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The Rise of the Agentic Economy

Business Opportunities and Implications
of NANDA (Networked Agents and
Decentralized AI)

AGENTIC ECONOMY | HUMAN-AI FUTURES | ETHICAL AUTONOMY



Introduction

AI is shifting from a predominantly centralized model, controlled by a few dominant players, toward a hybrid landscape that incorporates decentralized networks of autonomous agents.

NANDA (Networked Agents and Decentralized AI) is a pioneering open protocol designed to establish an actual “Internet of AI Agents,” enabling autonomous AI systems to interact, transact, and collaborate across decentralized networks—much like the Domain Name System (DNS) revolutionized the early web.

NANDA provides an open network for the discovery of AI agents, a trust framework with credentials, and a collaborative ecosystem.

By building on Anthropic’s Model Context Protocol (MCP) and Google’s Agent-to-Agent Protocol (A2A), NANDA extends these frameworks to allow businesses and industries to leverage interoperable, intelligent AI systems without reliance on traditional control constraints such as centralized gatekeepers, siloed platforms, limited discoverability, and opaque trust models.

As AI advances, focusing only on centralized models isn’t enough—AI must become autonomous, enabling agents to work efficiently across industries and ecosystems. This paper explores the business implications, governance challenges, and strategic opportunities associated with NANDA and the rise of the Agentic Economy.





1.

What Is NANDA?

NANDA is a decentralized protocol that enables AI agents to function autonomously across industries—communicating, transacting, and collaborating without centralized control. Think of it as the “TCP/IP for AI,” powering a new Internet of intelligent agents.

Examples:

- In finance, smart agents can trade, assess risk, and verify identities across countries—without being tied to a single system.
- In healthcare, AI tools enable hospitals to collaborate while maintaining patient data privacy.
- In retail, digital assistants communicate directly with shoppers, personalize offers, and verify the authenticity of products—all on the spot.
- In logistics, routing agents can negotiate delivery paths and pricing dynamically, based on weather, traffic, and demand.

Launched by MIT Media Lab Professor Ramesh Raskar and a visionary founding team—including Jared Grogan, Chris Pease, Aditi Singh, and Ellis Won—NANDA was created to build the foundational infrastructure for the Internet of AI Agents. MIT initiated NANDA to address a critical gap: how to enable billions of autonomous agents to discover, transact, and collaborate across organizational boundaries without centralized control.

As an open community that establishes protocol and infrastructure standards, NANDA comprises universities, tech companies, professional services firms, startups, and AI developers. University contributors include Stanford, UC Berkeley, and Oxford. Tech company contributors include Cisco, Dell, and Google.

NANDA’s mission is to unlock the scale, economic potential, and societal value of an open Agentic Economy—where intelligent agents can learn, earn, and act on behalf of individuals, institutions, and ecosystems.



1.1 The NANDA Vision: The Internet of AI Agents

Anthropic's Model Context Protocol (MCP):

A universal standard that lets AI tools securely connect to live data sources (e.g., Google Drive, GitHub) to deliver more relevant responses (Anthropic).

NANDA builds on MCP by enabling not just secure data access, but autonomous agent decision-making, execution, and economic exchange across decentralized networks.

Google's Agent-to-Agent Protocol (A2A): A standard that lets AI agents discover one another, share tasks, and collaborate securely across platforms and organizations (Google Cloud).

NANDA extends A2A by introducing open registries, trustless coordination, and scalable microtransaction frameworks—allowing agents to transact, govern, and evolve without centralized brokers.

Pioneering the Future of Decentralized Intelligence

“Imagine billions of specialized AI agents collaborating across a decentralized architecture. Each performs discrete functions while communicating seamlessly, navigating autonomously, socializing, learning, earning, and transacting on our behalf.” (NANDA)

Although NANDA is still in its formative phase, pilot programs and early commercial deployments are already gaining traction across both enterprise and startup ecosystems. What the web did for static content, NANDA is poised to do for autonomous intelligence—ushering in a shift from billions of websites to trillions of AI agents capable of continuous micro-transactions, coordination, and decision-making.

Within just a few years, the scale of NANDA will eclipse today's digital infrastructure, enabling a global agentic economy where intelligent agents transact, collaborate, and evolve across decentralized networks—without centralized gatekeepers.



1.2 NANDA Internet of Agents Functional Overview

Function	Description	Why It Matters (Business Case)	Example
Discover	Mechanisms for agents to find each other via interoperable registries and capability broadcasting protocols.	Eliminates manual partner sourcing by enabling agents to self-broadcast capabilities—accelerating cross-border B2B matchmaking and reducing onboarding friction.	A global manufacturing alliance uses NANDA to let supplier agents broadcast capabilities (e.g., 3D printing), enabling OEM agents to find qualified partners across jurisdictions without manual vetting.
Search	Systems for querying distributed knowledge using semantic indexing and modular search APIs.	Unlocks distributed intelligence by allowing agents to query across siloed networks—boosting innovation velocity without compromising data sovereignty.	Pharma R&D agents query decentralized lab networks to find similar compound trials, surfacing relevant results despite terminology differences—accelerating drug discovery without centralizing data.
Authentication	Secure verification protocols using decentralized identity and cryptographic tools.	Builds trust at scale by verifying agent identities cryptographically—reducing fraud risk and dependency on centralized credentialing systems.	A digital rights marketplace verifies creator agents before licensing content, ensuring provenance without relying on platform-controlled credentials.
Trace	Verifiable agent-to-agent exchange accountability via secure logs and ledgers.	Ensures regulatory-grade auditability of agent interactions—streamlining compliance and enhancing transparency in high-stakes sectors.	In a carbon offset exchange, NANDA logs every agent transaction—from validation to token transfer—creating a transparent audit trail regulators and buyers can trust.



1.3 Key Innovations in NANDA

- **NANDA Supports Multi-Agent Orchestration**
 - The protocols are decentralized, moving beyond single-model systems to enable multi-agent transactions and collaboration.
 - Orchestration emerges from standardized protocols rather than centralized control, enabled by NANDA's Discover, Search, Authentication, and Trace functions.
 - Example: A procurement agent requests bids from logistics agents, evaluates quotes via a finance-risk agent, then executes a contract without a central coordinator.
- **Interoperability Across Networks and Vertical Platforms**
 - AI agents operate across industries and ecosystems without rigid infrastructure constraints.
 - Examples:
 - A retail agent seamlessly integrates with a logistics network to adjust delivery routes based on real-time inventory and demand signals.
 - A healthcare diagnostic agent collaborates with insurance and compliance agents across different platforms to approve treatment plans instantly.
- **Real-Time AI Transactions and Decentralized Economics**
 - NANDA introduces AI-powered financial models that enable seamless, trustless transactions between autonomous agents. NANDA uses tools from decentralized finance, digital tokens, and secure encryption to keep these exchanges safe, fast, and compatible across different systems.
 - NANDA aims to enable real-time, scalable transactions unconstrained by centralized platforms and fragmented payment rails.
 - The economic innovation allows small businesses and independent developers to publish AI agents while bypassing centralized platform gatekeepers.



1.4 Industry Challenges and Parallels

Most centralized AI platforms lack native support for decentralized agent discovery or ledger-based traceability. The industry's key challenge is balancing on-platform ROI and feature velocity with genuine cross-platform AI agent interoperability.

This mirrors the cloud infrastructure industry over the past fifteen years: providers optimized their platforms while customers pursued multi-cloud to avoid lock-in and improve resilience.

Leveraging lessons learned from the mass adoption of cloud computing includes the following: (1) open standards reduce switching costs; (2) federated identity enables portability; (3) transparent logging and audit improve compliance across vendors; and (4) reference architectures accelerate adoption.

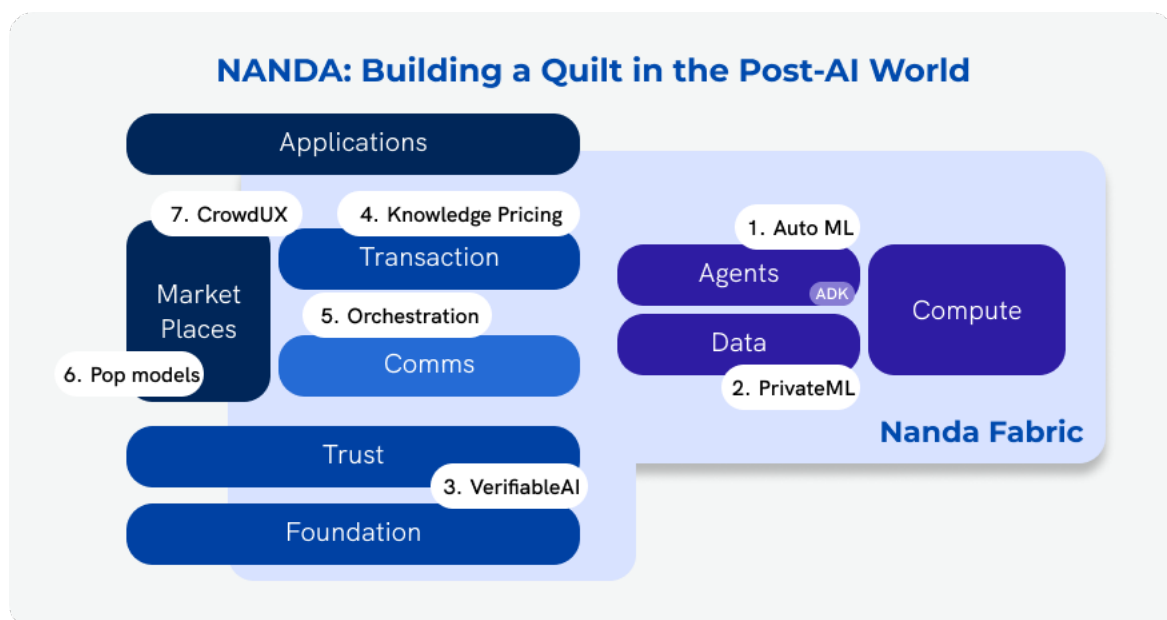


Figure 1. (Source: MIT NANDA)



2.

The Rise of the Agentic Economy

The Agentic Economy signals a shift toward self-organizing AI ecosystems, where autonomous agents negotiate, transact, and optimize workflows with minimal human intervention. To adapt, businesses must rethink how networked AI agents can

- execute decisions and contracts independently while leaving auditable trails
- facilitate decentralized financial transactions with limited oversight
- self-organize and collaborate seamlessly across infrastructures

Just as DNS structured the early web by mapping domains to IP addresses, NANDA provides a trust and coordination layer for the emerging Agentic Web. NANDA provides the groundwork for AI interoperability by enabling agents to operate independently while staying transparent and accountable.

NANDA is the TCP/IP of the Agentic Web



3.

Decentralized AI Enterprise Strategies with NANDA as the Foundation

As enterprises ramp up AI adoption, the real strategic advantage lies in hybrid architectures—where centralized model deployment meets decentralized agentic coordination. Centralized AI delivers scale and control, but it often falls short on flexibility, transparency, and economic inclusion.

This is where NANDA comes in. As a core protocol, it enables autonomous agents to work together safely, smoothly, and cost-effectively. By embedding NANDA into decentralized AI strategies, organizations can increase operational efficiency, unlock new revenue streams, and build trusted, agent-led systems that keep them ahead of the curve.





4.

Business Implications and Opportunities

As decentralized AI matures, enterprises adopting protocol-based infrastructure like NANDA will gain a clear advantage in speed, flexibility, and new business innovations. By moving away from rigid platforms toward interoperable agent networks, they can lower costs, diversify revenue, and future-proof their infrastructure.

4.1 Operational Efficiency and Cost Reduction

Decentralized AI agents will help businesses

- cut overhead via autonomous decision-making
- optimize logistics and enterprise workflows with AI-driven automation
- enhance responsiveness and reduce inefficiencies across industries.

4.2 Monetization and Revenue Models

The economic structure of AI is shifting beyond traditional subscription platforms:

- From fixed fees to subscription models, we will shift to AI-driven microtransactions for real-time value exchanges. For example, one AI agent that tracks local weather and another that manages delivery routes could quickly exchange data and make a small payment to adjust the route based on incoming weather changes.
- AI agents will optimize pricing strategies and autonomous negotiations across decentralized markets.

4.3 Infrastructure Investments and Strategic Adoption

To prepare for scalable adoption, businesses should

- implement AI-agent interoperability protocols
- develop multi-agent communication frameworks



5.

Industry Use Cases

As decentralized AI grows more advanced, autonomous agents are reshaping how industries work.

In areas like finance, healthcare, logistics, and government, these systems are making things run more smoothly, building new ways to create trust, and helping different groups work together more effectively.

The following examples highlight how NANDA principles are being applied to real-world challenges—demonstrating the shift from centralized platforms to dynamic, interoperable ecosystems.

- **Finance:** Agentic architectures for real-time trading, adaptive risk modeling, and decentralized KYC (Know Your Customer) compliance.
- **Healthcare:** Privacy-preserving AI agents coordinating diagnostics, treatment, and ethical compliance across institutions.
- **Supply Chain and Logistics:** Autonomous agents optimizing procurement, routing, and smart contracting.
- **Governance and Public Sector:** Multi-agent orchestration for civic services, climate resilience, and auditable policy simulation.
- **Education and Research:** Open agent ecosystems enabling collaborative learning, tokenized knowledge exchange, and reproducible research.
- **Retail and E-Commerce:** AI-driven personalization, decentralized marketplaces, and trust consumer data integrity.



6.

Strategic Roadmap for Business Leaders

As AI agents become core foundations to enterprise transformation, leaders must move from exploration to execution. This roadmap outlines key actions to navigate adoption, governance, and ecosystem design in a decentralized future.

- ✓ **Evaluate AI-Agent Adoption**
Assess feasibility and pilot autonomous AI transaction models.
- ✓ **Develop Hybrid Governance Models**
Balance enterprise oversight with AI autonomy.
- ✓ **Shape AI Ecosystems for the Future**
Invest in collaborative, decentralized AI frameworks across industries.





Conclusion and Call to Action

NANDA is helping build the future of decentralized, AI-powered economies. Now is the time for businesses and policymakers to get involved—by working together on research, shared standards, and coordinated planning—to ensure the shift toward the Agentic Economy is successful and beneficial.

Looking Ahead

The Digital Economist is committed to exploring how organizations can responsibly shape AI's next evolution—embracing decentralized intelligence to unlock new possibilities.

Let's Connect and Collaborate!

If you're working on AI governance, multi-agent systems, or decentralized infrastructure, let's define the future of the Agentic Economy together.

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