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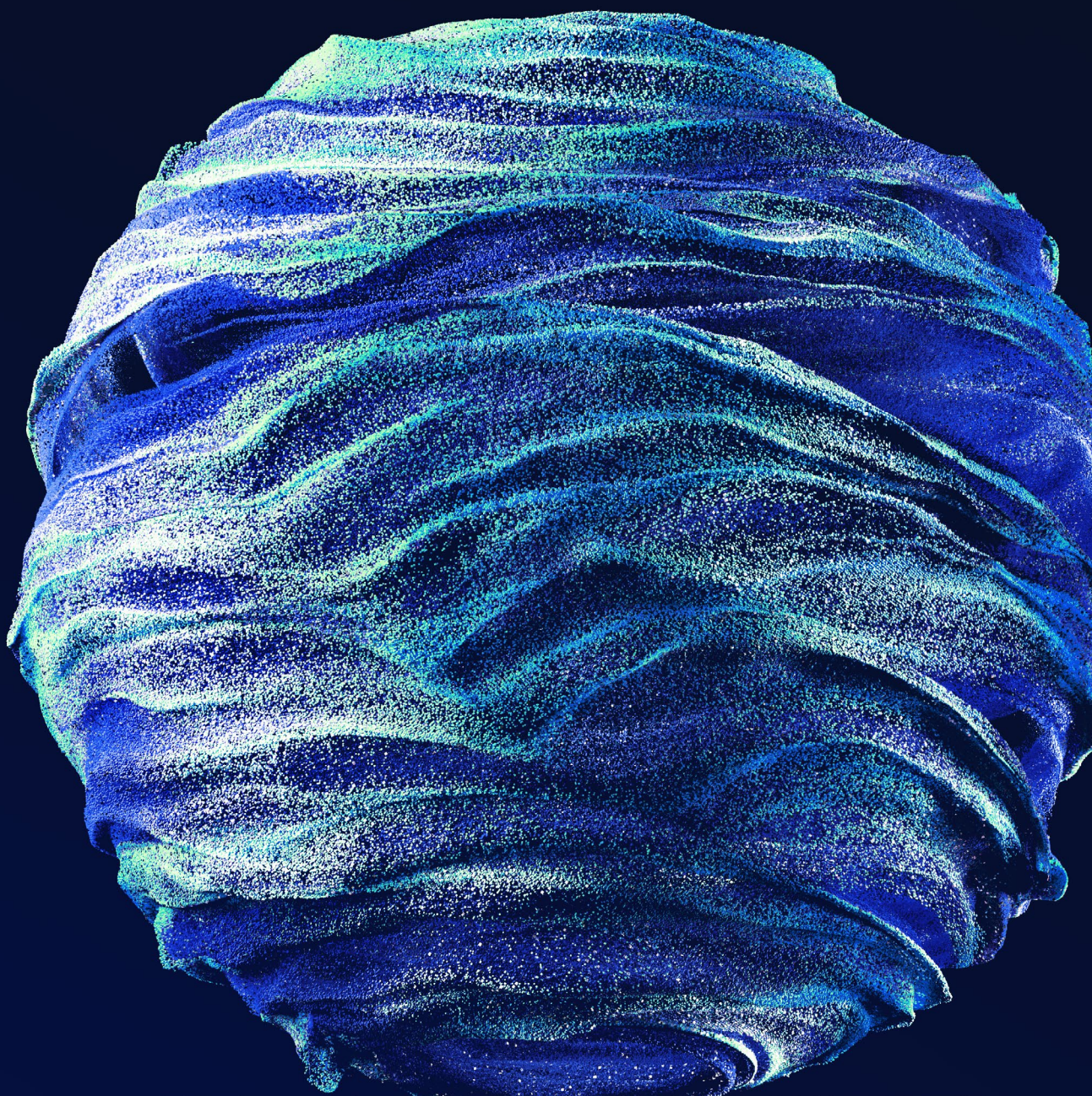
NTT DATA Technology Foresight 2026

Sustaining growth in the era of mass intelligence



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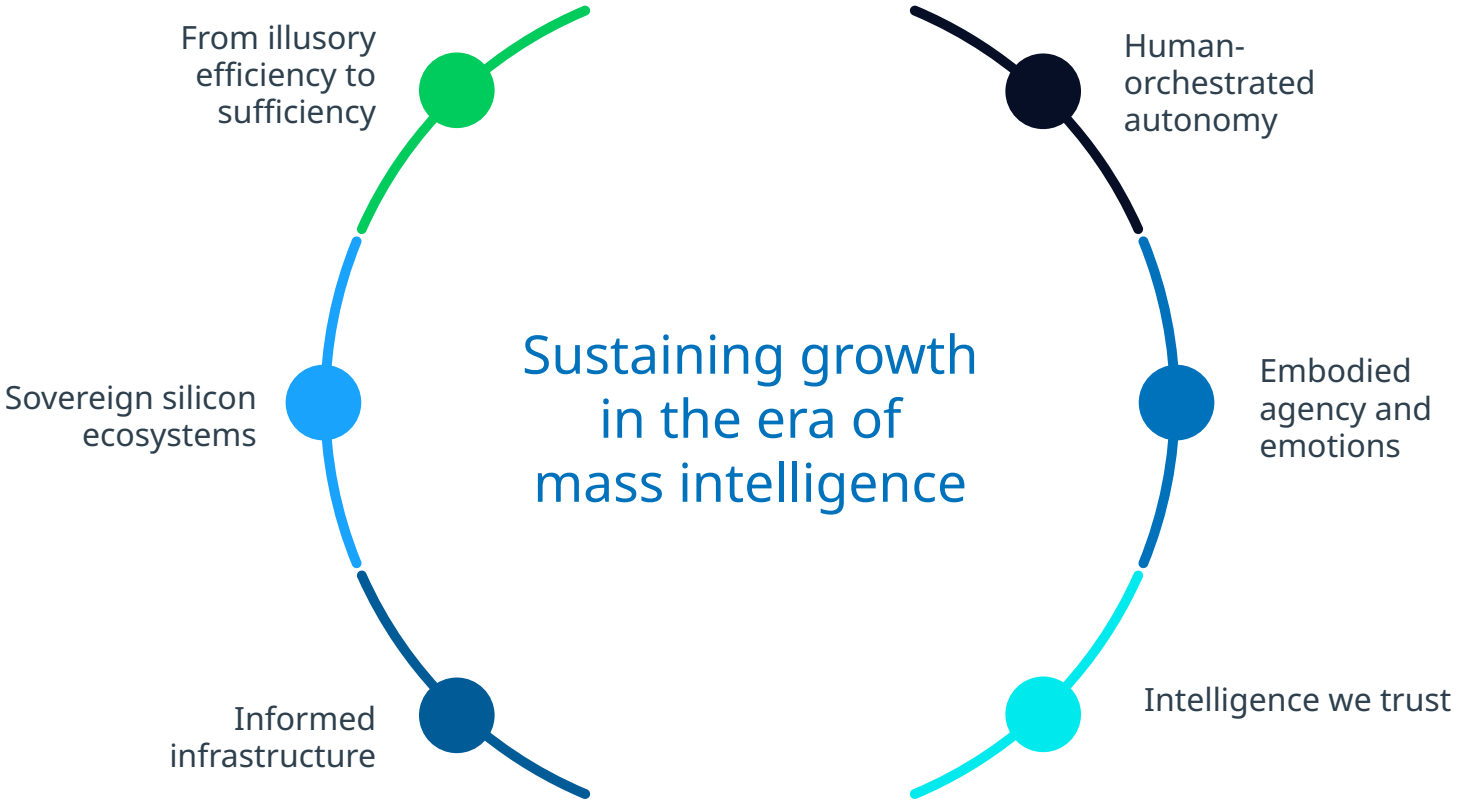
Sustaining growth in the era of mass intelligence

Technology has entered an era of **mass intelligence**, where every system, process and product is increasingly capable of learning, adapting and acting autonomously, and where artificial intelligence (AI) is now accessible to billions — echoing the mass-media origins of the term and the role those media played in societal transformations.

NTT DATA Technology Foresight 2026 explores how this transformation can serve purposeful growth by building systems that are intelligent and transparent, emotional and ethical, and sovereign yet connected.

The six macrotrends presented here represent the architecture of that future: a shift from automation and assistance toward autonomy through emotionally intelligent and ethically governed systems, supported by informed infrastructure, sovereign hardware ecosystems and a renewed commitment to sustainability through sufficiency.



From automation to autonomy: 6 macrotrends

1 Human-orchestrated autonomy

Autonomy is evolving from task automation to purpose-led intelligence, where humans define intent and AI executes it responsibly at scale.

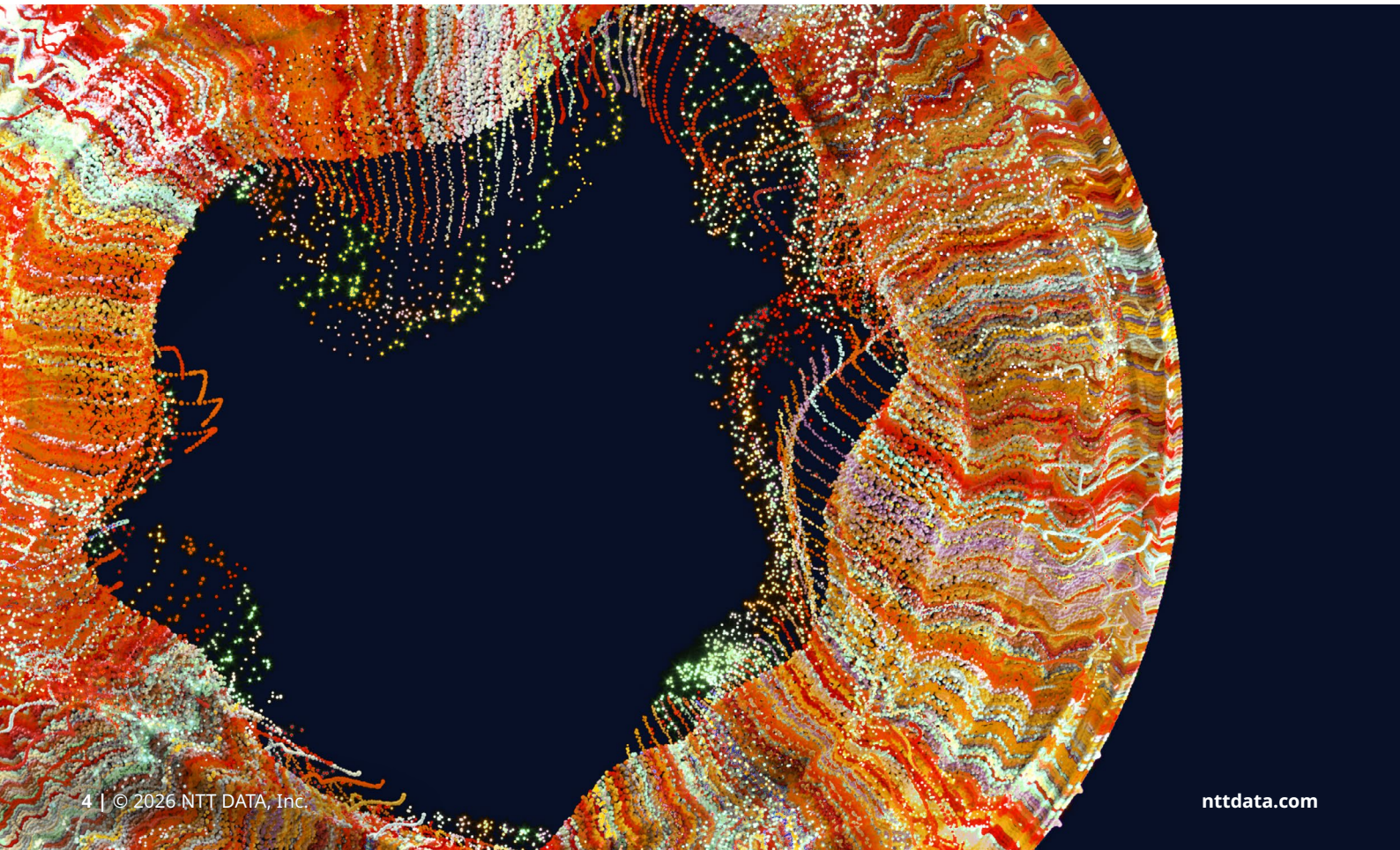
Intelligent systems can now act independently across business functions, physical processes and decision networks, but their autonomy must remain accountable to human ethics and goals.

This new phase of autonomy introduces AI-native architectures and interfaces, and agent identities: standardized ways for machines to interact safely with enterprise systems, ensuring every autonomous action is attributable, auditable and reversible.

Organizations can design adaptive autonomy — systems that adjust their independence based on risk, purpose or context. A drone fleet, a trading algorithm or a customer-service copilot all operate with dynamic levels of oversight and trust.

Autonomy thus becomes a collaborative effort: Humans and intelligent agents co-create outcomes, each optimizing their strengths. Governance and feedback loops ensure ethical control, learning and continuous calibration.

Ultimately, the goal is not to replace human judgment but to scale it, turning intent into orchestrated intelligence that amplifies human purpose across society.



2 Embodied agency and emotions

As machines learn to act, they also begin to feel — at least in computational terms. The next evolution of digital systems includes emotional awareness, embedding empathy and affective understanding into everyday interactions.

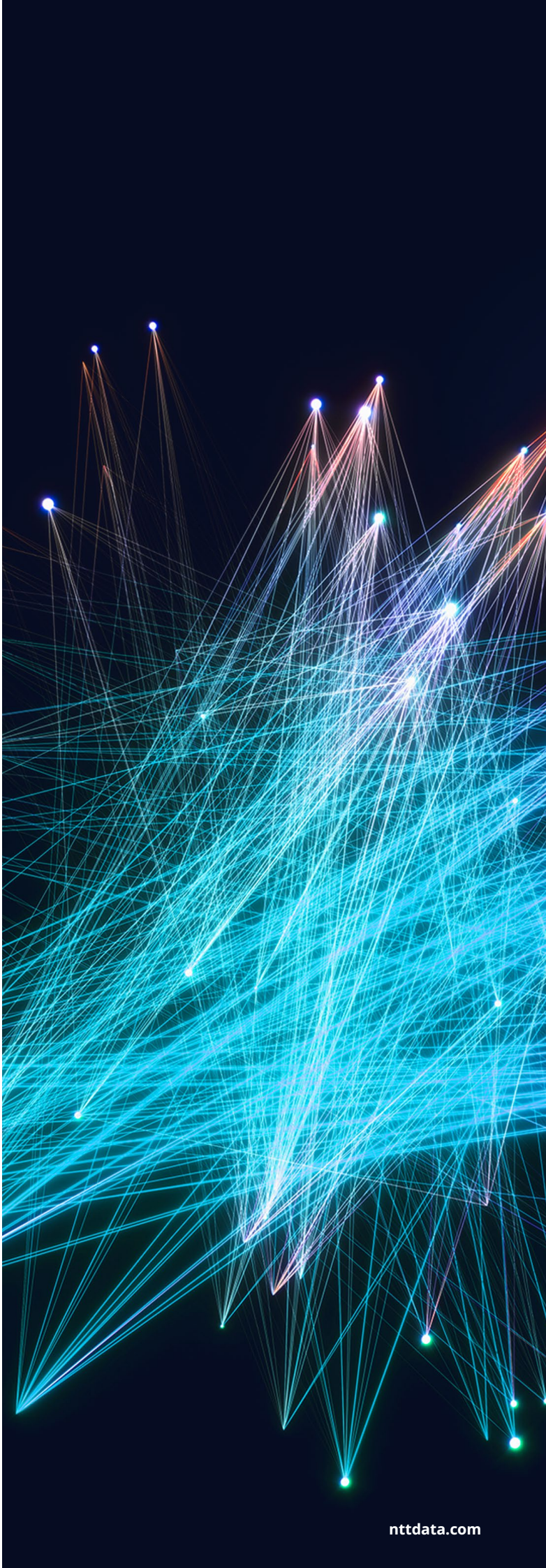
These embodied agents — whether humanoid robots, digital humans or responsive interfaces — represent the "human experience" dimension of intelligent systems.

Emotionally responsive technologies are becoming part of our social infrastructure, supporting education, healthcare, mobility and governance. They interpret tone, gesture and expression to adjust communication dynamically. Through sensorimotor empathy, machines develop the capacity to sense context and respond with care, building trust through presence and emotional-feedback loops.

Emotion, once peripheral to technology, now acts as a structural interface for transparency and cooperation. Emotional feedback fosters loyalty and confidence, turning interaction into co-evolution as all parties in the engagement — users, customers, AI agents and bots — adapt and learn through ongoing mutual influence.

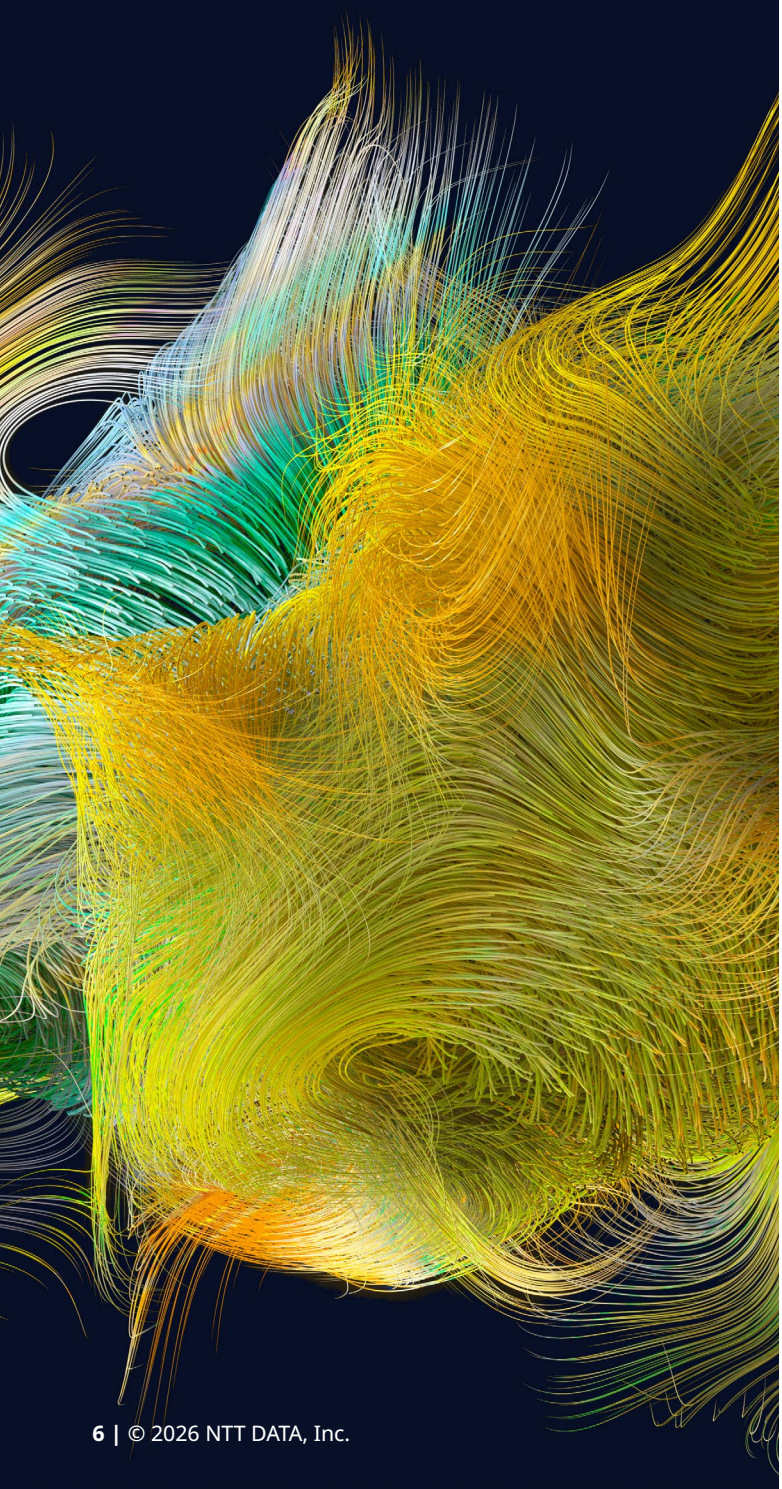
And with this power comes responsibility: Emotional data demands ethical design to ensure privacy, consent and authenticity.

By embedding empathy into software, organizations humanize digital transformation. Emotionally intelligent systems redefine productivity, creativity and inclusion, making empathy not a feature of but a foundation for social resilience.



3 Intelligence we trust

As autonomy and emotional systems expand, trust becomes the critical layer of digital civilization. There is a shift from relying on deterministic outputs to having confidence in the reasoning, values and judgment that guide intelligent systems.



Enterprises must ensure that intelligent systems are transparent, auditable and aligned with human values. Cybersecurity evolves into adaptive intelligence, learning from adversarial patterns and orchestrating countermeasures proactively.

Trust operates on two fronts:

First, AI-powered security strengthens defense. Self-learning algorithms predict threats, validate integrity and maintain resilience across networks.

Second, security for AI ensures that the intelligent systems themselves remain safe, protected from data poisoning, bias and manipulation.

Zero trust architectures and cognitive transparency redefine governance: Every user, device and algorithm must verify its behavior continuously.

Through explainable intelligence, humans are able to see how AI reasons and decides, making accountability measurable and confidence durable.

Trust also depends on culture and cooperation. Cross-industry trust networks, ethical frameworks and human–machine calibration mechanisms create a new social contract of reliability.

In a world governed by algorithms, trust is not a feature; it’s the foundation of progress.

4 Informed infrastructure

Intelligence requires a foundation — and infrastructure itself is becoming intelligent.

Informed infrastructure describes the evolution of systems that sense, learn and adapt across the continuum of devices, edge and cloud.

Through high-performance computing (HPC) that enables AI-driven analytics and quantum simulation, societies can model entire ecosystems before decisions are made. They can test urban layouts, grid balances or logistics routes virtually before deployment.

This marks a shift from reactive systems to proactive, resilient infrastructure that anticipates demand and manages performance in real time.

The once-hidden layers of commodity technology — servers, networks, data centers — are now strategic assets. Enterprises and governments pursue sovereign digital foundations to gain control over computation, data residency and software dependencies.

Given the need to balance latency, energy and regulatory trust. workload placement decisions — whether to process data on a device, at the edge or in the cloud — become economic and political choices.

Continuous intelligence transforms infrastructure into a “living organism” that optimizes cost, agility and sustainability simultaneously.

Ultimately, informed infrastructure isn’t about efficiency alone; it’s about designing systems that learn to support human wellbeing, and where transparency, sovereignty and foresight coexist.

5 Sovereign silicon ecosystems

At the foundation of every digital system lies a chip. The global race to secure and innovate semiconductor capabilities defines the next frontier of technological sovereignty. Sovereign silicon ecosystems capture this shift toward nations and industries reclaiming control over the key hardware components that power intelligence.

Semiconductors are the enablers of high-performance computing and its most transformative application: AI. As AI demand accelerates, compute requirements are increasing steadily and fundamentally, shifting from general-purpose processing to inference-heavy workloads, and from centralized computing to edge environments where data must be captured and analyzed locally.

This evolution is more than a competitive dynamic. It's elevating the strategic importance of semiconductor ecosystems and determining long-term competitiveness and resilience.

Nations and corporations are building end-to-end chip ecosystems, from design and photonics to fabrication and supply-chain control. Heterogeneous compute architectures — application-specific integrated circuits (ASICs), field programmable gate arrays (FPGAs), graphics processing units (GPUs), and photonic and analog — are emerging to reduce dependency and optimize for specific use cases.

Sovereignty, however, does not equal isolation. Innovation flourishes through collaborative ecosystems that link governments, academia and industry.

Ethical sourcing, recycling and energy-efficient manufacturing align sovereignty with sustainability, ensuring that national independence coexists with global cooperation.

In the next decade, control over silicon equals control over intelligence, and the ability to shape an equitable, resilient and innovative digital economy.

6 From illusory efficiency to sufficiency

The narrative closes where it began: with purpose. In a world of limitless computing power, sustainability and sufficiency redefine what "progress" means.

"From illusory efficiency to sufficiency" represents the shift from speed to stewardship, and from short-term optimization to long-term adequacy.

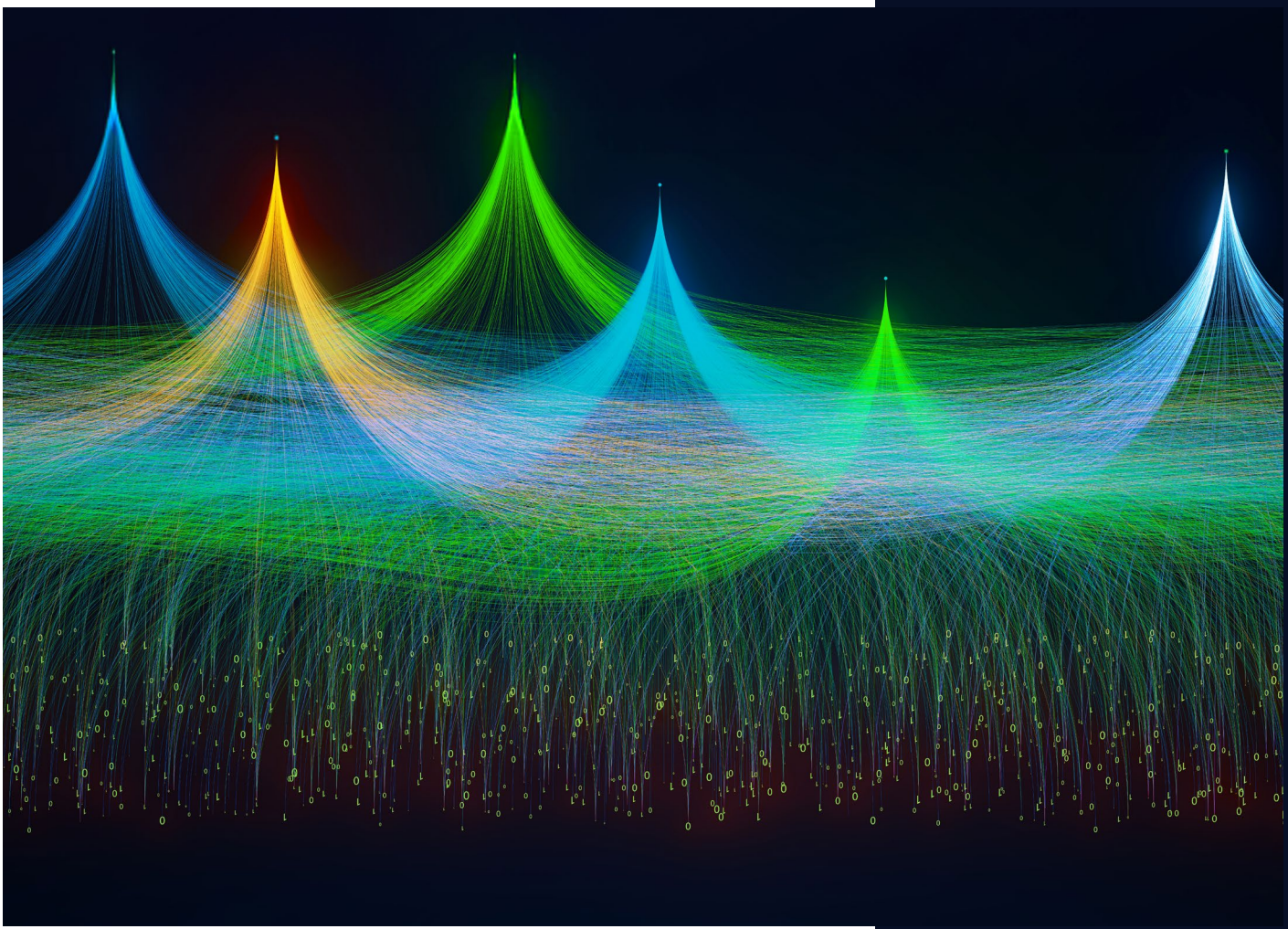
Sufficiency challenges the assumption that more is always better. It promotes resilience over optimization — valuing durability, adaptability and transparency.

AI and digital twins become tools of moderation, modeling optimal thresholds for resource use rather than perpetual growth.

Constraint-driven creativity turns limitations into innovation: When compute or energy is scarce, smarter architectures emerge.

Governance frameworks and regulatory requirements anchor policymaking in real-world data, establishing credibility loops that align local actions with systemic accountability.

Organizations learn that less complexity, energy and material can deliver more trust, creativity and long-term prosperity.



Designing for the future responsibly

Across these six trends, a single narrative emerges: Human intent scales through intelligence only when guided by empathy, trust, sovereignty and purpose.

Autonomy gives machines agency; emotion makes them relatable. Trust keeps them safe; infrastructure makes them scalable. Sovereignty keeps them fair.

And sufficiency makes them sustainable.

NTT DATA Technology Foresight 2026 invites leaders to see technology not as destiny, but as design — to shape an intelligent future that is ethical, emotional and enduring.