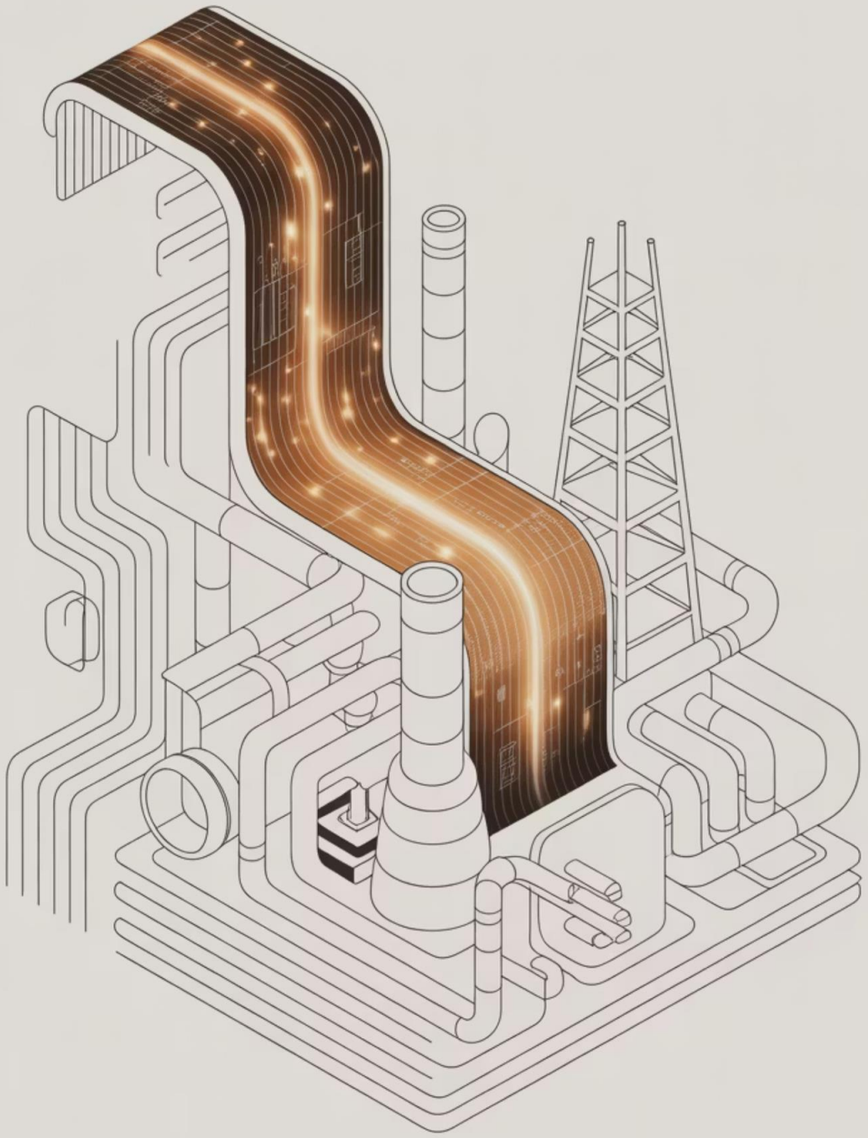


Data Is the New Oil: Fueling the Future Economy

Assoc. Prof. Dr. Ömer Faruk Rençber

Clive Humby, 2006: The Birth of "Data is the New Oil"

In 2006, British data scientist Clive Humby coined a phrase that would resonate through boardrooms and tech conferences for decades to come. His insight was profound yet simple: data, like crude oil before it, represents untapped potential that could fuel an entirely new economic revolution.

Humby drew deliberate parallels between oil's role in powering the Industrial Revolution and Revolution and data's emerging role in driving the Digital Revolution. His key observation was observation was that raw data, like crude oil straight from the ground, holds little inherent inherent value until it undergoes a transformation process.

01

Recognition

Identifying data as valuable

02

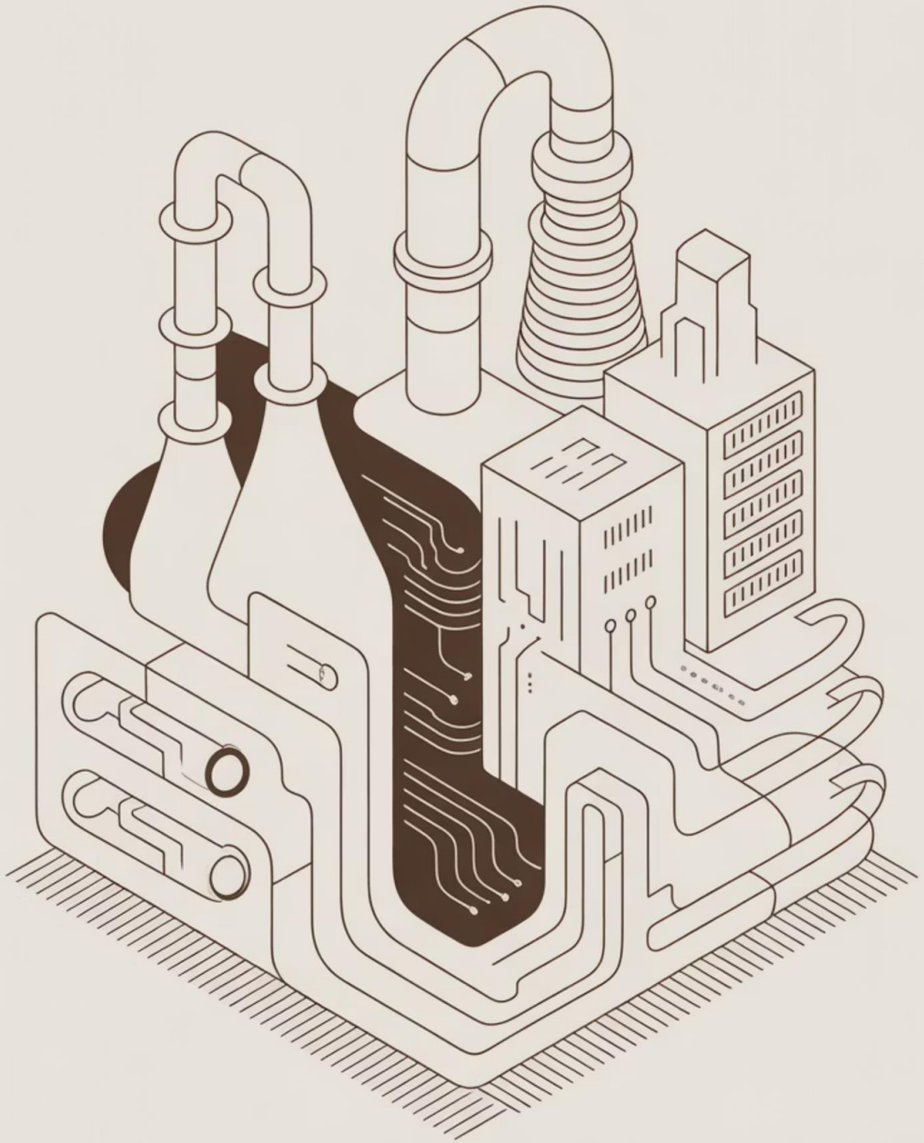
Extraction

Collecting from various sources

03

Refinement

Processing into actionable insights



Why Compare Data to Oil?

Raw Value

Both are valuable resources but completely useless in their natural, unprocessed state

Refinement Required

Require sophisticated extraction, refinement, and distribution systems to unlock their potential

Economic Power

Power entire industries and national economies on a global scale

New Economy

Sparked the emergence of entirely new economic models and market structures

Data Explosion: The New Global Resource

90%

Recent Creation

Of the world's stored data was created in just the last three years

40

Zettabytes

Total global data volume reached by 2020—enough enough to hold 36,000 years of HD video per exabyte

100%

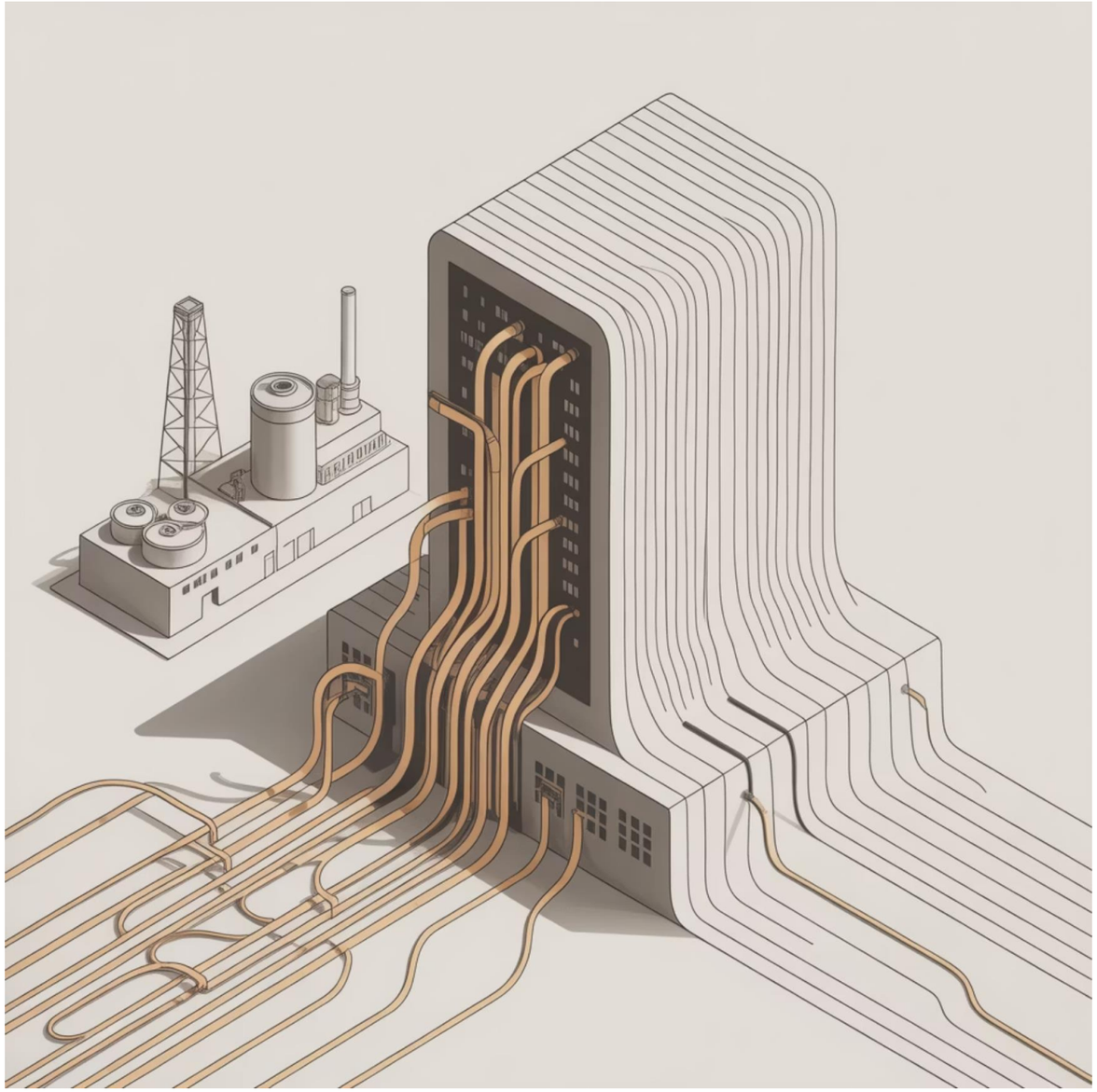
Global Access

Data is borderless and instantly accessible worldwide, unlike oil's regional constraints

Unlike oil, which is concentrated in specific geographic regions and requires physical transportation, data flows instantly across borders, creating a truly global creating a truly global resource that knows no physical boundaries.

Tech Giants Surpass Oil Titans

The Changing of the Guard



The shift in economic power from traditional oil companies to technology firms represents one of the most dramatic

most dramatic transformations in business history. By 2016, the top 10 technology companies had collectively generated

collectively generated **$870 billion in revenue**, surpassing the $765 billion generated by the top 10 oil companies.

companies.

This wasn't just about revenue—tech companies' market capitalizations and global influence began to dwarf even the

largest traditional fossil fuel firms. Companies like Apple, Microsoft, and Google became more valuable than ExxonMobil,

Shell, and BP combined.

Data Refinement: The Key to Unlocking Value

Collection

Gathering raw data from multiple sources and systems

Cleaning

Removing errors, duplicates, and inconsistencies

Integration

Combining data from disparate sources into unified formats

Analysis

Extracting patterns and generating actionable insights

> "Quality over quantity: More data doesn't automatically lead to better decisions. The quality of refinement determines the value of the output."

Data-Driven Decision Making in Action

Tesco Clubcard Revolution

Transformed retail by converting transaction data into personalized marketing strategies, creating unprecedented customer loyalty and insights

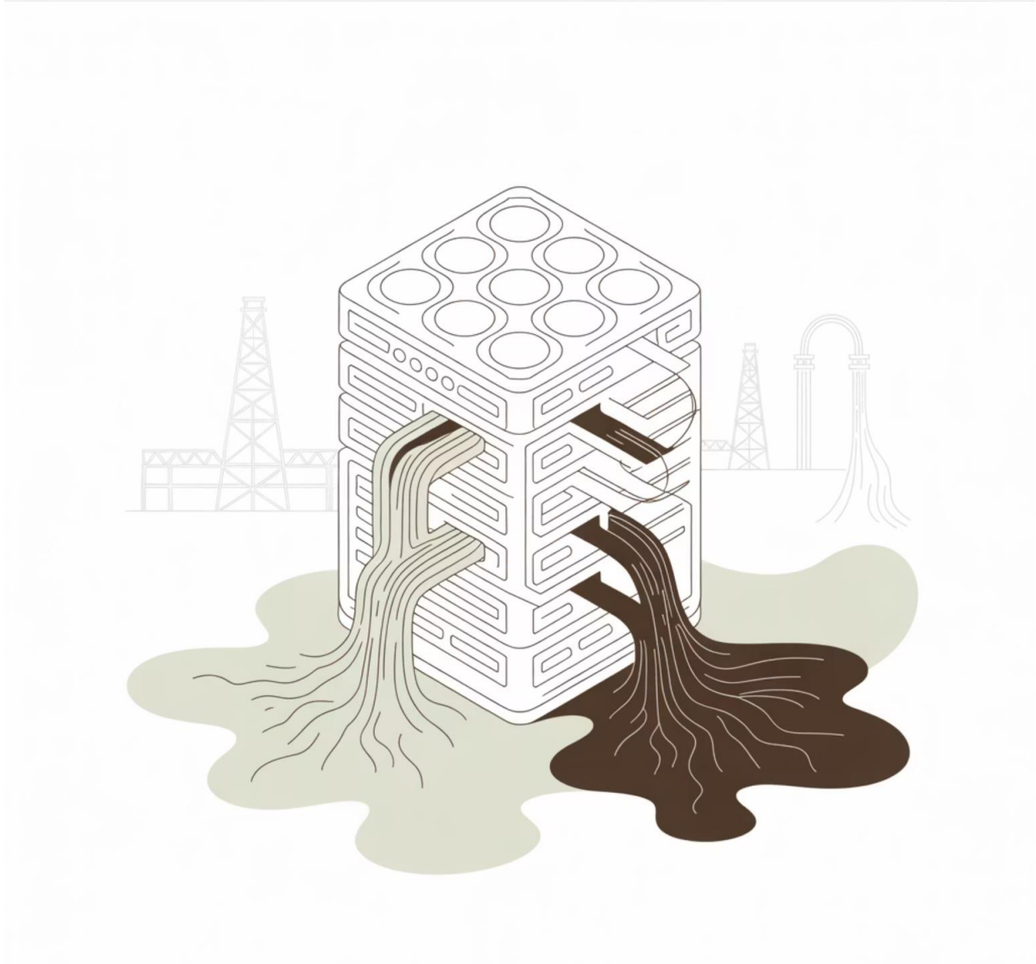
Pandemic Acceleration

COVID-19 dramatically accelerated digital transformation initiatives, making real-time data analysis essential for business survival

Healthcare Innovation

Data-driven approaches enabled rapid vaccine development and resource allocation during unprecedented global health challenges

Data Leaks and Privacy Breaches: The New Oil Spills



The Cambridge Analytica Scandal

In 2018, the world learned that Cambridge Analytica had harvested personal data from **87 million Facebook users** **Facebook users** without their explicit consent. This data was then used to build psychological profiles for political political advertising purposes, fundamentally undermining democratic processes.

This scandal exposed a critical parallel to the oil industry: just as oil spills cause environmental devastation, data breaches create what we might call "data pollution"—harm that affects individuals, communities, and society at large.

Environmental Parallel

Oil spills contaminate ecosystems; data breaches contaminate digital trust and personal privacy

Long-term Impact

Both create lasting damage that extends far beyond the initial incident

Regulatory Response

Growing calls for stronger data governance frameworks, similar to similar to environmental protection laws

Is Data Really the New Oil?

While Humby's metaphor has proven powerful and enduring, numerous experts have questioned whether it fully captures the nature of data in our digital age. The comparison has sparked fascinating debates about data's true characteristics and what other metaphors might be more appropriate.

Data as Water

Essential for life and business, must be kept clean, flows naturally

Data as Plutonium

Incredibly powerful but requires extremely careful handling and regulation

Data as Fire

Useful tool that can benefit many simultaneously but dangerous if uncontrolled

Data as Solar Energy

Renewable resource that becomes more valuable when shared rather than hoarded

> "Unlike oil, data can be copied infinitely at near-zero cost, yet also leaks and spreads easily. It's both more abundant and more volatile than any physical resource."

The Future of Data: Open, Shared, and Regulated

Forward-thinking governments and organizations worldwide are pioneering new approaches to data governance that emphasize openness, accessibility, and accessibility, and responsible regulation. These initiatives recognize that data's true potential is unlocked not through hoarding, but through thoughtful sharing and thoughtful sharing and collaboration.

Open Data Initiatives

- Government databases made freely accessible to researchers and and entrepreneurs
- Standardized formats enabling cross-platform interoperability
- Public-private partnerships fostering innovation while protecting privacy privacy
- Open-source tools democratizing data analysis capabilities

Regulatory Evolution

- European Commission leading with GDPR and data portability rights rights
- Global standards emerging for data ethics and responsible AI
- Cheaper, easier access to public data driving economic growth
- Balance between innovation and protection becoming policy priority

These efforts aim to create a data ecosystem that fuels innovation and economic growth while protecting individual rights and promoting social benefit.

Building a Data-Driven Economy with Purpose

As we move forward into an increasingly data-centric future, we must build systems and practices that harness data's transformative power while ensuring it serves humanity's best interests. This requires deliberate action across multiple dimensions—technical, social, and ethical.

Embrace Governance Frameworks

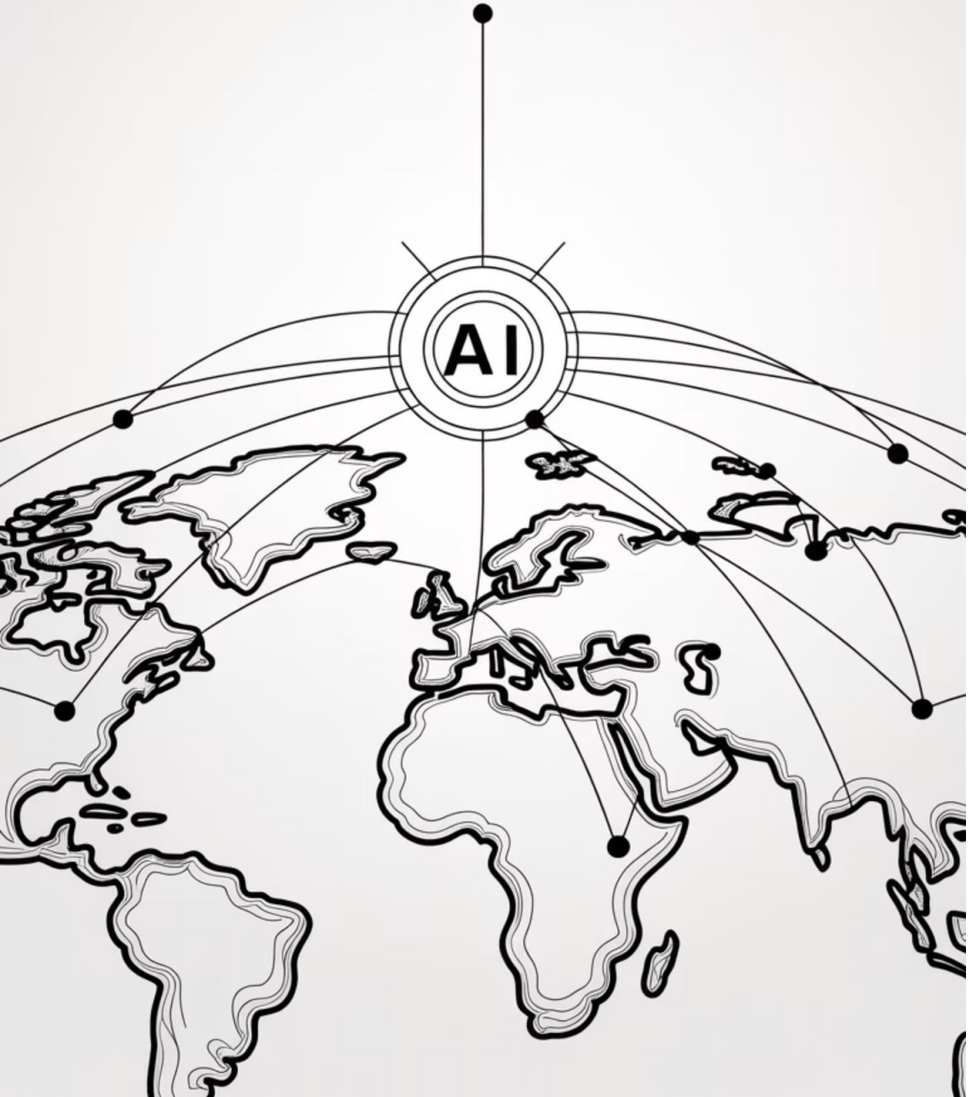
Implement clear policies defining who can access data, how it can be used, and when consent is required. Governance isn't a barrier to innovation—it's the foundation for sustainable growth.

Invest in Data Literacy

Democratize data skills across all levels of society through education and training. Build infrastructure that makes data tools accessible to small businesses and communities, not just tech giants.

Foster Trust Through Transparency Transparency

Create systems where users understand how their data is being used and have real control over it. Transparency and user empowerment build the trust necessary for a healthy data economy.



How Multinational Companies Use AI to Dominate Global Markets

$4.8 Trillion AI Market by 2033

$189B

AI Market 2023

The starting point of explosive growth

$4.8T

AI Market 2033

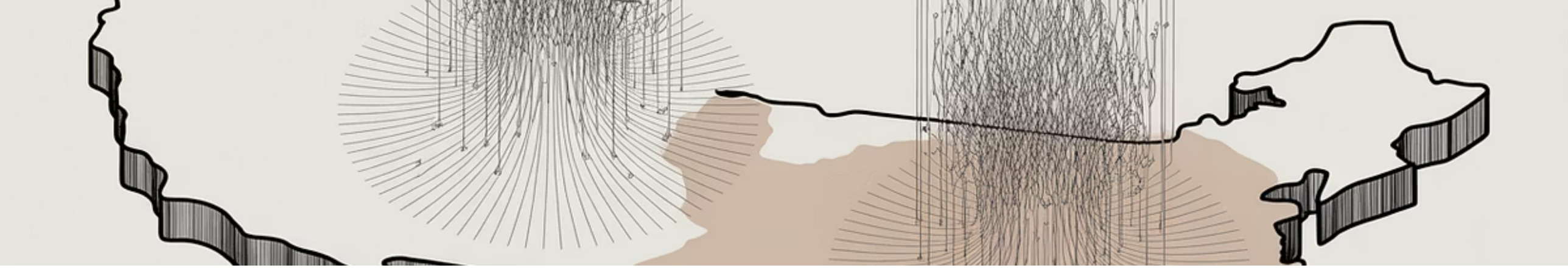
Projected market size representing 25x growth

29%

Market Share

AI's dominance in frontier tech by 2033

According to UNCTAD's 2025 analysis, the artificial intelligence market is poised for extraordinary expansion, growing twenty-five-fold over the next decade. This the next decade. This trajectory will see AI's share of the frontier technology market surge from just 7% to 29%, establishing it as the dominant force in global force in global innovation.



Where AI Innovation Lives

The geography of AI power is remarkably concentrated. Two nations—the United States and China—have emerged as the undisputed centers of artificial of artificial intelligence development. Silicon Valley, Beijing, and Shenzhen form a triangle of innovation that dictates the pace and direction of global AI global AI advancement. This concentration creates both opportunities and challenges for the rest of the world.

NVIDIA: The AI Chip King

Market Dominance

$4.29 trillion market capitalization reflects investor confidence in AI chip supremacy

H100 & Blackwell

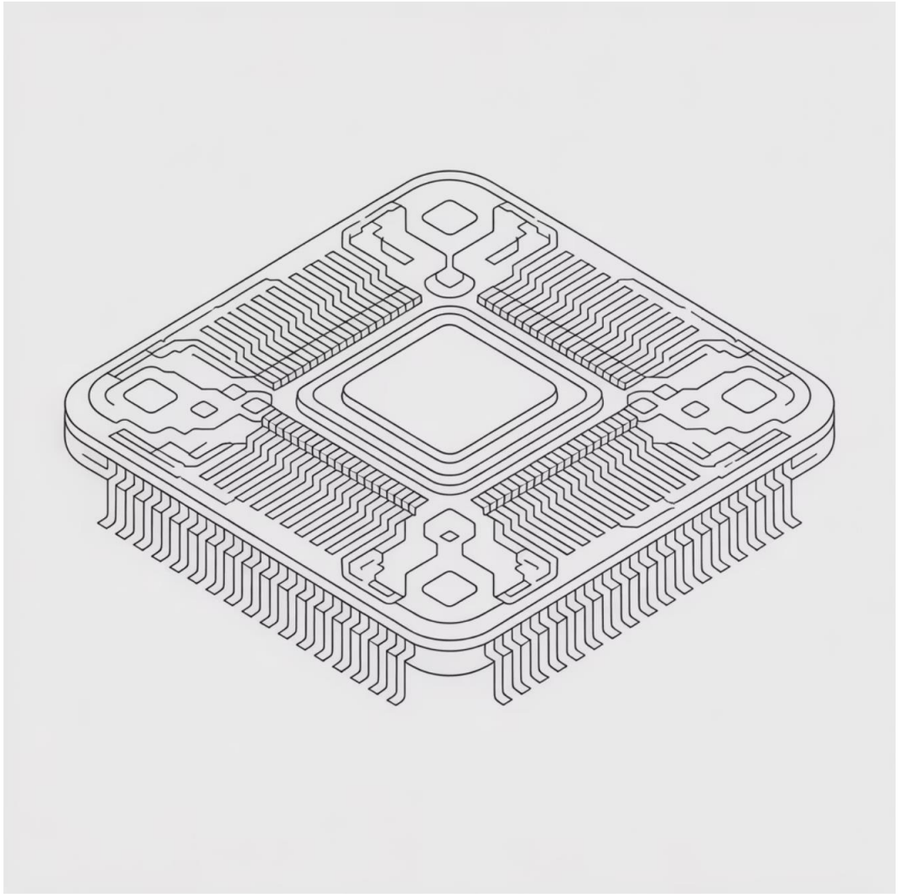
Industry-leading GPUs power training of the world's largest AI models

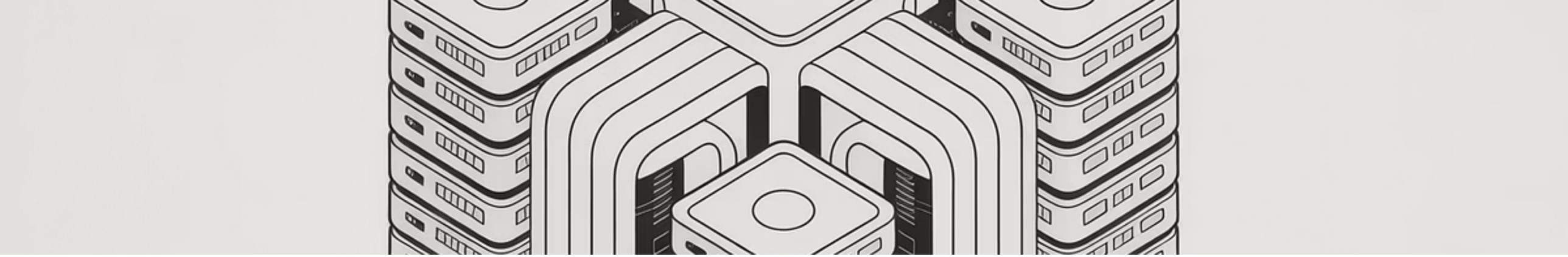
CUDA Ecosystem

Software platform locks in millions of developers, creating unbreakable competitive moat

Global Reach

Powers AI across data centers, autonomous vehicles, and robotics worldwide





Microsoft: AI in the Enterprise

Azure AI Platform

Comprehensive cloud infrastructure powering powering enterprise AI deployment globally globally

Copilot Integration

AI chatbot embedded across Microsoft 365, 365, transforming how billions work daily

OpenAI Alliance

$10B+ investment fuels cutting-edge AI for Bing, Bing, Windows, and enterprise solutions

Apple: AI for Personalized Experience

$3.42T Market Cap

01

Apple Intelligence

AI deeply integrated into Siri, photo editing, and editing, and entire device ecosystem for seamless user experience

02

Privacy-First AI

Differentiates through on-device processing and privacy-preserving AI architecture

03

Ecosystem Lock-In

AI features work seamlessly across Apple devices, increasing switching costs for users

Google (Alphabet): AI at Scale

Gemini AI Model

Advanced multimodal AI powers search, search, advertising, and cloud services services with unprecedented sophistication

Vertex AI Platform

Enterprise AI infrastructure enabling businesses worldwide to build and deploy custom AI solutions

$75B Investment

2025 AI infrastructure commitment underscores determination to maintain maintain technology leadership

Meta: AI-Powered Social & AR

$1.89 Trillion Market Cap

Meta has embraced an open-source AI strategy that differentiates it from competitors while competitors while accelerating innovation. By releasing its LLaMA models to developers developers worldwide, Meta cultivates an ecosystem that enhances its core social platforms social platforms while positioning the company at the center of the AI revolution. revolution.

LLaMA Models

Open-source approach democratizes AI while building developer loyalty and and ecosystem

AI Advertising

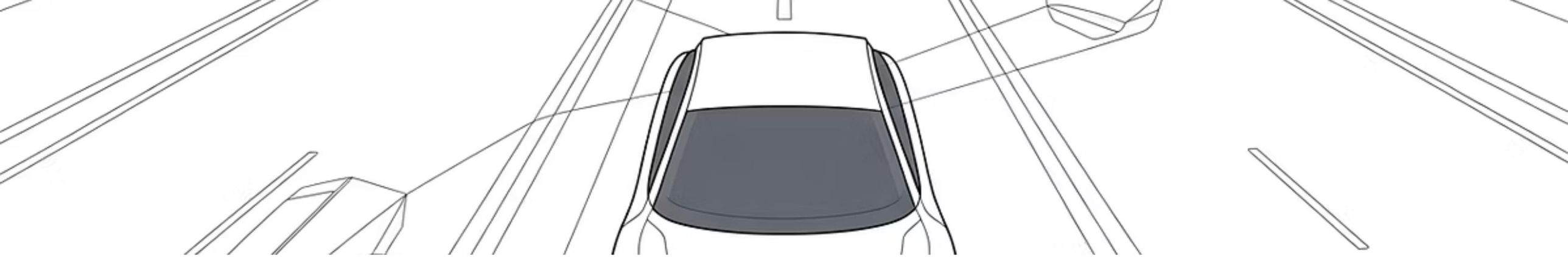
Machine learning maximizes ad targeting precision and ROI for millions of businesses businesses

Content Moderation

AI systems process billions of posts daily to maintain platform safety and quality quality

Immersive Experiences

AI powers AR glasses and metaverse initiatives for next-gen social interaction



Tesla: AI in Autonomous Driving

Full Self-Driving

Neural networks process real-time sensor data for data for autonomous navigation decisions

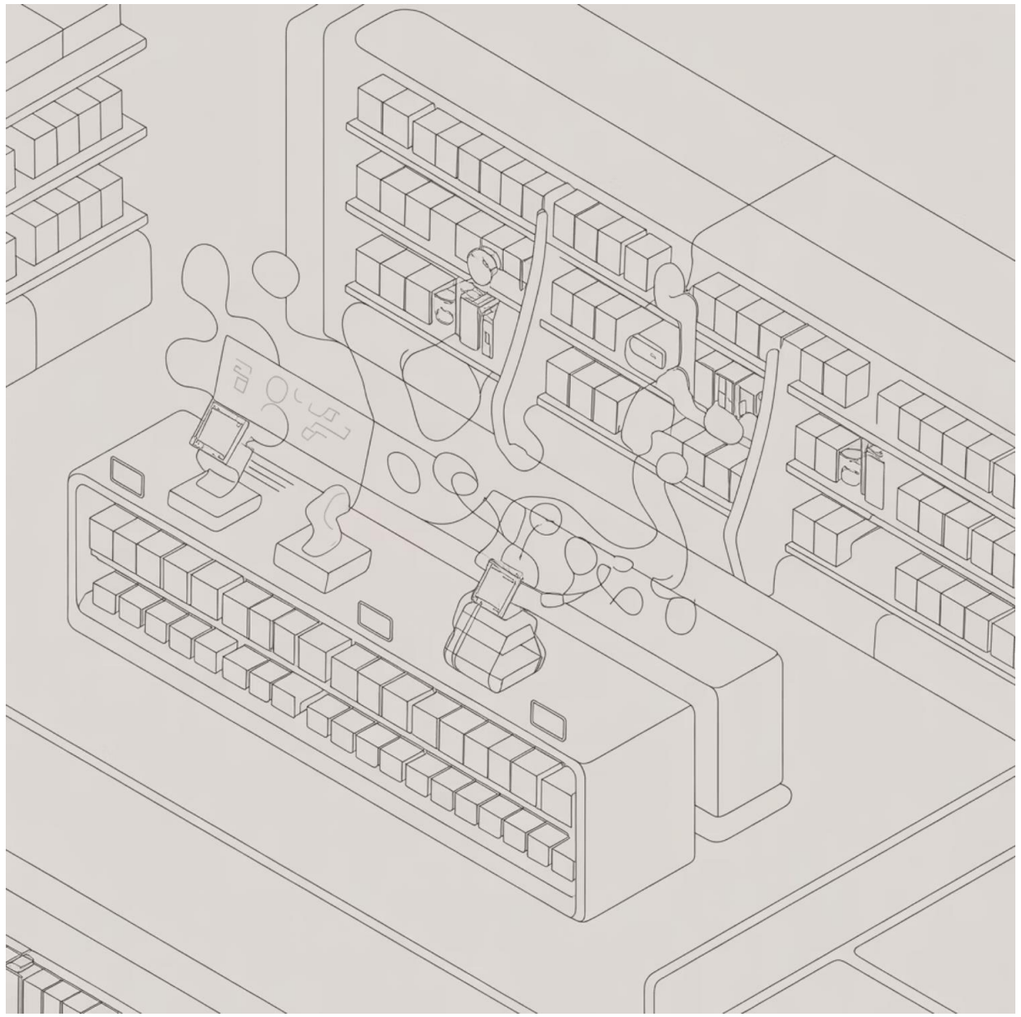
Dojo Supercomputer

Custom-built AI training infrastructure processes processes vehicle fleet data at massive scale

Beyond Vehicles

Expanding AI into robotics, energy forecasting, and forecasting, and autonomous mobility services services

Walmart's AI Transformation



Generative AI

Large language models enhance customer service, product recommendations, and shopping shopping assistance

Inventory Intelligence

AI-driven systems predict demand, optimize stock levels, and reduce waste across thousands of thousands of stores

Personalized Marketing

Machine learning tailors promotions and product suggestions to individual shopping behaviors behaviors

Finance: JPMorgan Chase's AI-Powered Insights Insights

1

Fraud Detection

AI models analyze millions of transactions in real-time, identifying suspicious patterns with superhuman accuracy

2

Risk Management

Machine learning processes vast datasets to assess credit risk, market exposure, and portfolio portfolio optimization

3

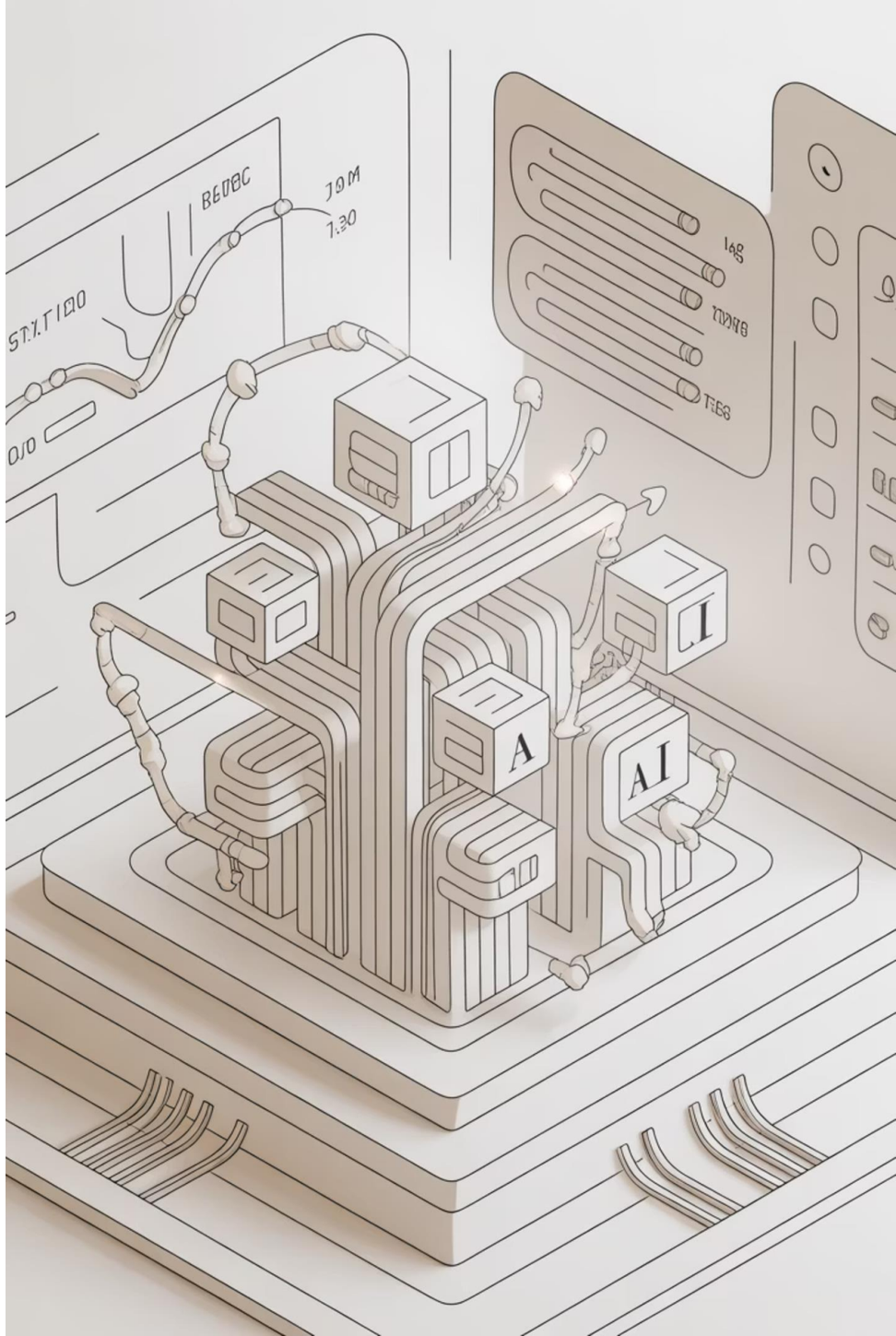
Algorithmic Trading

Automated systems execute trades at microsecond speeds, capitalizing on market inefficiencies inefficiencies

4

Customer Service

AI-driven chatbots handle routine inquiries, reducing costs while improving response times



Healthcare: IBM Watson's AI Diagnostics

Revolutionizing Medical Care

1 Medical Image Analysis

AI detects patterns in X-rays, MRIs, and CT scans that human eyes might miss, improving early disease detection

2 Treatment Optimization

Partnerships with hospitals leverage AI to recommend personalized treatment plans based on patient data and outcomes research

3 Drug Discovery

AI accelerates identification of promising compounds and predicts clinical trial success, reducing development time and costs

Manufacturing: Siemens' Smart Factories

Predictive Maintenance

AI analyzes sensor data to predict equipment failures before they occur, dramatically reducing reducing costly downtime and extending machinery machinery lifespan

Optimized Production

Machine learning continuously refines supply chains and production lines for maximum efficiency and minimal waste

Digital Twins

Virtual replicas simulate and improve manufacturing manufacturing processes in real-time, enabling risk-enabling risk-free experimentation and optimization optimization

Thank you for listening me

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