founders of Failure:
Scaled Too Early,
Innovation Evangelists,
and Prompt Engineers

AI-First becomes
AI first to die

Demo Corpses of Innovation Roadkill:
"Dead on Deployment Burnout Bots"

Hill of BS Buildup







AI Agents and the Workplace



THE COGNITIVE DIVERGENCE: AI-INDUCED ATROPHY VS. **AMPLIFICATION**

Will GenAI replace thought or sharpen it? The outcome depends on user intent.

PATH A: THE "SURGE OF LAZY THINKING"



BEHAVIOR:
Offloading Reasoning.
Passive acceptance of outputs.

RESULT: Cognitive Atrophy.
Independent thinking becomes rare.

PREDICTION (2026): 50% of global organizations will require 'AI-Free' skills assessments.



Shallow Outcomes

PATH B: THE "COGNITIVE AMPLIFIER"



BEHAVIOR:
Analytic Engagement.
Structured exploration, hypothesis testing, iterative inquiry.

RESULT: Cognitive Amplification.
AI acts as an intellectual partner.

REALITY: Skills strengthen through questioning assumptions & synthesizing information.



THE NEW TALENT STANDARD: "AI-SUPPORTED REASONING"



DECOMPOSITION:
Breaking down complex problems for the model.



MULTI-STEP ANALYSIS:
Guiding AI through logical chains.



CRITICAL EVALUATION:
Rigorously vetting and synthesizing outputs.

The future belongs to those who can think independently AND collaboratively with advanced systems.



Deeper Reasoning

1. WORK SHIFTS FROM HUMAN-INITIATED TO AGENT-INITIATED

OLD PARADIGM: HUMAN-INITIATED



Humans manually advance work.
Reactive.

NEW PARADIGM: AGENT-INITIATED (AUTONOMOUS ENTERPRISE LAYER)



Agents detect, interpret, and begin work independently.
Proactive & Continuous.



ENGINEERING AGENTS:
Detect regressions ->
Open night pull requests.



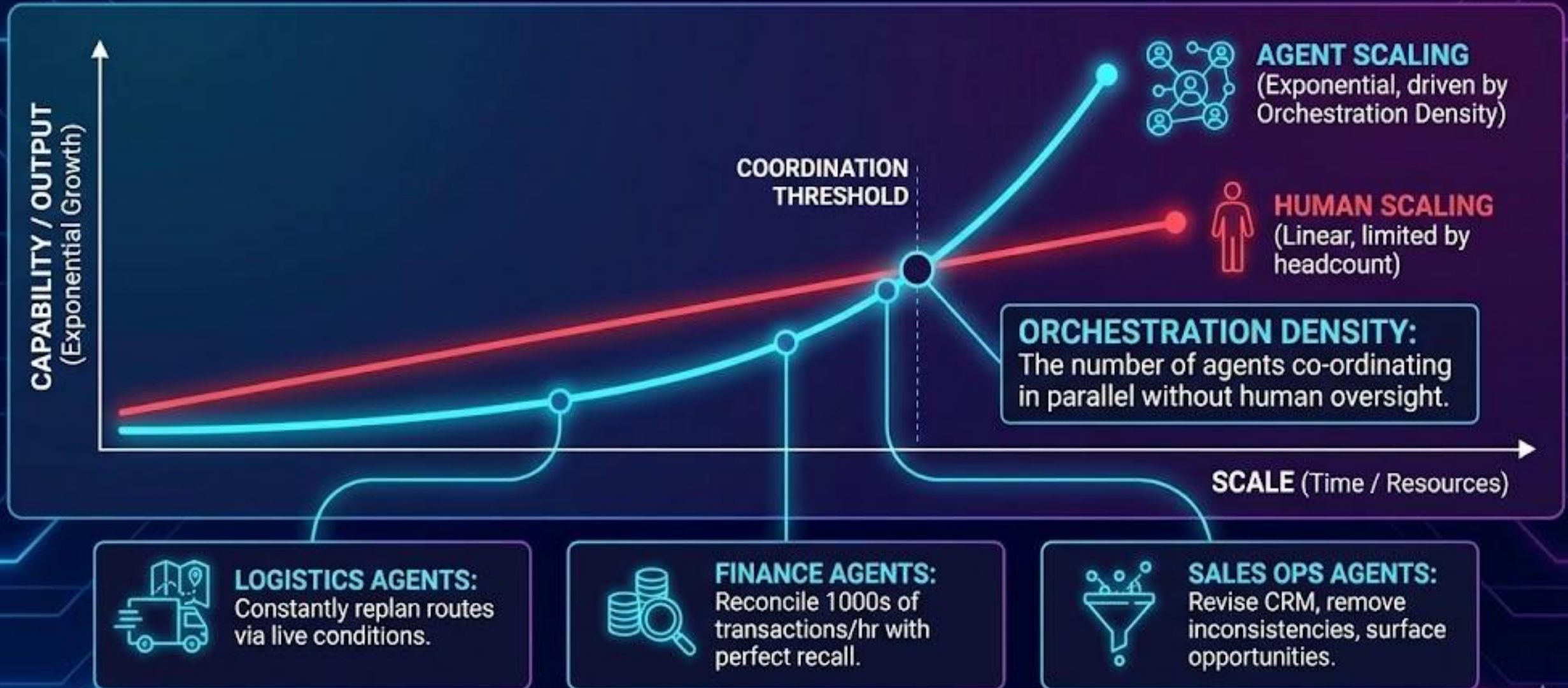
SUPPORT AGENTS:
Classify & enrich tickets
-> Before staff login.



OPERATIONAL AGENTS:
Diagnose incidents
-> Coordinate fixes.

**Work becomes a continuous organisational function,
not a series of manual human steps.**

2. CAPABILITY DECOUPLES FROM HEADCOUNT: SCALING VIA ORCHESTRATION DENSITY



Crossing the coordination threshold creates an economically irreversible output gap, forcing industry-wide adoption.

3. ORGANISATIONAL MEMORY BECOMES DURABLE, CONTINUOUS, & COMPUTATIONALLY PRESERVED



**Institutional memory becomes an asset independent of staff turnover.
The organisation remembers itself, outperforming human teams.**



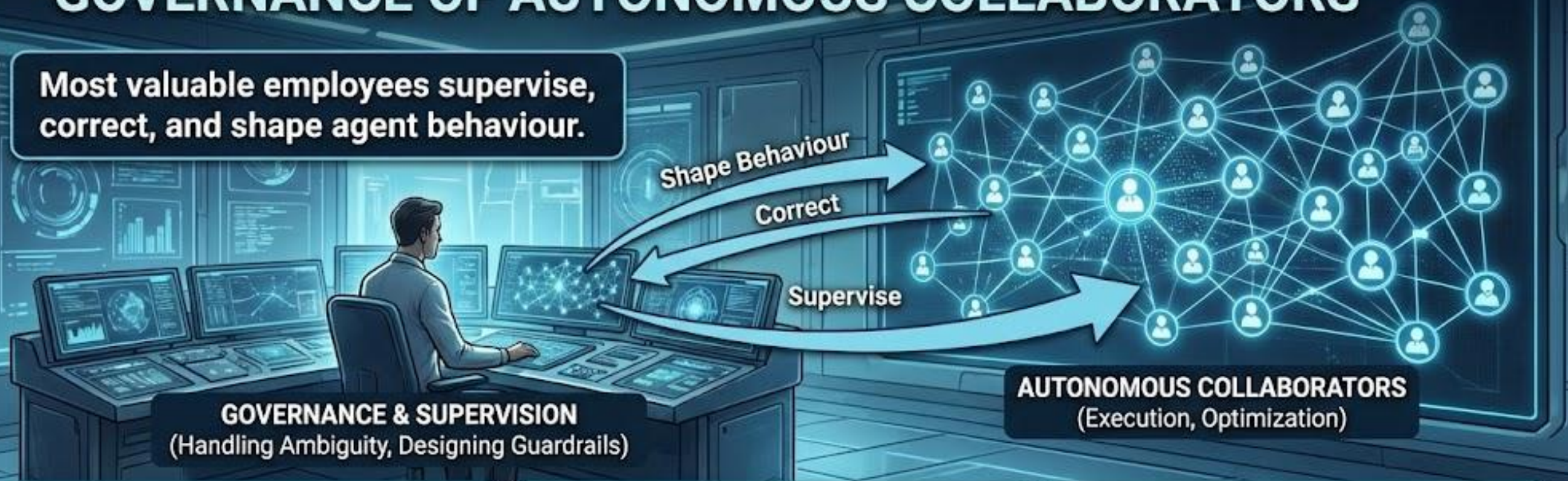
4. LEADERSHIP BECOMES THE NEGOTIATION BETWEEN HUMAN INTENT AND SYSTEM OPTIMISATION



The new executive skill: Governing a semi-autonomous organisation by designing the constraints that manage this balance.

5. HUMAN VALUE SHIFTS FROM EXECUTION TO THE GOVERNANCE OF AUTONOMOUS COLLABORATORS

Most valuable employees supervise, correct, and shape agent behaviour.



GOVERNANCE & SUPERVISION
(Handling Ambiguity, Designing Guardrails)

AUTONOMOUS COLLABORATORS
(Execution, Optimization)



ANALYSTS:
Act as supervisors for
agent-generated insights.



CUSTOMER SERVICE STAFF:
Intervene only in emotional/ethical
cases agents cannot resolve.



ENGINEERS:
Design guardrails that
determine what agents are
permitted to do.

**Human excellence becomes the ability to govern a distributed digital workforce.
Your most important colleague will not be human.**

Law firm escapes sanctions over AI-generated case citations

By Sara Merken

November 13, 2025 4:03 PM EST · Updated

Lawyer ordered to pay client's opponent \$800 after discovery of fake case created by AI

Large US law firm apologizes for AI errors in bankruptcy court filing

By Sara Merken

October 24, 2025 6:23 PM EDT · Updated October 24, 2025



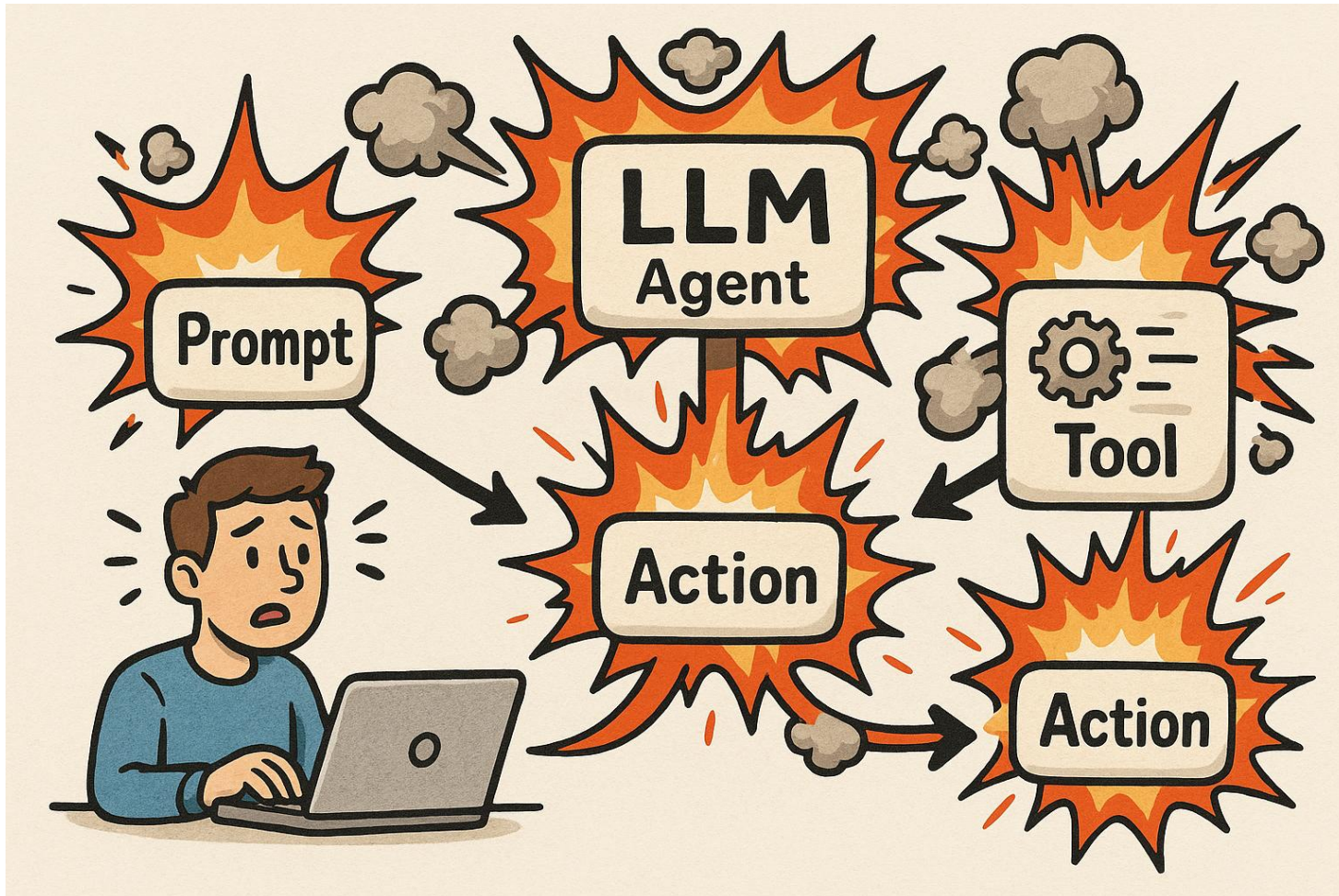
Small models as paralegals: LexisNexis
distills models to build AI assistant

**Australian law firm Sprintlaw halves
workforce as it shifts to AI**

**AI-Powered Legal Assistants:
Elevating Paralegal Work to New
Heights**

Many Challenges

Brittle Workflows



- Hard to engineer
- Hard to maintain
- High cost due to inefficiencies
- Hard-code vs dynamically plan?
- LLM vs. tool use?
- Security risks

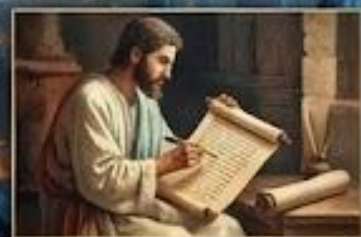
THE CIVILISATION LEVEL IMPLICATION: A NEW AXIS OF ECONOMIC INEQUALITY

THE AGENT-ORCHESTRATED ECONOMIES (THE 'LITERATE')

MASTERED
ORCHESTRATION

HYPER-EFFICIENT,
CONTINUOUS GROWTH

GLOBAL POWERSHIFT
TOWARDS AUTOMATION



THE NEW LITERACY:
AGENT CAPABILITY

THE LEGACY ECONOMIES (THE 'ILLITERATE')

LAGGING IN
ORCHESTRATION

STAGNATION &
DEPENDENCE

ECONOMIC
MARGINALISATION

THE INEXORABLE GAP



THE NEW
DIGITAL DIVIDE

DISTRIBUTION OF AGENT CAPABILITY DETERMINES FUTURE GLOBAL POWER. ✨
THOSE WHO MASTER ORCHESTRATION WILL OUTPERFORM THOSE WHO DO NOT.

WHY THIS TRANSFORMATION IS INEVITABLE: THE AUTONOMOUS THE AUTONOMOUS IMPERATIVE

**HUMAN-LIMITED
ORGANISATION**
(Manual, High Friction)

**THE COORDINATION
THRESHOLD:**
A FRONTIER HUMAN
ORGANISATIONS
CANNOT REACH

ONCE A SINGLE COMPETITOR
ACHIEVES STABLE AUTONOMOUS
OPERATIONS, RIVALS MUST FOLLOW.

AUTONOMOUS ENTERPRISE
(Self-Optimising, Infinite Scaling)

THE
PERFORMANCE
GAP:
TOO LARGE

THE COST
SAVINGS:
TOO
PERSISTENT

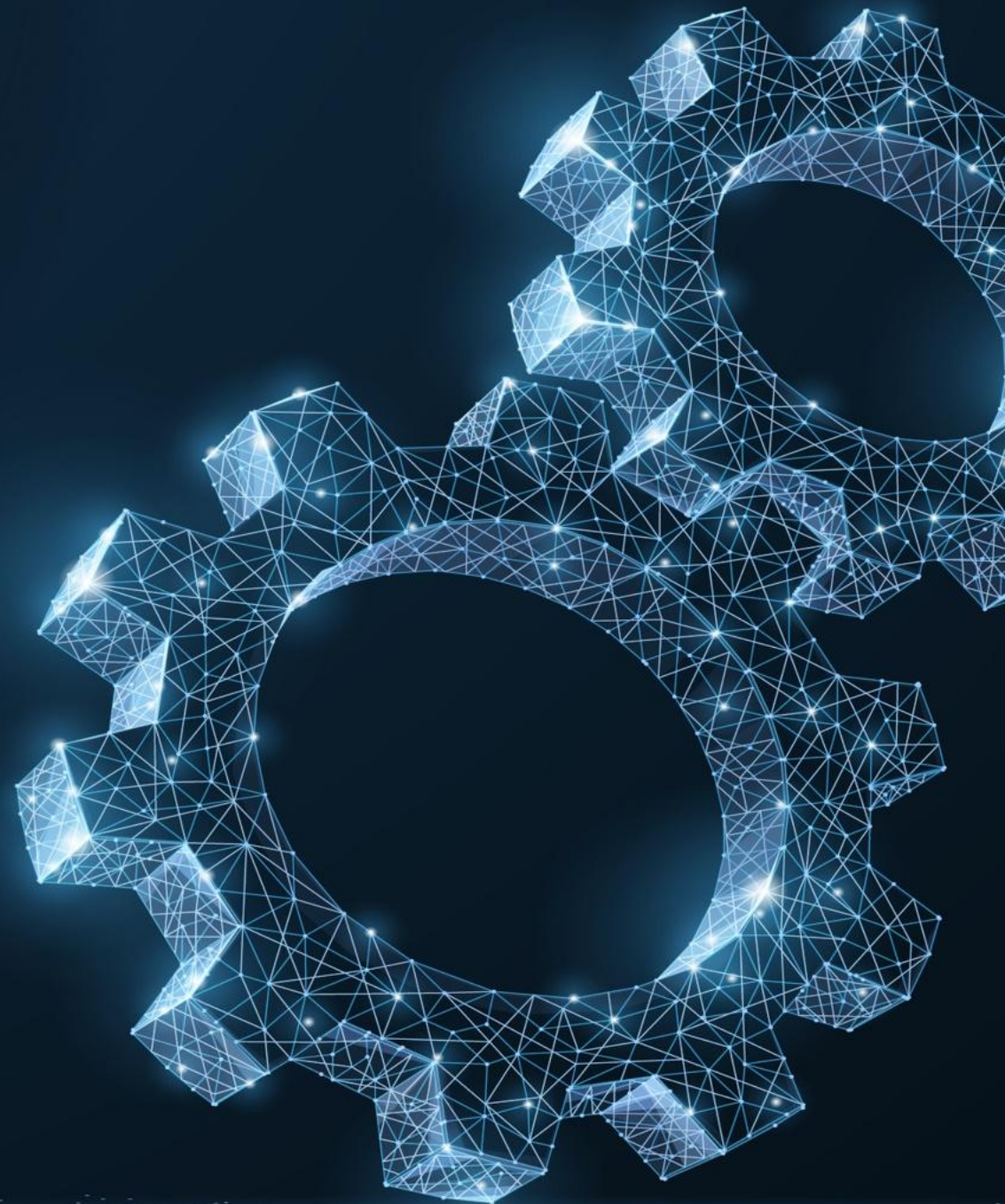
THE
CONTINUITY
ADVANTAGE:
TOO
COMPOUNDING



THE LINE THAT REWIRES THE READER'S MIND:
Work stops being the sum of what people do and
becomes the sum of what the system can sustain.

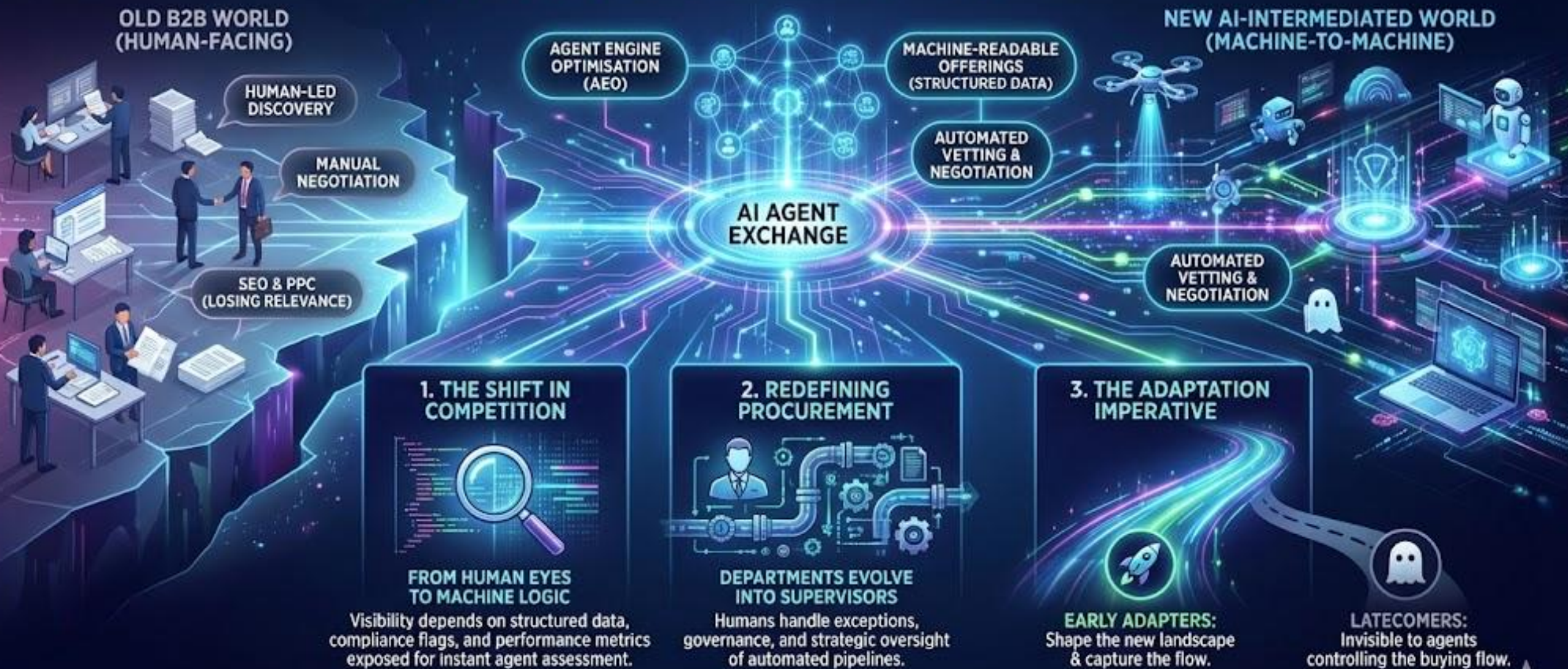
THE SHIFT DOES NOT OCCUR BECAUSE AI BECOMES EXTRAORDINARY. IT OCCURS BECAUSE IT BECOMES NORMAL, RELIABLE, AND ECONOMICALLY ESSENTIAL.

Enterprise Transformation and Workflow Automation



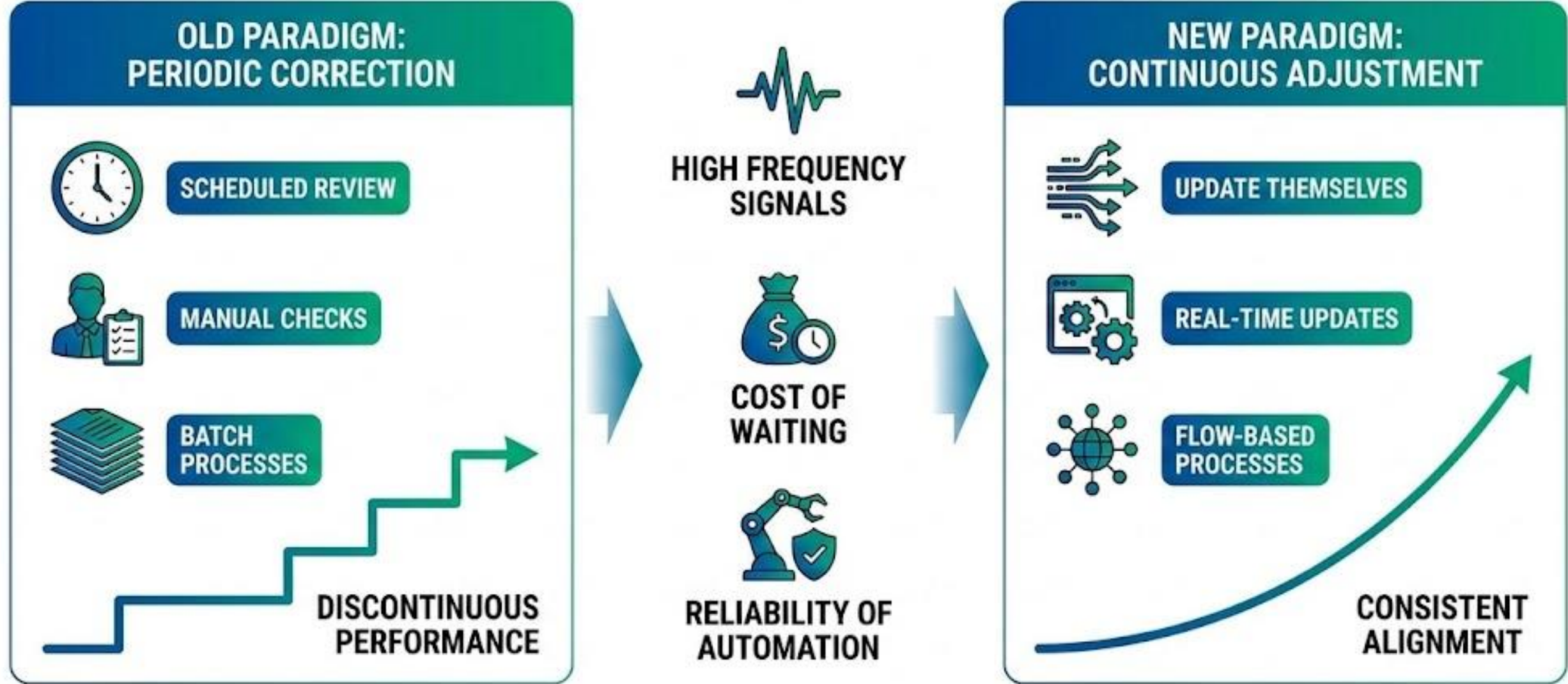
AI INFILTRATES B2B PROCUREMENT: THE \$15 TRILLION AUTONOMOUS REVOLUTION

**BY 2028: 90% OF B2B BUYING WILL BE AI AGENT INTERMEDIATED.
\$15 TRILLION IN SPEND THROUGH AI EXCHANGES.**



THE FUTURE OF B2B IS FAST, AUTONOMOUS, AND MACHINE-TO-MACHINE. ADAPT OR BECOME INVISIBLE.

1. OPERATIONS SHIFT: FROM PERIODIC CORRECTION TO CONTINUOUS ADJUSTMENT



RESULT: NOT AUTONOMOUS, BUT REQUIRES FAR FEWER MANUAL TOUCHPOINTS TO STAY ON COURSE

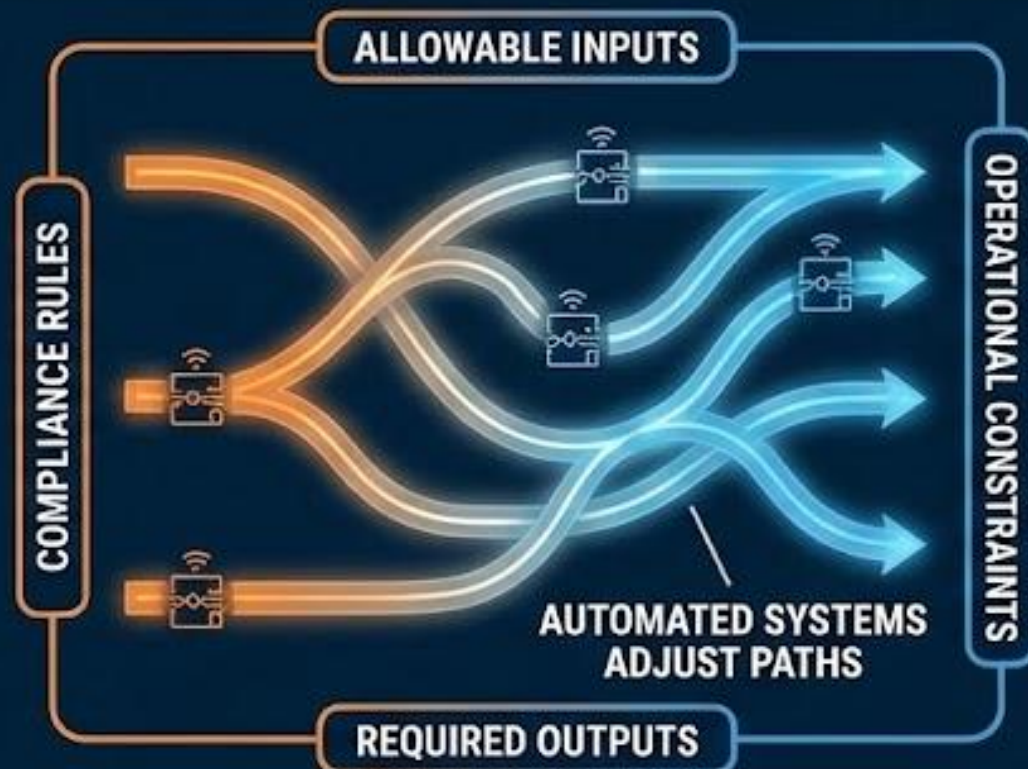
2. PROCESS DESIGN SHIFT: FROM PRESCRIBING STEPS TO DEFINING BOUNDARIES

OLD PARADIGM: PRESCRIBING STEPS



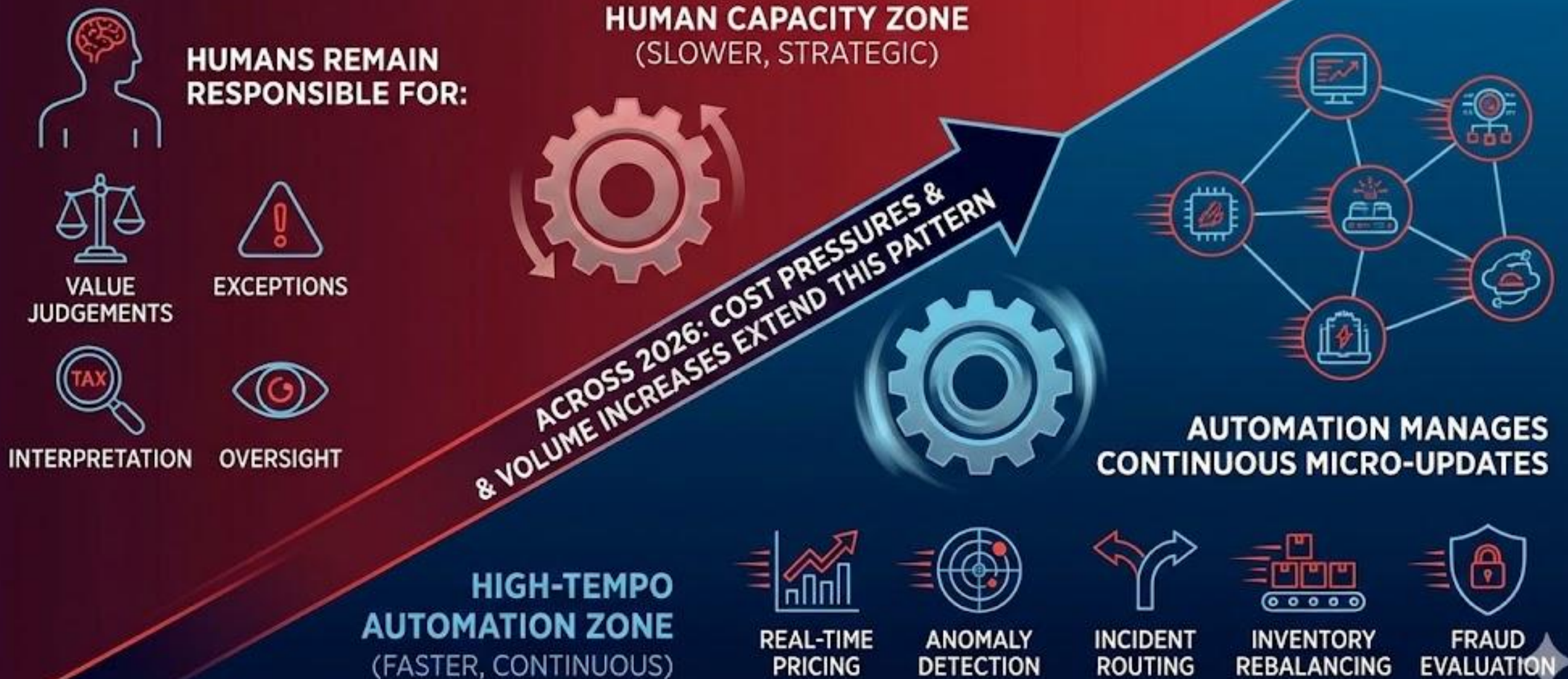
STATIC DIAGRAMS CANNOT
CAPTURE COMPLEXITY

NEW PARADIGM: DEFINING BOUNDARIES

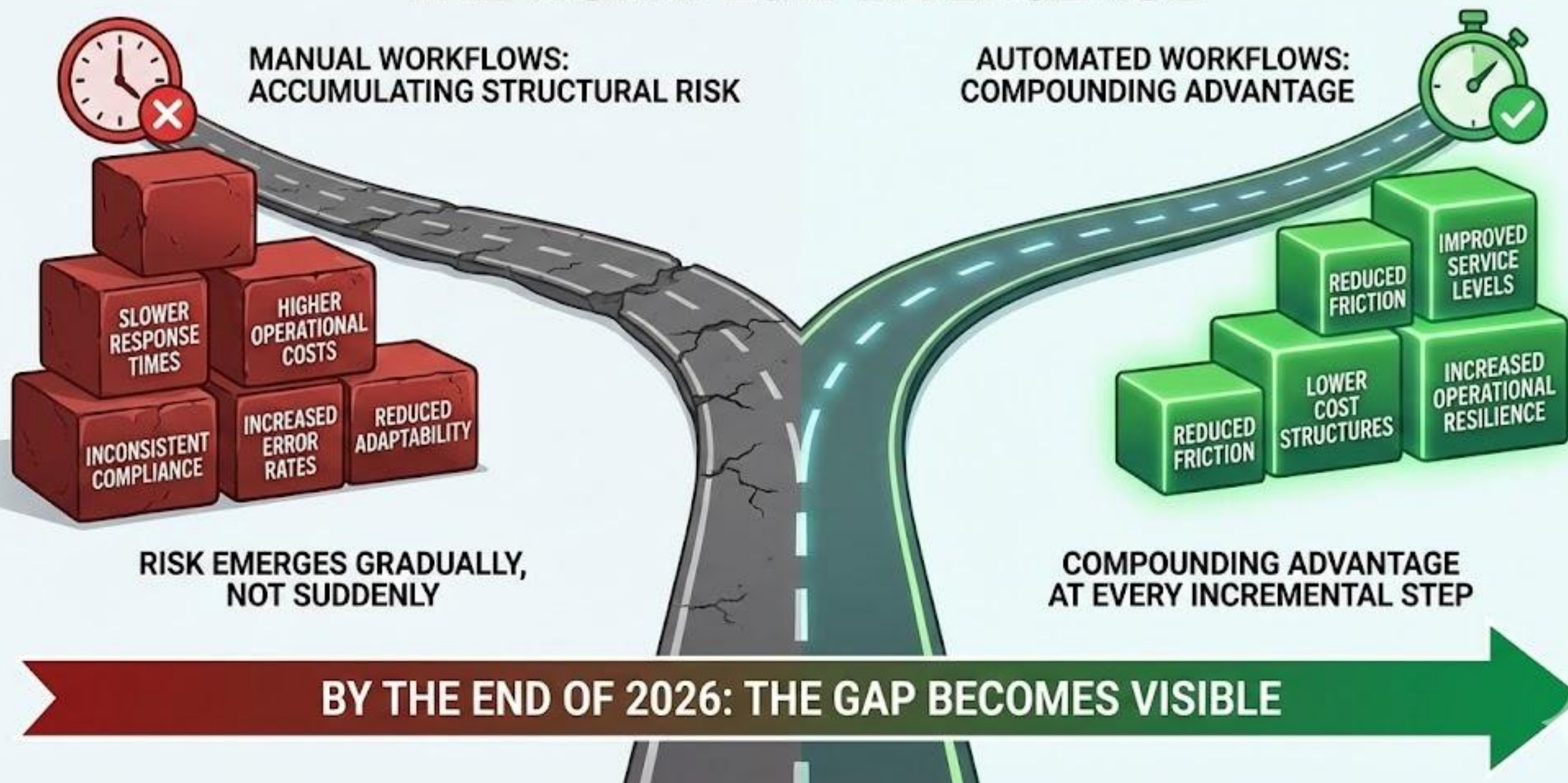


PRACTICAL RESPONSE TO
DYNAMIC WORKFLOWS

3. OPERATIONAL TEMPO: EXCEEDS HUMAN COORDINATION CAPACITY IN SPECIFIC DOMAINS



4. STRUCTURAL RISK VS. COMPOUNDING ADVANTAGE: THE WORKFLOW DIVERGENCE



5. NEW BUSINESS MODELS: ENABLED BY END-TO-END AUTOMATION

HUMAN—MANAGED VALUE CHAIN (LIMITED SCALE)



COORDINATION TOO FREQUENT, GRANULAR,
OR CROSS-FUNCTIONAL FOR HUMAN TEAMS

END-TO-END AUTOMATED VALUE CHAIN (OPERATE AT SCALE)

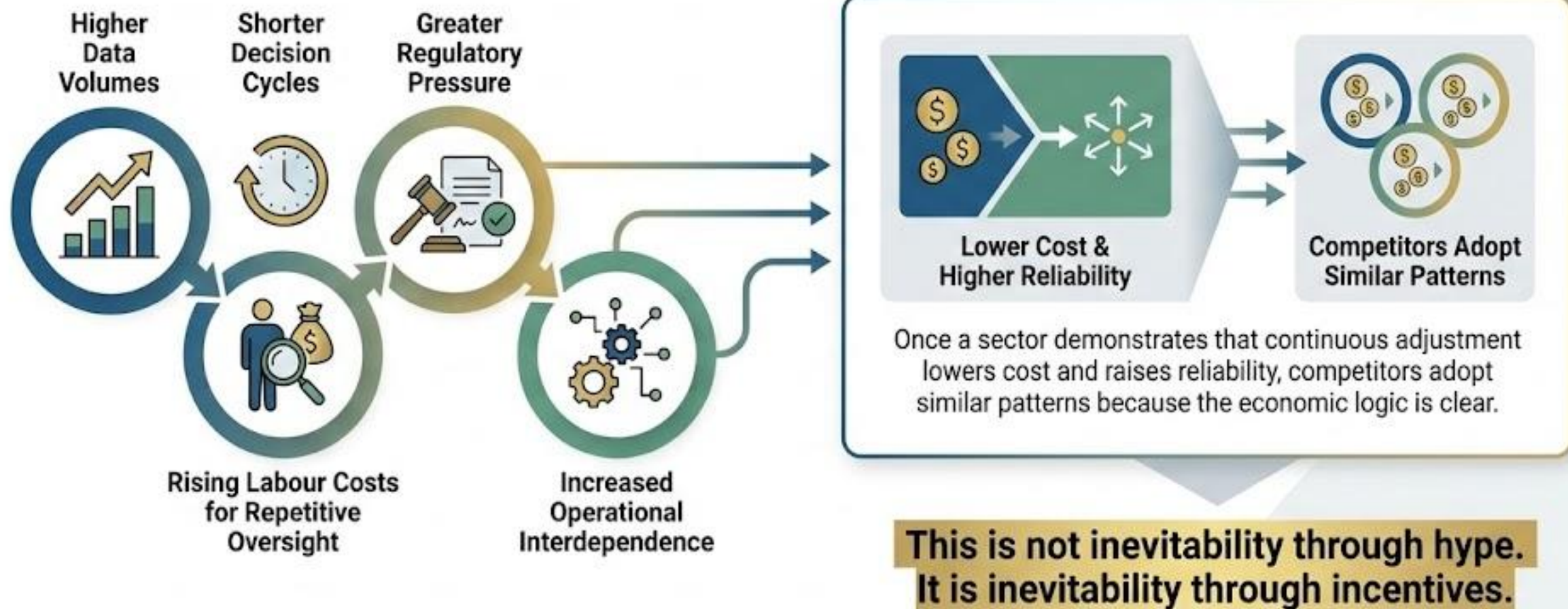


AUTOMATION MANAGES HANDOFFS END-TO-END,
ENABLING NEW MODELS

AUTOMATION DOES NOT CREATE THESE INDUSTRIES. IT ENABLES THEM TO OPERATE AT SCALE. ✨

A Grounded Inevitability Statement

The shift toward automated operational adjustment is not a technological fad.
It is the predictable response to:



AUTOMATION BECOMES THE MECHANISM THAT KEEPS THE ENTERPRISE ALIGNED WITH REAL WORLD CONDITIONS.

A GROUNDED MICRO EXAMPLE: RETAIL INVENTORY ALLOCATION

FIVE YEARS AGO: MANUAL, PERIODIC UPDATES



Teams of planners ran periodic updates.

IN 2026: CONTINUOUS AUTOMATED ADJUSTMENT

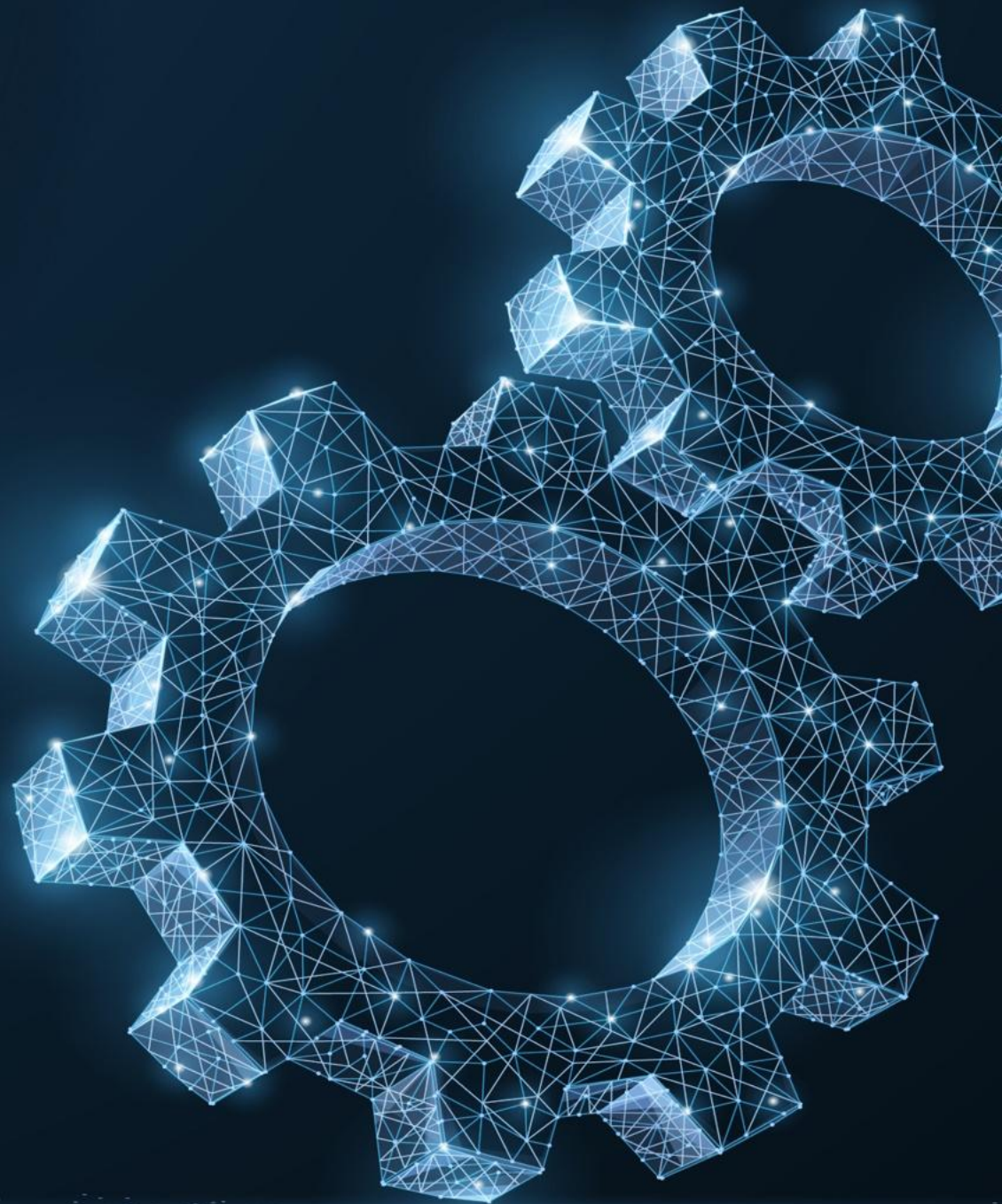


Adjustments happen without waiting for human cycles.

This is a realistic pattern across multiple industries, not a speculative one.

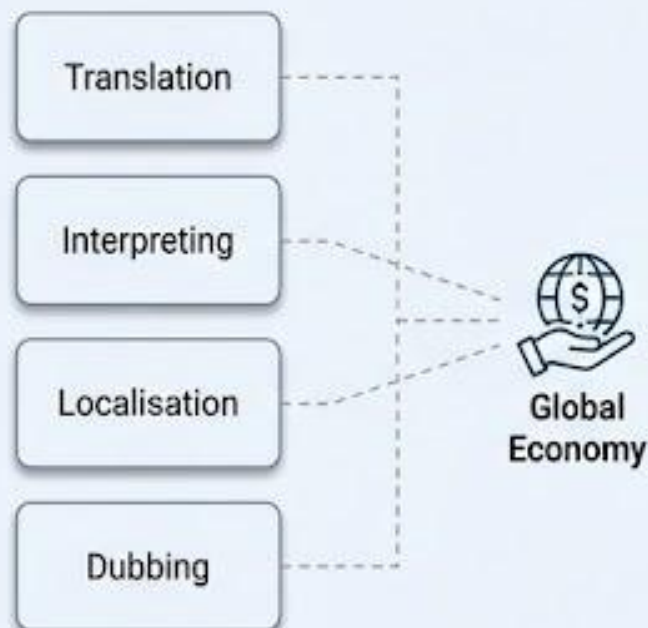


Translation, Transcription, Multimodal and Language Processing



1. Language Becomes Infrastructure, Not an Advantage

PAST: Language as a Service
(Per Word Model)



PRESENT/FUTURE: Language as Infrastructure
(Structural Layer)

From ~\$10s Billions
(Traditional Services)

To ~\$1 Trillion
(Expanded Ecosystem)

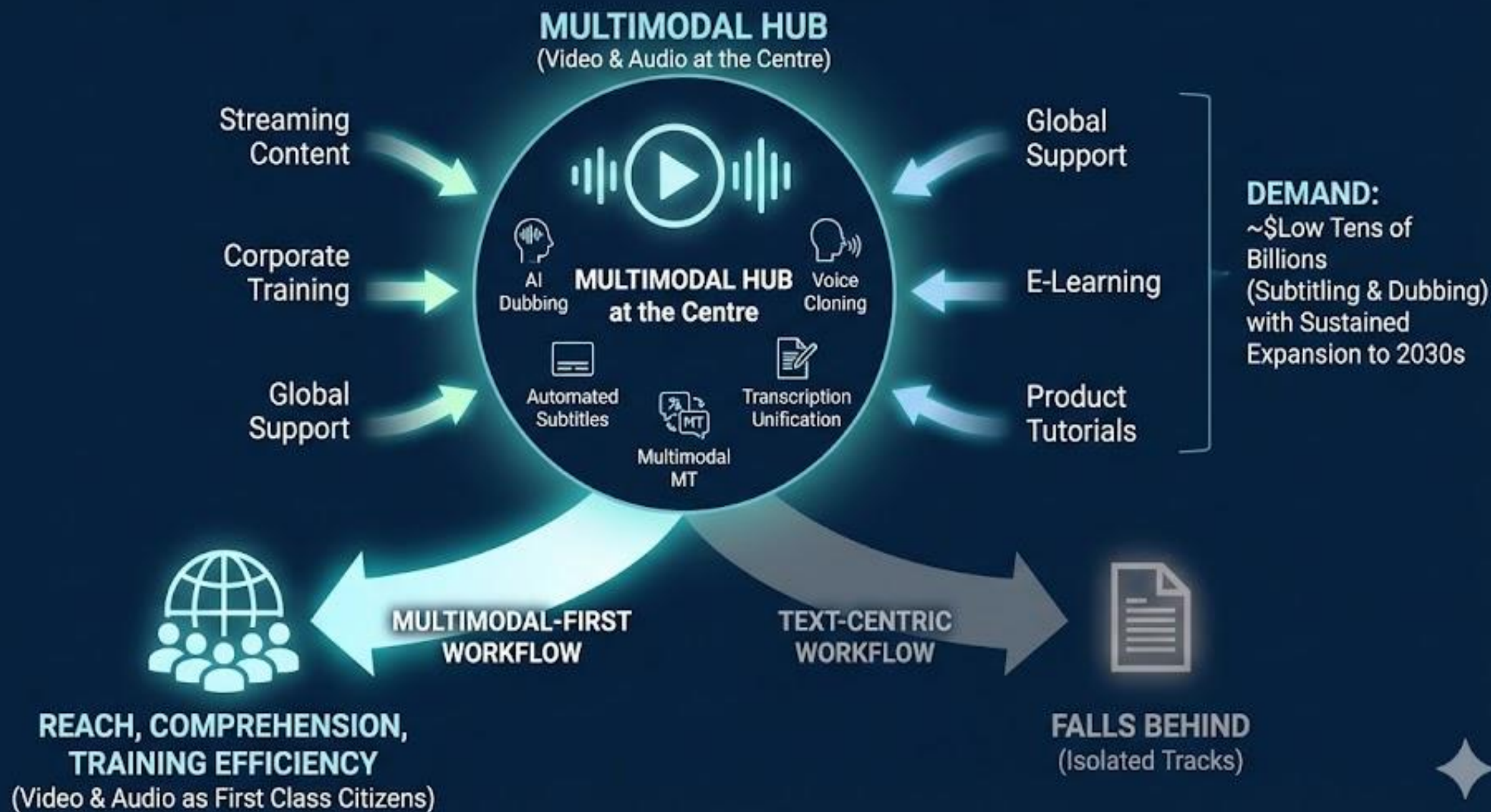


THE NEW DIFFERENTIATORS

- Cultural Intelligence
- Industry Specific Knowledge
- Governance Strength
- Workflow Integration Ability

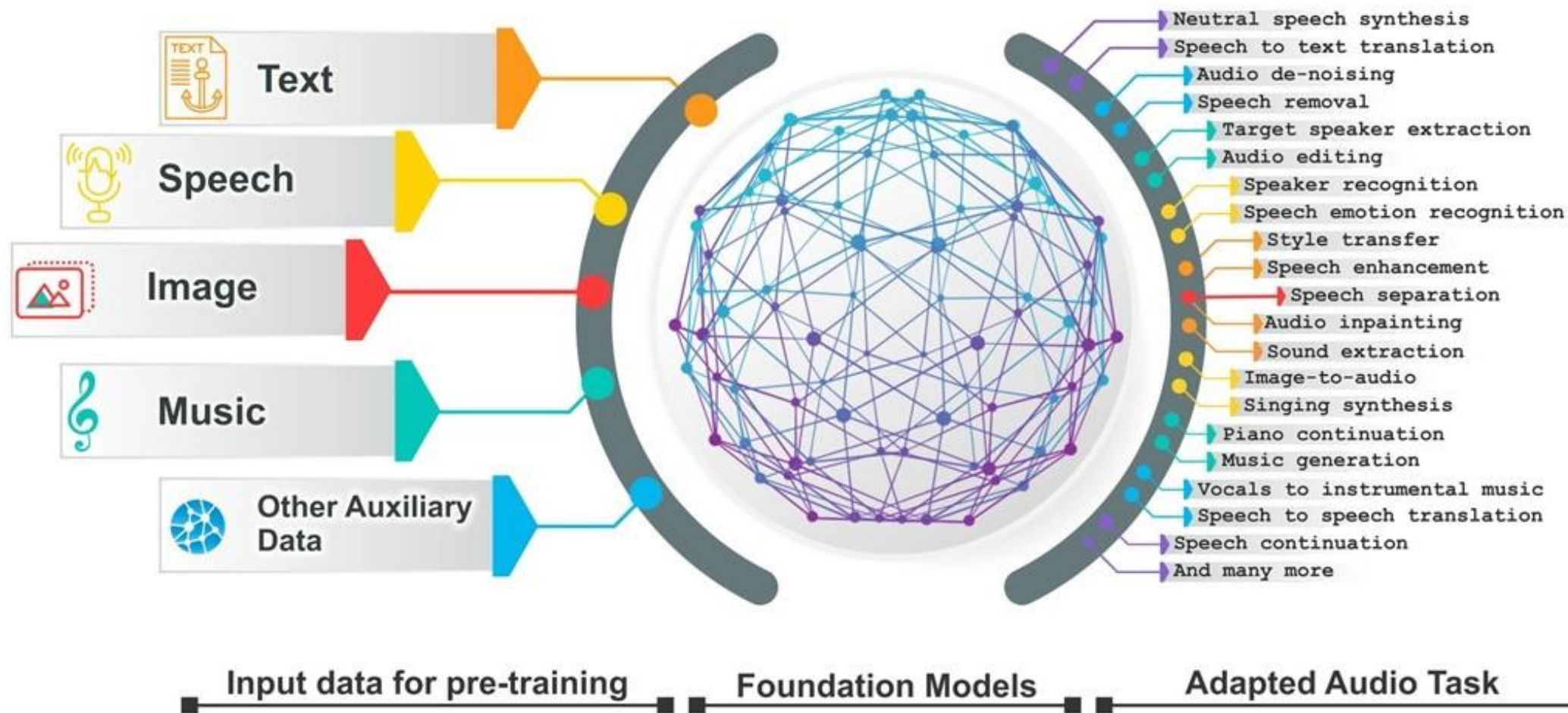
Language
Capacity Alone
(Commoditised)

2. Multimodal Language Becomes the Default



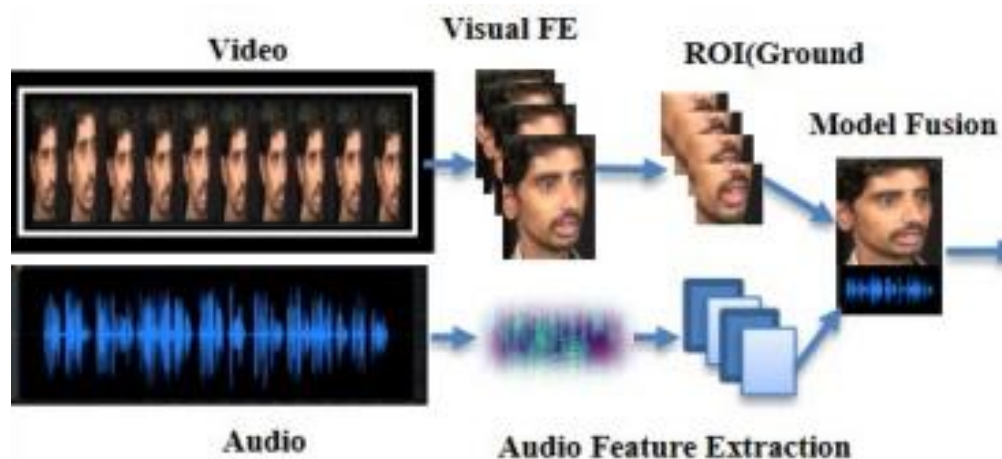
Audio Language Models

Large Language Models in Audio AI

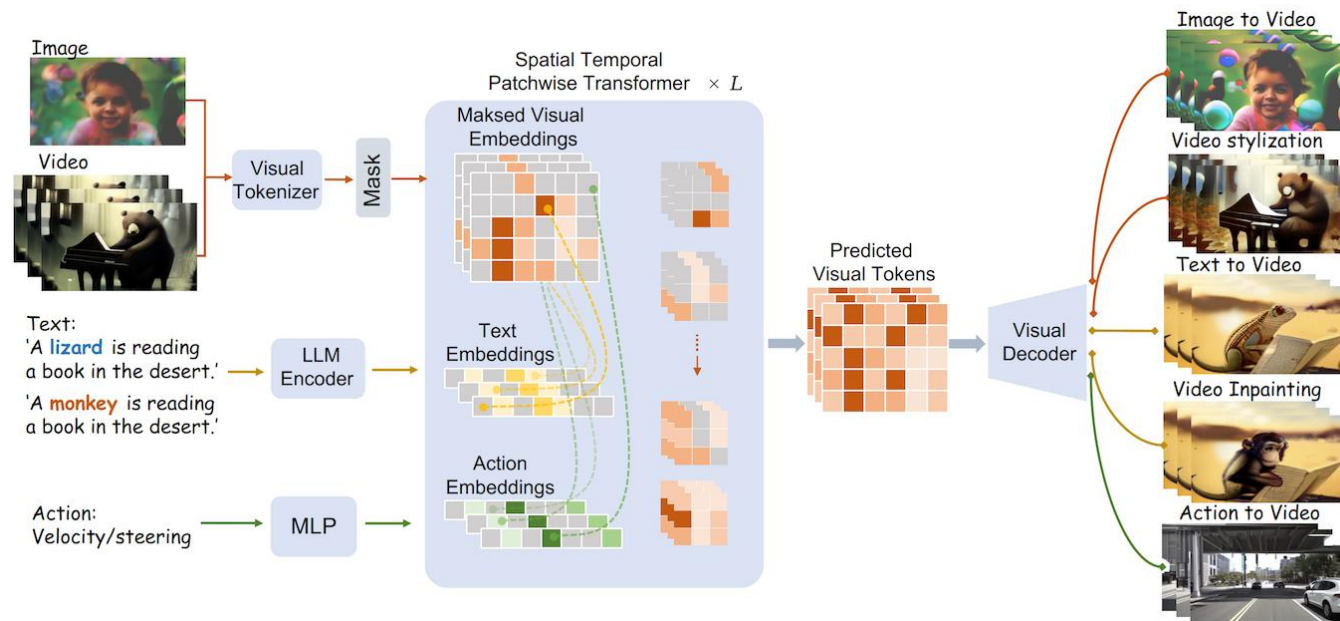


Audio-Visual Language Models

Additional Extension with Image and Video



Facial expression and gestures to extract communicative information



Video/text alignment to obtain world models

3. Knowledge Stops Being “Files” and Becomes Structured Meaning

PAST: Isolated “Files”
(Disconnected Data)



CONVERGENCE & TRANSFORMATION PROCESS



Ingest &
Normalise



Automated
Processing
(MT, QA, Terminology,
Style Rules)



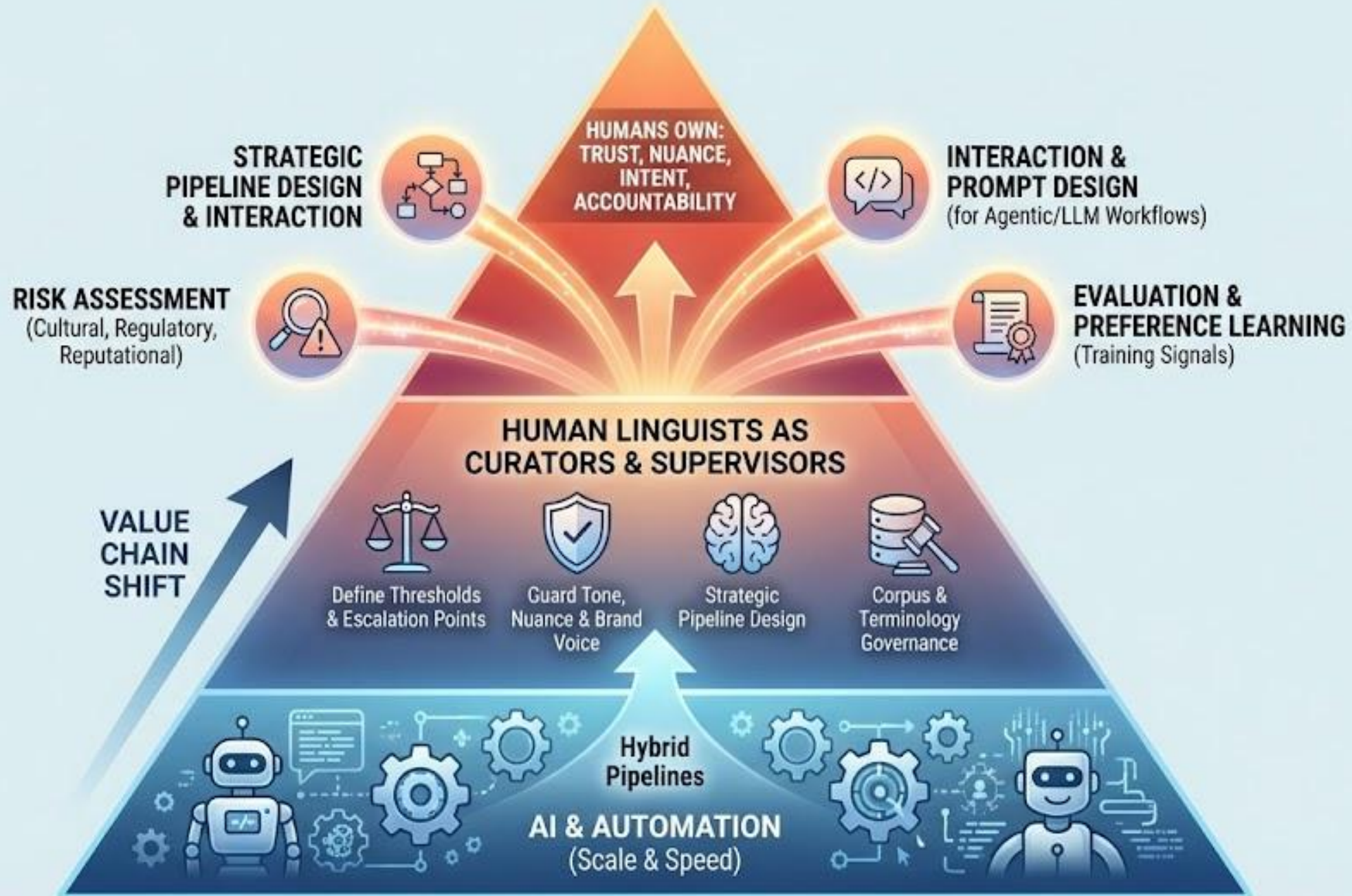
Agentic Workflows
(Plan, Consult, Iterate,
Quality Check)

FUTURE: Unified Semantic Fabric
(Interlinked Meaning)

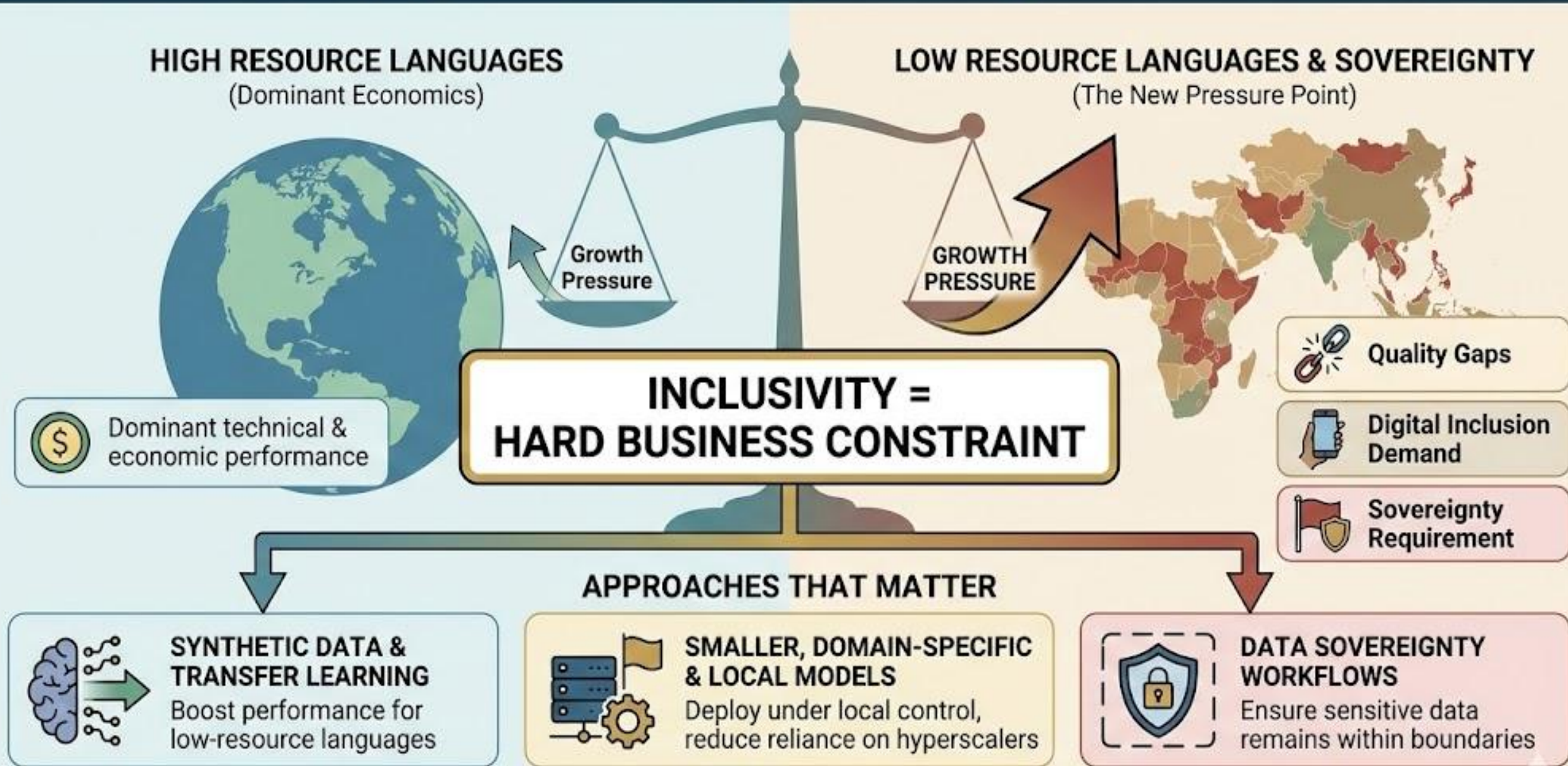


STRUCTURAL EFFECT: Continuous maintenance of an organisation's semantic layer, shaping understanding and action speed.

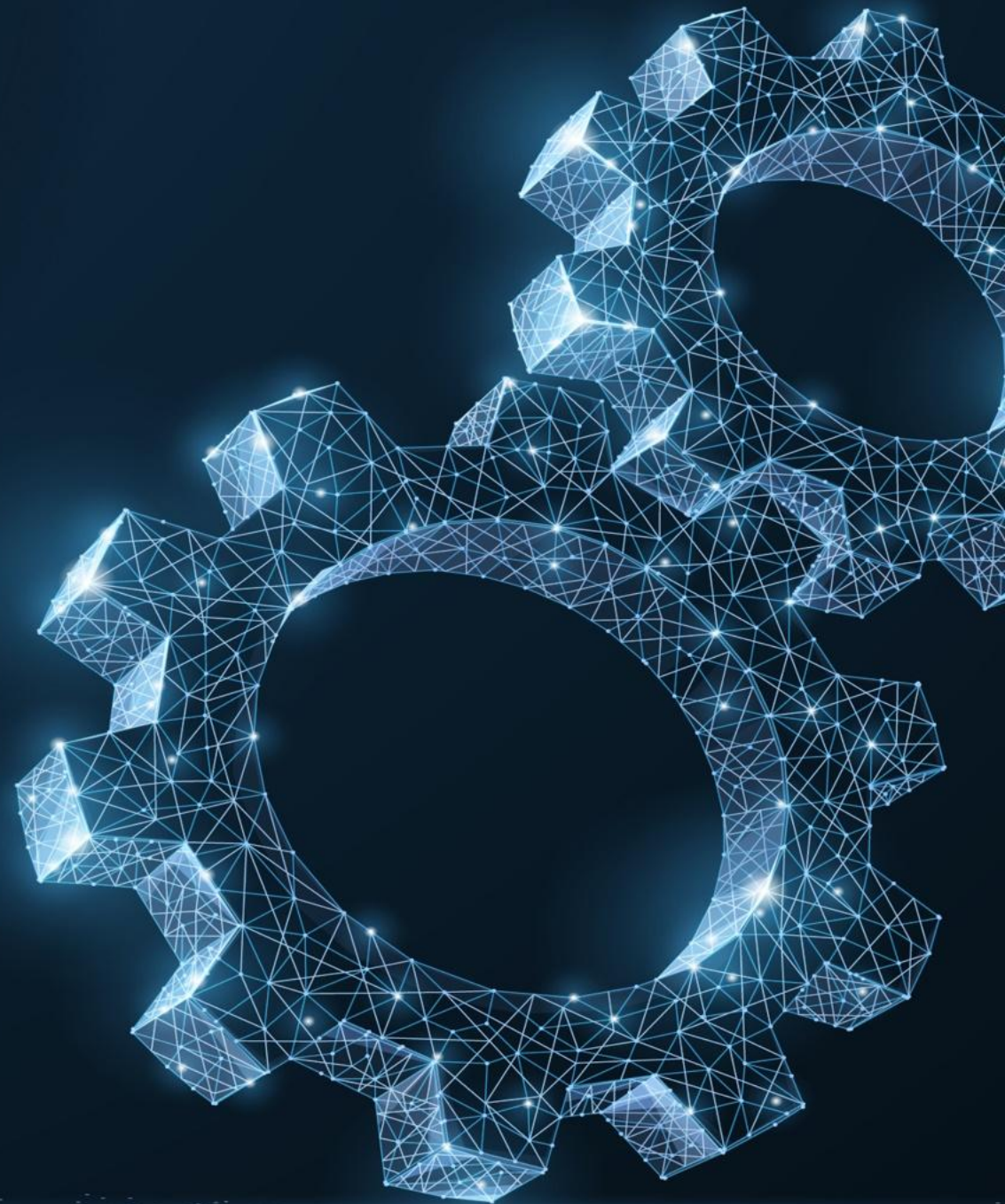
4. Human Linguists Become Curators of Meaning, Risk, and Voice



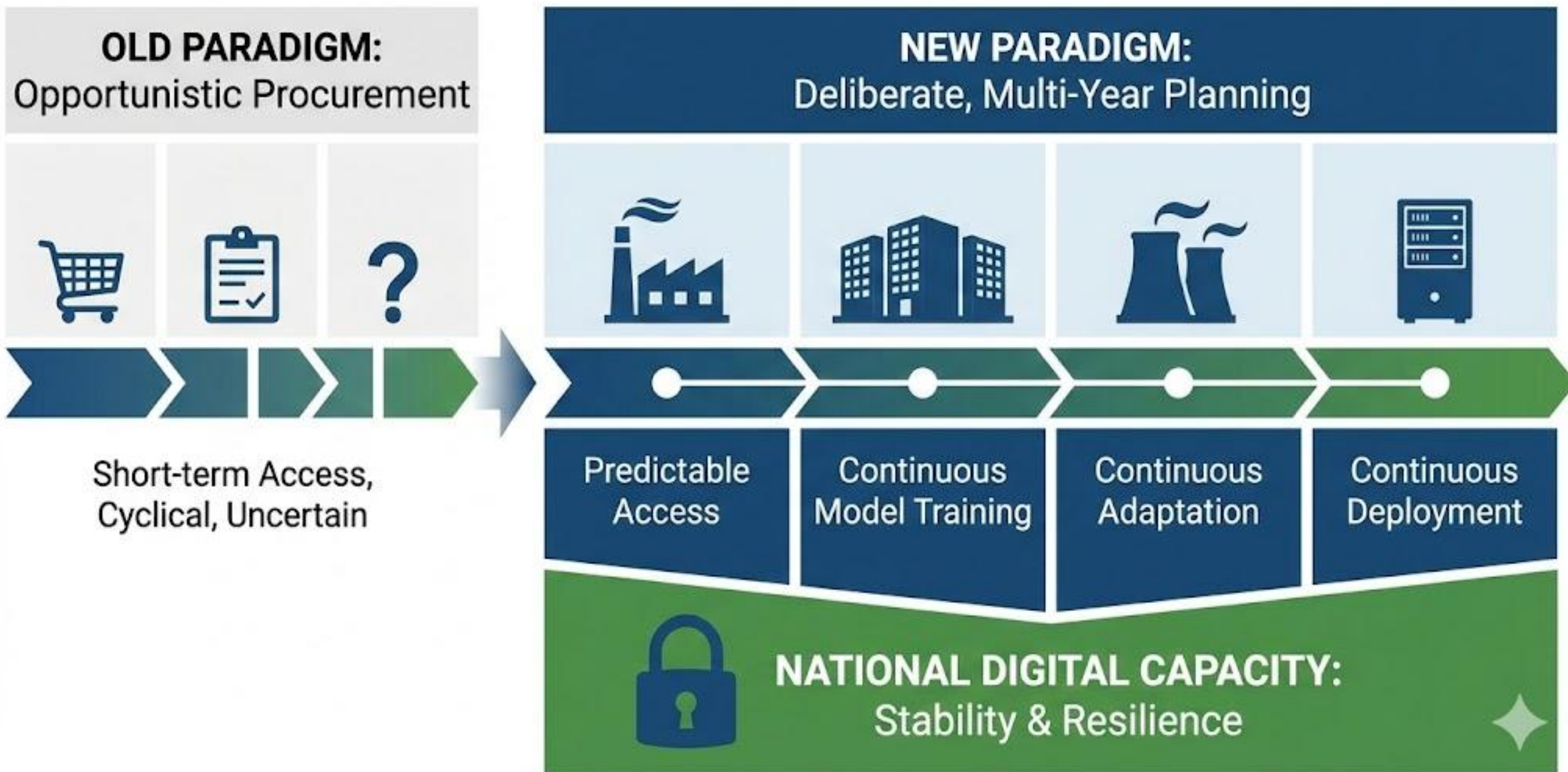
5. Low Resource Languages and Sovereignty Turn Inclusivity into a Hard Business Constraint



Infrastructure and Compute Futures



1. Compute Becomes a Long-Term Strategic Resource



2. Centralised Cloud Introduces Structural Dependency

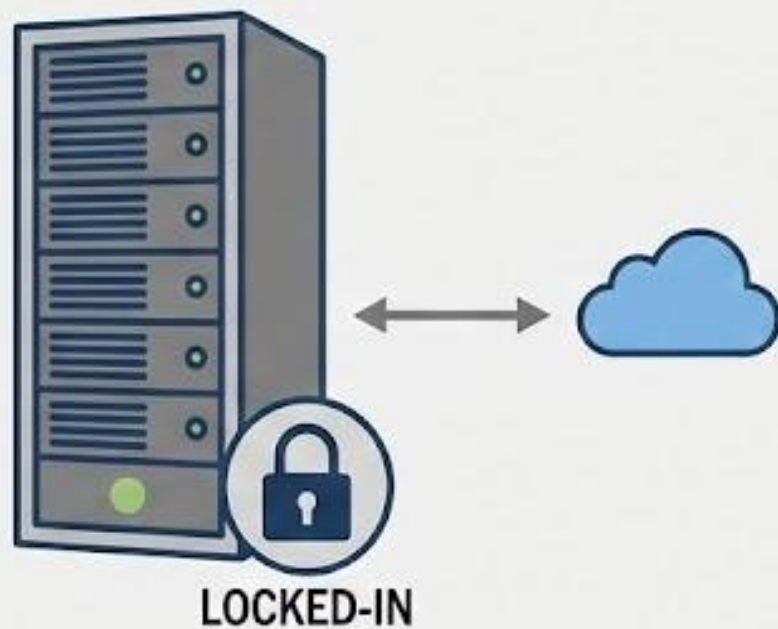


PRACTICAL RESPONSE:
The Discipline of Resilience



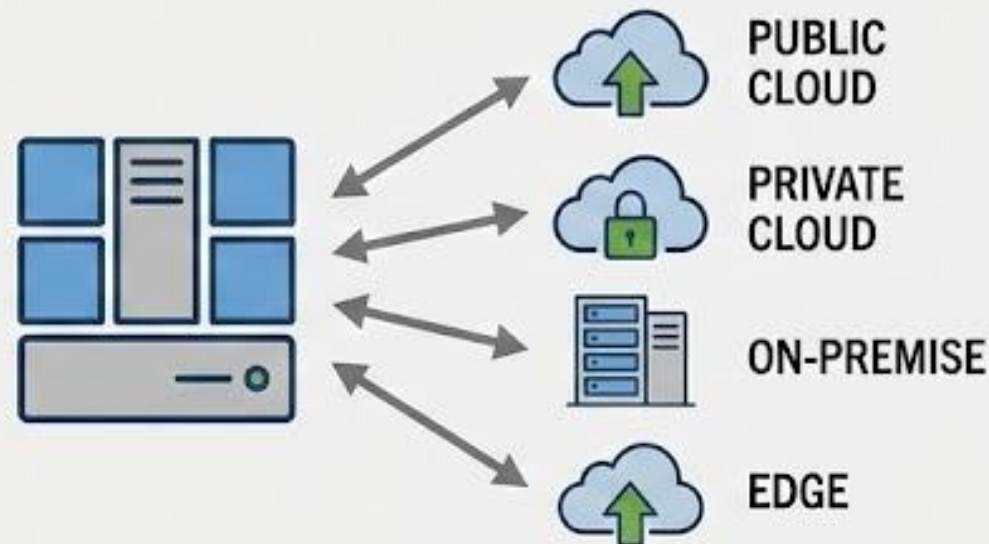
3. Architectural Independence as a Practical Requirement

RHETORIC / IDEOLOGY



Single Environment,
Powerful but Rigid

INFRASTRUCTURE PRAGMATISM



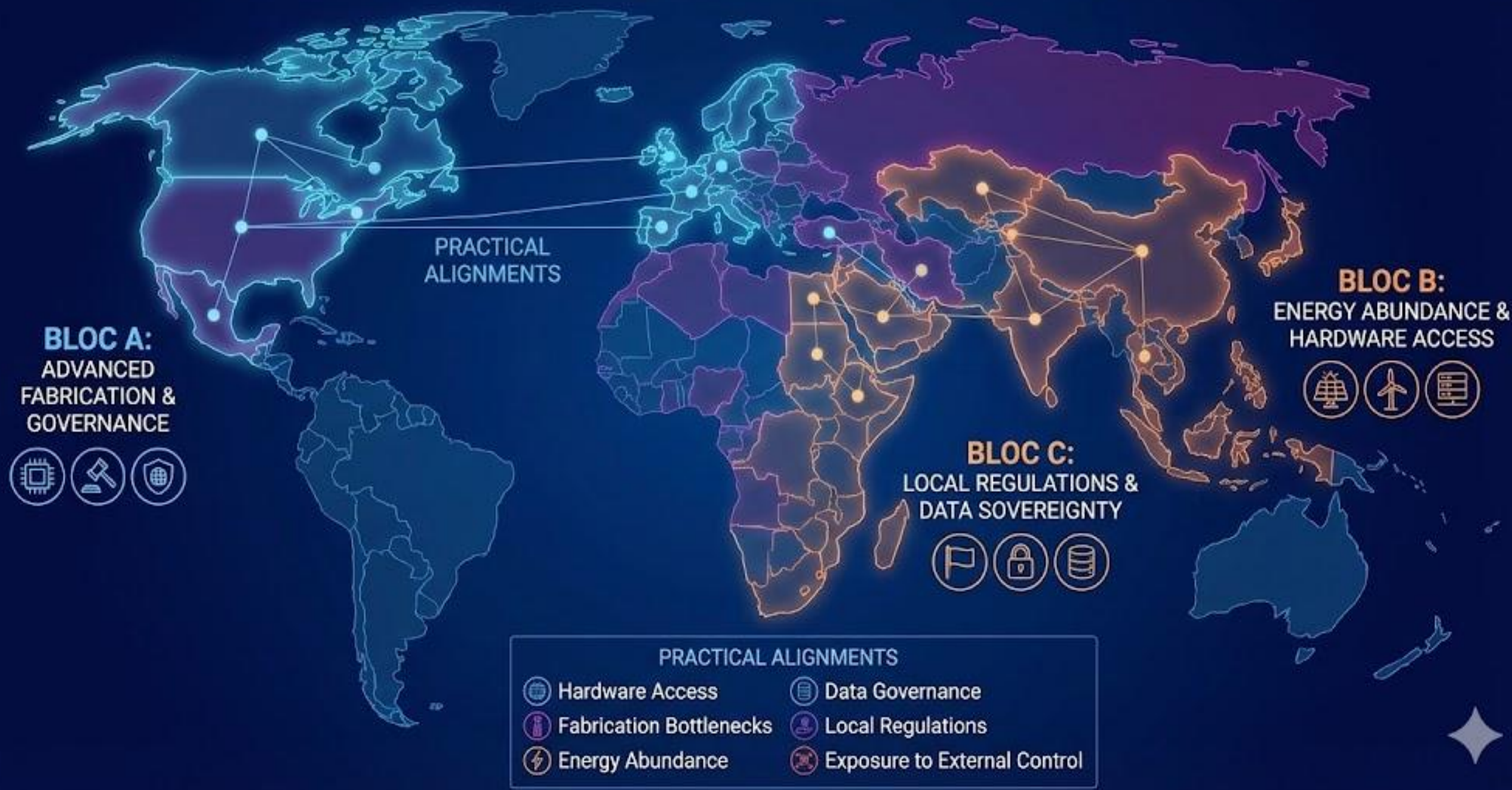
PORTABLE, INSPECTABLE, GOVERNABLE
MEETS COMPLIANCE
REMAINS STEADY DURING SHOCKS

OPERATIONAL
PREDICTABILITY
& CONTINUITY

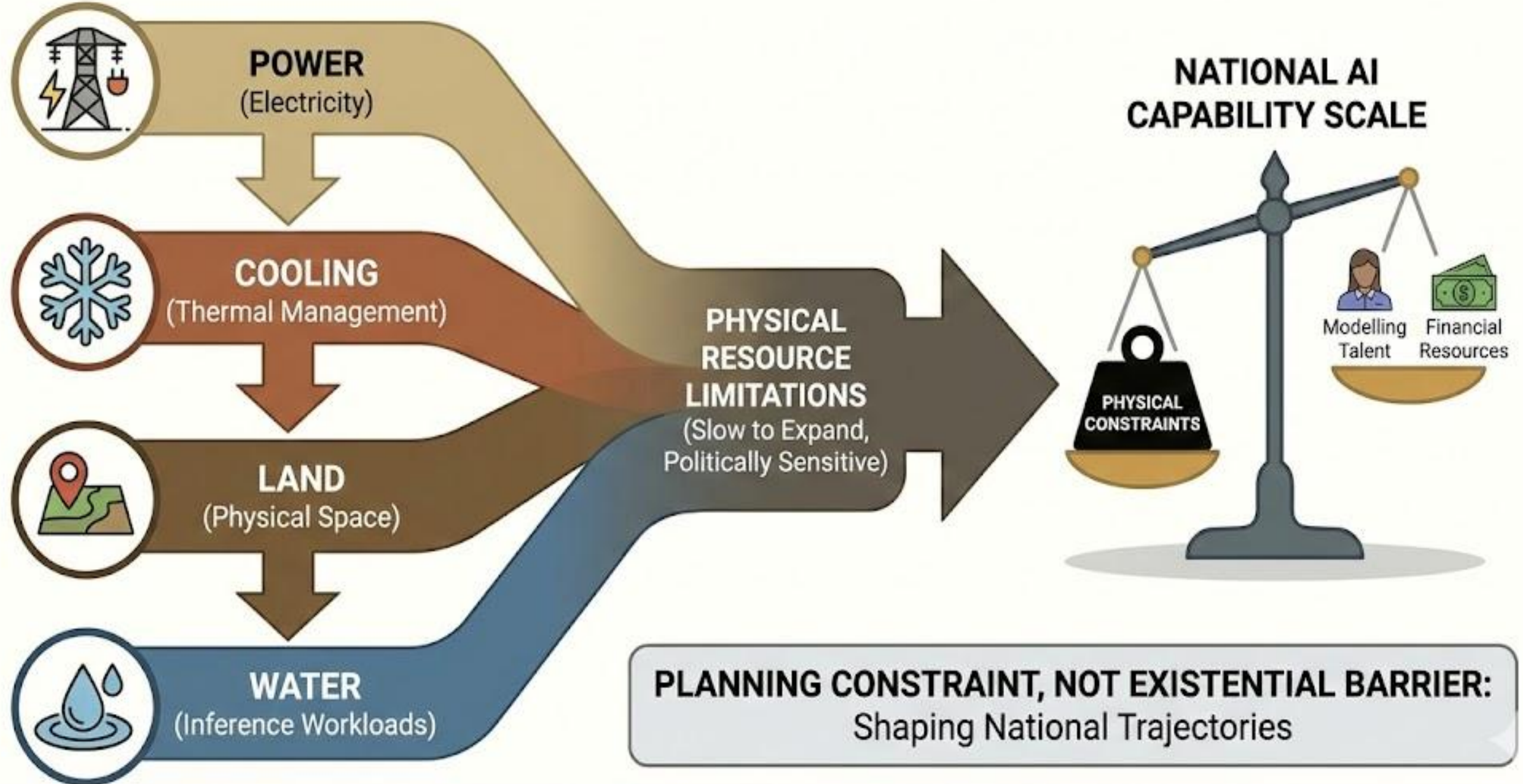


RAW POWER
IN ONE PLACE

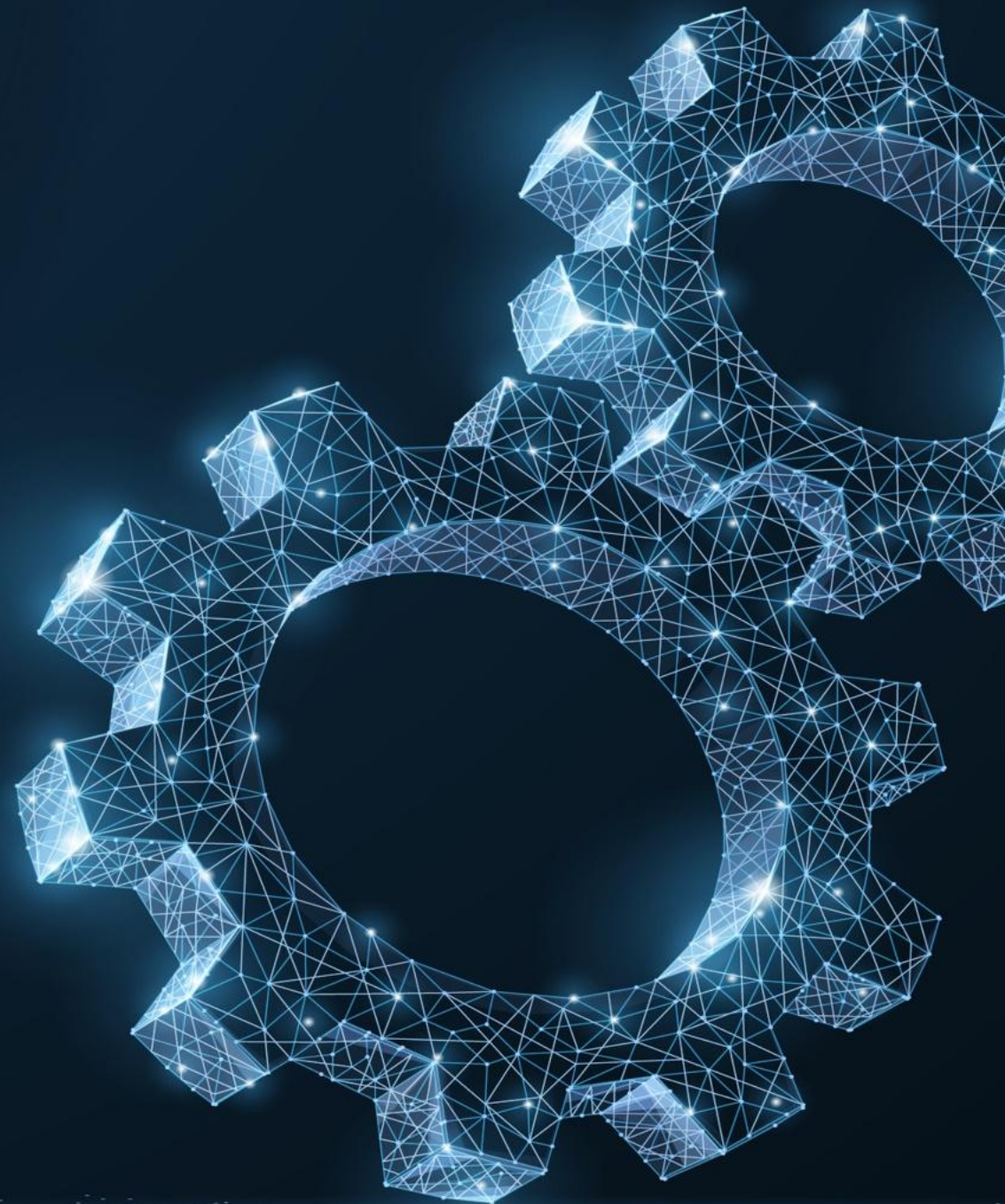
4. Compute Blocs Emerge from Technical Constraints



5. Physical Resources as Limiting Factors of National AI Capability



The Year of Digital Sovereignty

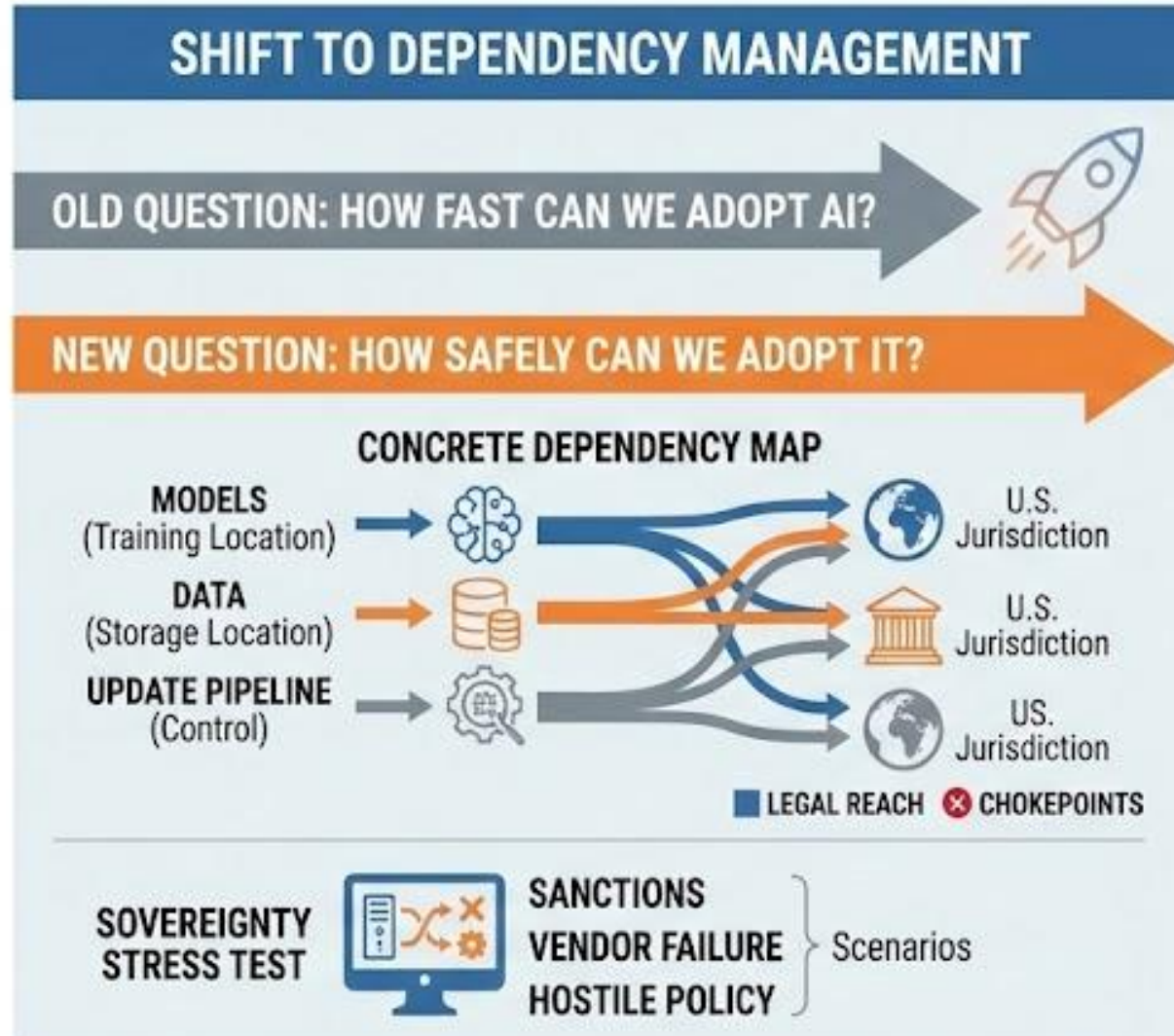


1. Sovereignty becomes a quantifiable dimension of national power



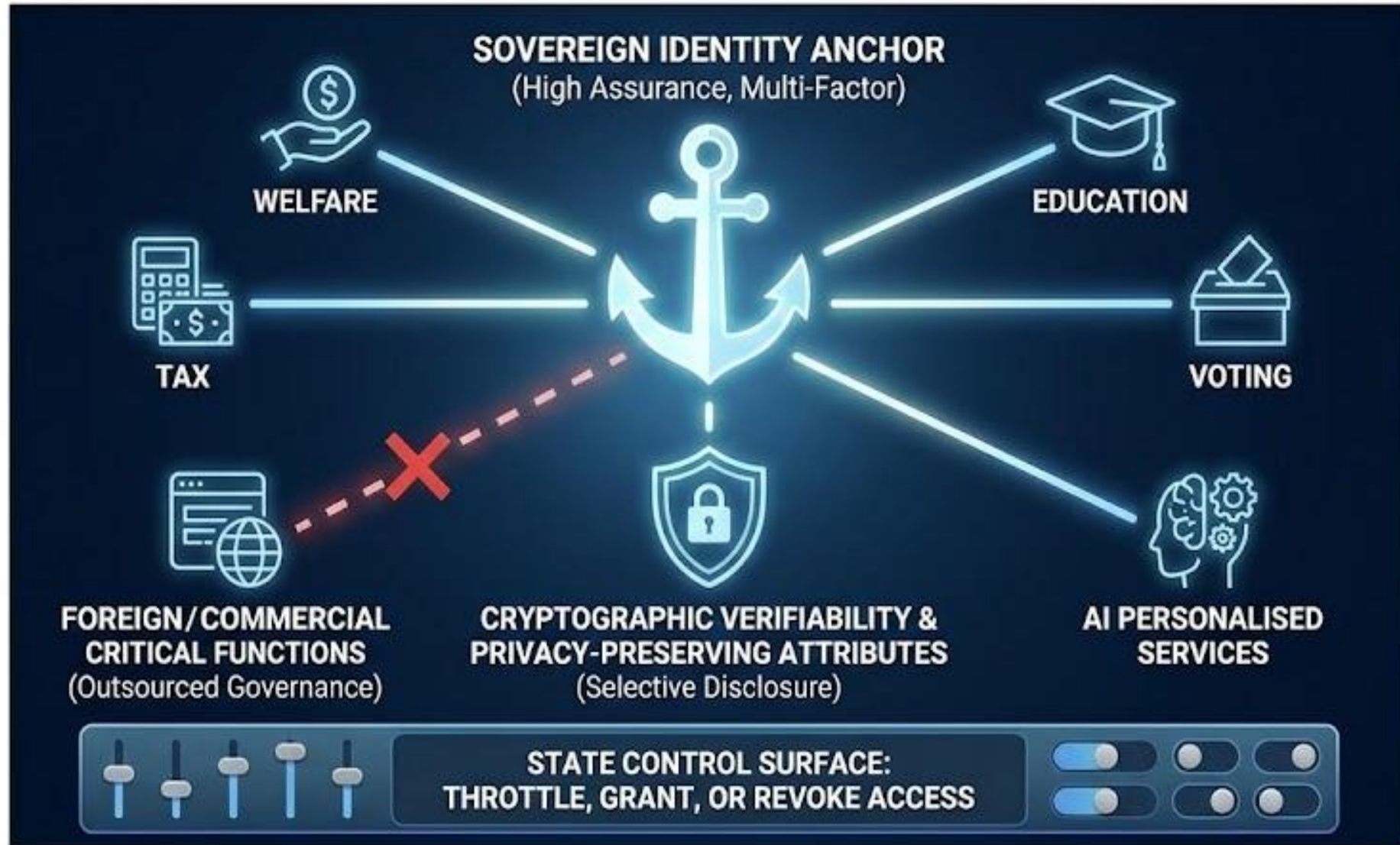
Digital sovereignty indicators now shape alliances, investment, and credit ratings.

2. The political economy of AI shifts from freedom to dependency management & Cloud contracts become national security documents



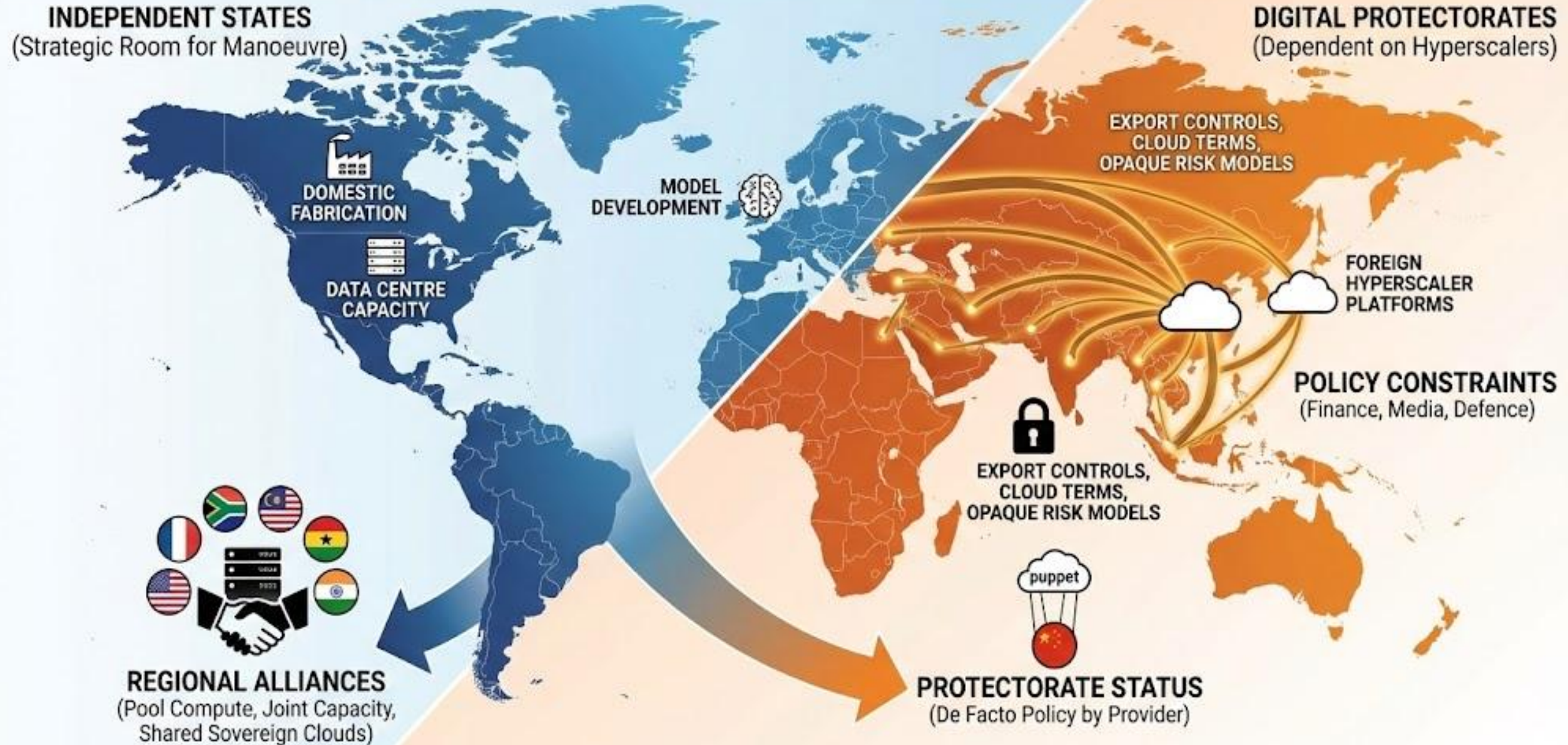
Negotiating favourable cloud terms becomes an indicator of state capacity.

3. Sovereign identity becomes the trust anchor of the entire digital state



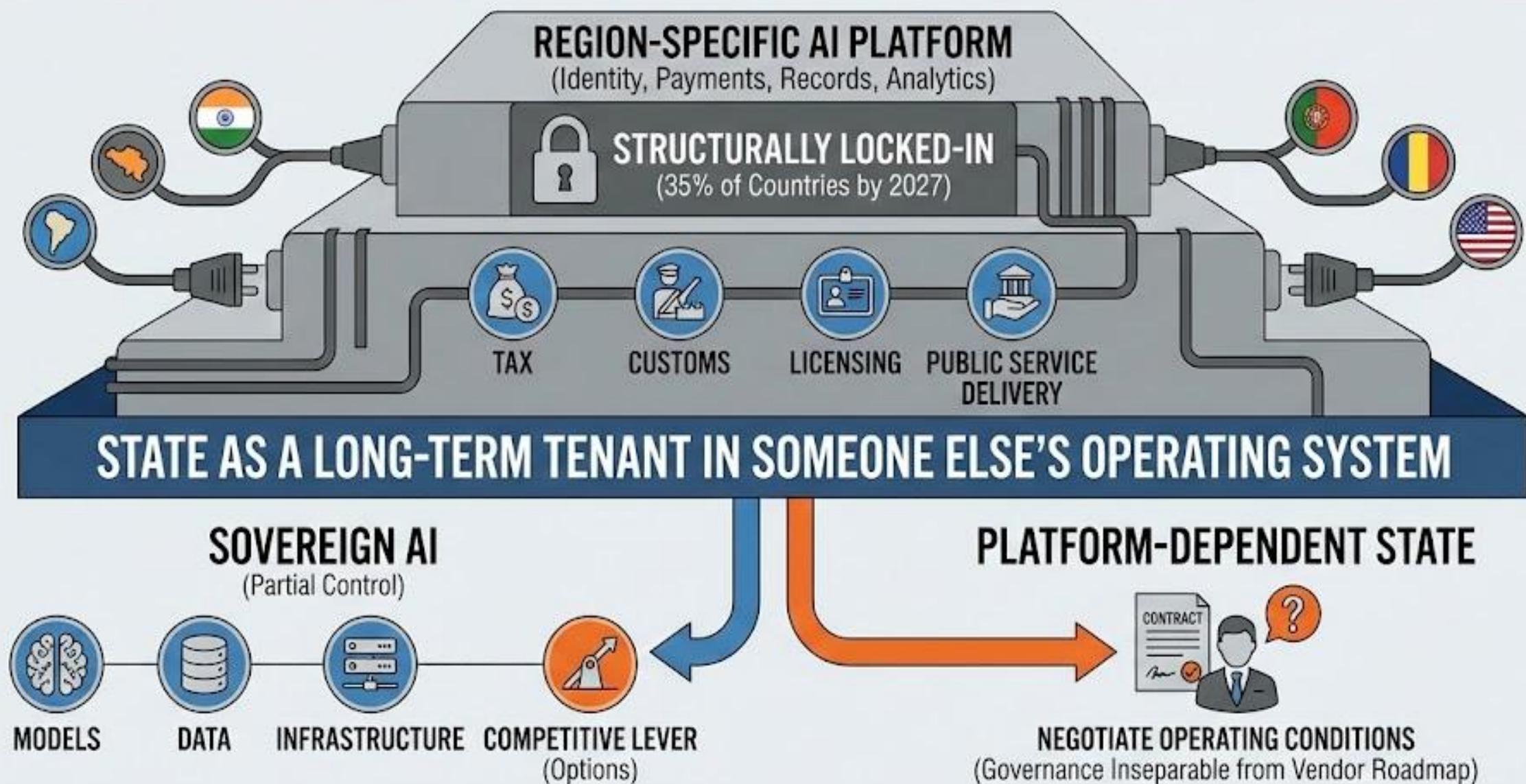
Sovereign identity becomes the primary control surface for the digital state.

4. Nations without compute independence become digital protectorates



The distinction becomes visible in crisis response, economic shocks, and information conflicts.

5. The rise of digital nation state platforms



Sovereign AI ceases to be a slogan and becomes a competitive lever.

THE GREAT CLOUD REVERSAL: GEOPATRIATION

New Gartner Term for a Global Shift



1. A Major Movement Begins as Countries Bring AI Home

OLD PARADIGM: FOREIGN-DOMINATED AI



Reliance on external models,
opaque costs, foreign influence risks.

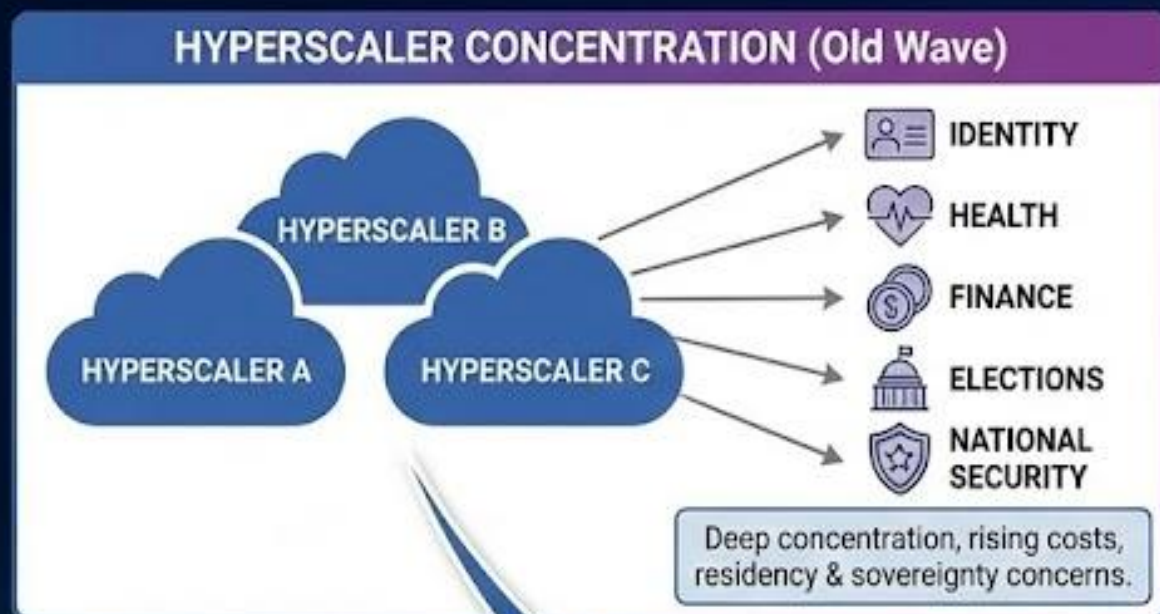
STRATEGIC
NECESSITY &
SOVEREIGNTY
PRESSURES

NEW PARADIGM: HYBRID NATIONAL AI STACK

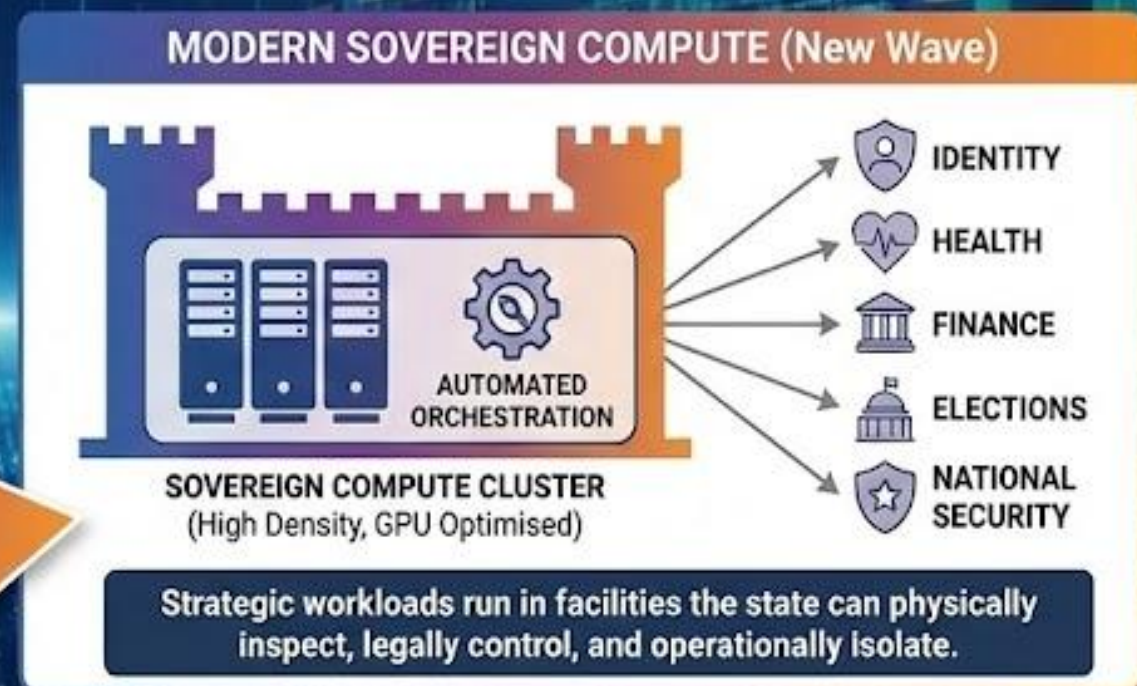


By 2030: National AI capability becomes a
marker of state capacity & diplomatic power.

2. A Parallel Movement Accelerates to De-Cloud and Return to On-Premise Infrastructure



DECISIVE SHIFT: REPATRIATION & SOVEREIGNTY



Move toward open standards, modular architectures, and interchangeable model hosting to avoid vendor lock-in.

3. Rent Seeking by Big AI Becomes a Structural Threat to National Autonomy

BIG AI PLATFORMS (Consolidated Power)

OPAQUE COST
STRUCTURES

UNILATERAL
UPDATE CYCLES



AI OLIGOPOLY

EXTRACTIVE
PRICING MODELS
(Consumption-based)

INFLUENCE ON
POLICY & CRISIS
MANAGEMENT

STRUCTURAL THREAT TO AUTONOMY

REGULATORY RESPONSE & NATIONAL AUTONOMY



NATIONAL REGULATORS &
COMPETITION AUTHORITIES



INVESTIGATE
EXCLUSIONARY
PRACTICES



DEMAND COST
TRANSPARENCY

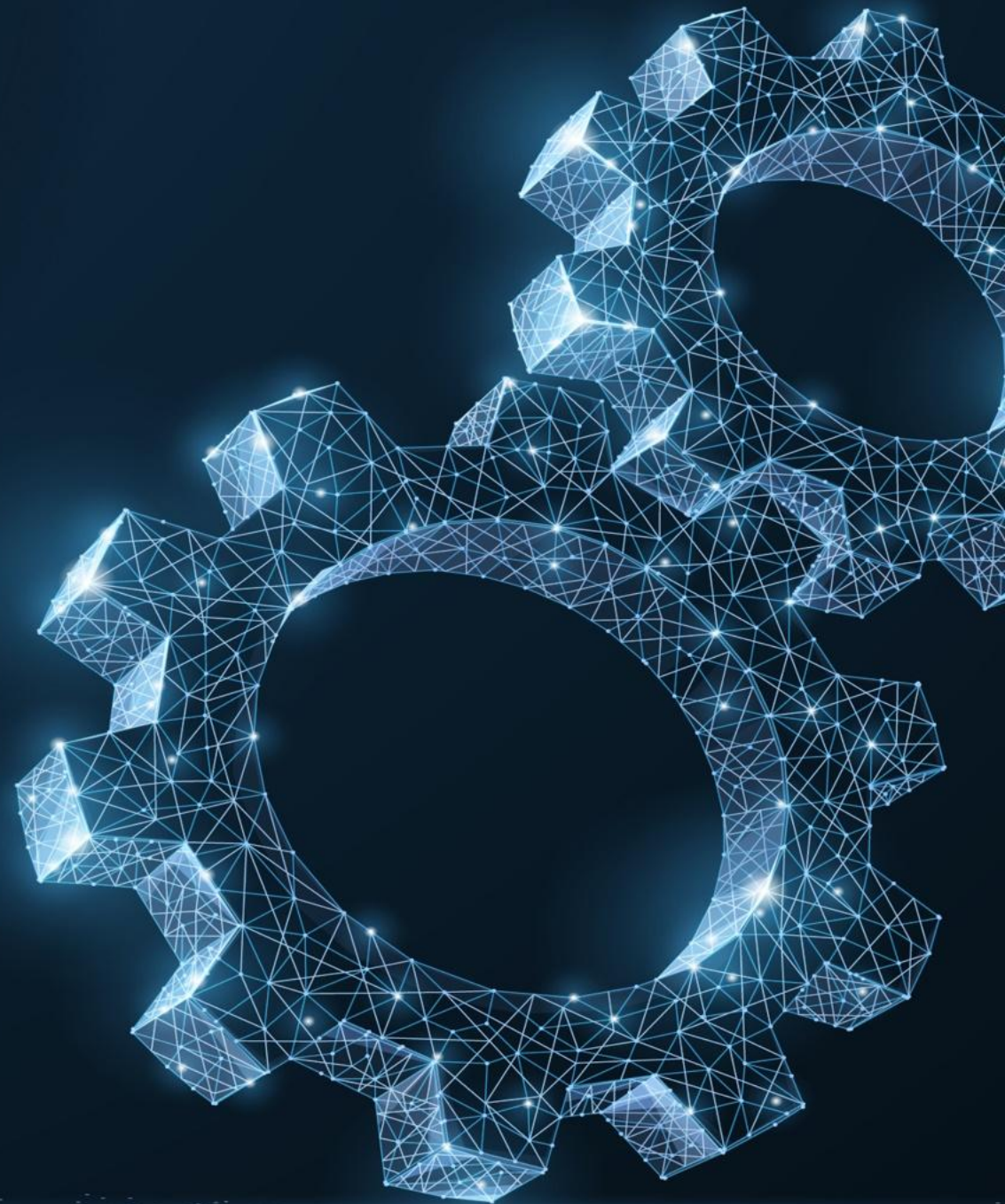


MANDATE
INTEROPERABLE
OUTPUTS

Treat AI platforms as critical infrastructure:
Structural separation, safety disclosure
obligations, sovereign override clauses.

Managing AI rent seeking becomes as important as managing energy, telecom, and financial market concentration.

Beyond the Hype: The Signals That Actually Matter



1. THE SYSTEMS THAT MATTER WILL NOT BE VISIBLE



VISIBLE FRONTIER
(Incremental Improvements)

THE VISIBILITY THRESHOLD

CENTRE OF GRAVITY SHIFTS:
From Shown to Deployed

RELIABILITY LAYERS

EVALUATION PIPELINES

MONITORING & OBSERVABILITY

POLICY ENFORCEMENT

INTEGRATION WORK



2. ADVANTAGE SHIFTS TO CONTINUOUS OPERATIONS

EPISODIC (Old Paradigm)



WAITING FOR HUMAN CYCLES
DISCRETE TOOL
SLOWER UPDATES

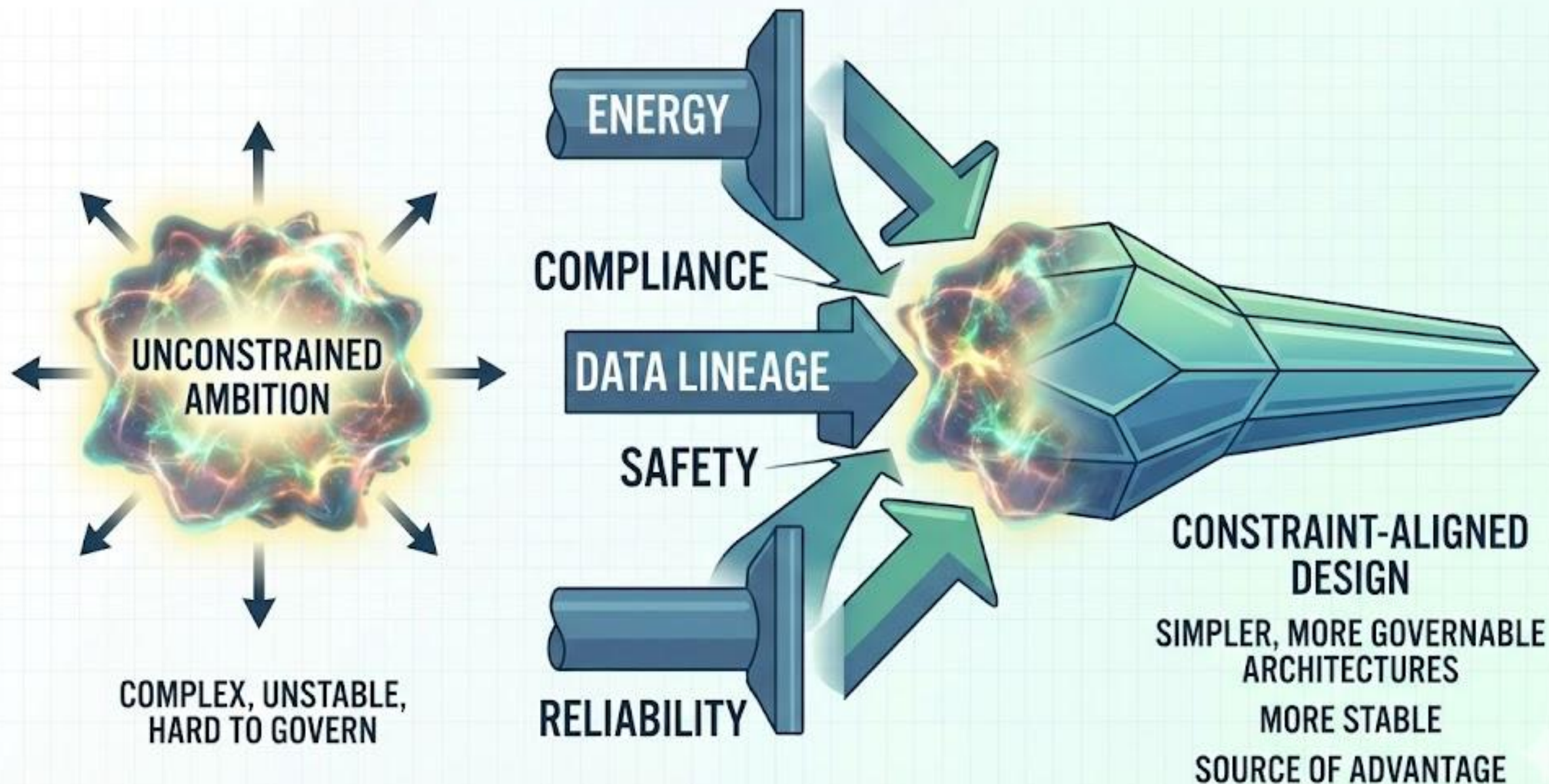
CONTINUOUS (New Paradigm)



AI AS INTERNAL SUBSTRATE
WORKFLOWS EXECUTE INSTANTLY
FASTER DECISIONS & ROUTINE ADJUSTMENTS
STRUCTURAL INCREASE IN OPERATIONAL TEMPO

SPEED BECOMES AN ORGANISATIONAL PROPERTY, NOT A MODEL CHARACTERISTIC.

3. CONSTRAINTS SHAPE DESIGN MORE STRONGLY THAN AMBITION



4. SYSTEM PERFORMANCE OVERTAKES MODEL PERFORMANCE

MODEL-CENTRIC VIEW



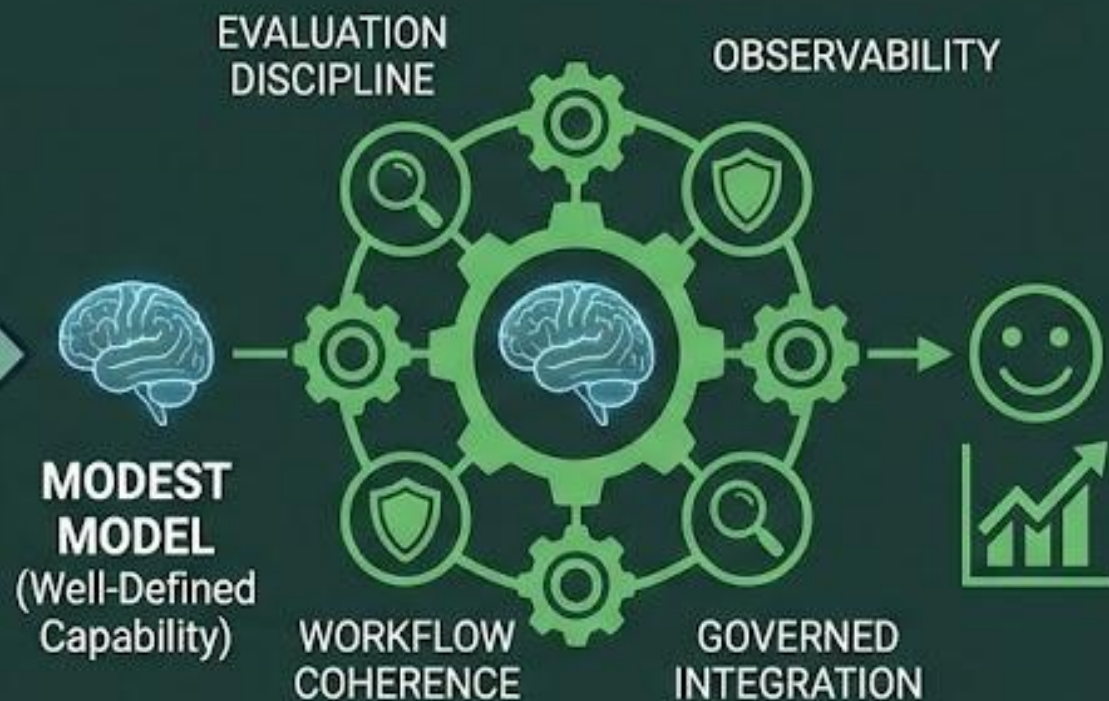
FRONTIER MODEL
(High Capability)



DEPLOYED WITHOUT CONTROLS
POOR OUTCOMES
BENCHMARK SATURATION



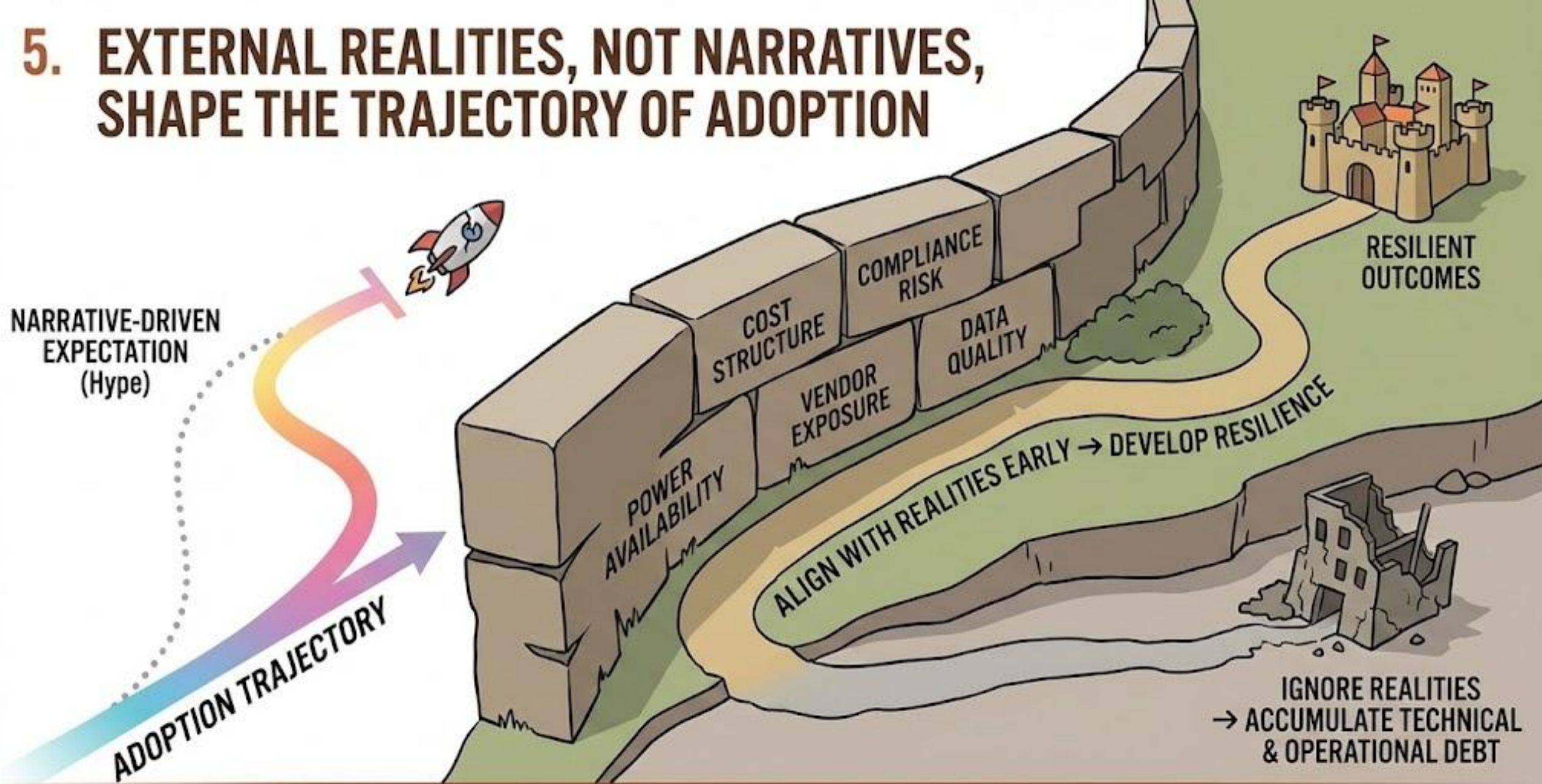
SYSTEM-CENTRIC VIEW



MODEST MODEL
(Well-Defined Capability)

WELL-DESIGNED SYSTEM
SUPERIOR, RELIABLE OUTCOMES
LOCUS OF PROGRESS: SYSTEM RELIABILITY ✨

5. EXTERNAL REALITIES, NOT NARRATIVES, SHAPE THE TRAJECTORY OF ADOPTION



OUTCOMES FOLLOW CONSTRAINTS, NOT CLAIMS.

6. THE BUBBLE FORMS WHERE CAPABILITY EXCEEDS ORGANISATIONAL CAPACITY



THE SIGNAL IS NOT COLLAPSE BUT SATURATION.



7. REAL PROJECTS BECOME CLEARER AS THE NOISE FLOOR RISES

THE NOISE FLOOR
(Hype & Rhetoric)

REAL PROJECT SIGNAL
(Measurable Improvements)



MODEST IN SCOPE, TIGHTLY CONSTRAINED



REDUCE ERROR, SHORTEN CYCLE TIME



INTEGRATED WITH COMPLIANCE & MONITORING

THEIR VALUE IS NOT RHETORICAL. IT IS OBSERVABLE.





QUESTIONS

What is
Generative AI?

Will AI
replace jobs?

How does machine
learning work?



ANSWERS



Creates new content,
and All comss of AI
evotatunc-creates
the nerom-writing.

AI augments human
capabilities to
creates catuntelf
and identity,



Algorithms learn from
data to neqitorate
dameeeemmenos and
emmoitering...

ASK AI |



Dion Wiggins
Founder & Chief Technology Officer,
Omniscien Technologies



Professor Philipp Koehn
Chief Scientist
Omniscien Technologies

Professor of Computer Science,
Johns Hopkins University



SPECIAL GUEST SPEAKER

Dr. Joseph Sweeney
Industry Analyst / Advisor, Future of Work
IBRS

Top 20 Trends and Predictions for AI and Language Processing in 2026