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STATE OF AI IN BIOPHARMA 2026

A Vi Research Thought-Leadership Report

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Contents

Executive Summary

Biopharma enters 2026 at a structural inflection point. Scientific complexity, accelerating pipelines, omnichannel fragmentation, and rising development costs are making traditional operating models unsustainable. AI is moving from pilots into core commercial, clinical, and medical infrastructure, and it is now evaluated by measurable economic lift, not experimentation.

This shift is driven by three advances: **agentic AI** that executes multi-step workflows across the product lifecycle, **therapeutics-tuned foundation models** that strengthen scientific and clinical reasoning, and **real-time orchestration engines** that make closed-loop execution possible at enterprise scale.

Key Signals

- 70–80% of repeatable biopharma workflows shift to AI-orchestrated execution by 2028[1]
- AI-enabled trials reduce cycle times by 12–18%[2]
- Protocol amendments add 4–6 months per trial on average[3]
- Bringing a therapy to market now costs $2.3B–$2.6B[4]
- Over 100,000 life-sciences papers are published each month[5]

What Leaders Should Take Away

AI is becoming the operating layer for biopharma execution across development, medical, and commercial workflows. The organizations that win will be those that operationalize AI inside regulated workflows with measurable ROI, not those that keep AI isolated in pilots or analytics tools.

This report summarizes what is changing in 2026, where AI is delivering value now, and what biopharma leaders should prioritize next to achieve enterprise-scale performance.

[1] McKinsey & Company, AI Productivity and Operating Model Shifts in Life Sciences, 2024.
[2] McKinsey & Company, Applying AI Across Clinical Development, 2024.
[3] WCG Clinical, Protocol Amendments: Causes, Costs, and Consequences, 2024.
[4] Tufts Center for the Study of Drug Development (CSDD), Drug Development Cost and Time Trends, 2024.
[5] NIH / PubMed, Monthly Biomedical Literature Indexing Statistics, 2024.

Predictions for 2026

Agentic AI becomes the operating layer for commercial, medical, and clinical workflows.

Why it matters:
By 2028, agentic systems automate end-to-end workflows across commercial, medical, R&D, and evidence generation — with 70–80% of repeatable processes shifting from human-coordinated to AI-orchestrated.

McKinsey 2024; Deloitte 2024; Accenture LS Pulse 2025

AI-Native Trials Compress Development Timelines

Why it matters:
Adaptive protocols, predictive enrollment, and automated monitoring reduce trial cycle times by 12–18%, cutting protocol amendments and accelerating feasibility, site selection, and query resolution.

Tufts CSDD 2024; Deloitte 2024; WCG Clinical 2024

Real-Time Scientific & Medical Engagement Becomes Standard

Why it matters:
LLM-powered medical affairs and multi-agent coordination deliver 2–3× faster evidence synthesis, real-time KOL sentiment mapping, and more precise HCP activation across digital and field channels.

Nature Medicine 2024; McKinsey 2024; IQVIA 2025

Source:
McKinsey — AI Productivity and Operating Model Shifts in Life Sciences (2024): https://www.mckinsey.com/industries/life-sciences/our-insights
Tufts Center for the Study of Drug Development — Drug Development Economics Report (2024): https://csdd.tufts.edu/
Nature Medicine — Biomedical LLM Performance for Scientific & Medical Tasks (2024): https://www.nature.com/articles/s41591-024-02915-z

What This Means for Biopharma?

AI in 2026 accelerates development, strengthens scientific intelligence, and brings new therapies to patients faster.

Faster development and earlier breakthroughs

AI reduces development timelines by 10–20% by accelerating trial design, feasibility, site selection, and patient matching. Shorter cycles mean therapies reach patients months sooner — with real impact on outcomes and lives saved.

Stronger scientific intelligence for R&D and medical teams

With more than 100,000+ life-sciences papers published monthly, AI synthesizes emerging evidence, identifies signal from noise, and keeps scientific, clinical, and medical teams continuously up to date with accurate insights.

More efficient development cycles and lower cost of execution

By reducing operational waste — from protocol amendments to enrollment delays — AI helps lower the cost of development. With the average therapy costing $2.3–2.6B to bring to market, even a 10–20% efficiency gain reshapes portfolio strategy and capital allocation.

Sources:
Tufts Center for the Study of Drug Development — Drug Development Economics Report (2024)https://csdd.tufts.edu/
NIH / PubMed — Monthly Indexing Statistics (2024) https://pubmed.ncbi.nlm.nih.gov/stats/
Deloitte — Clinical Operations Benchmark (2024) https://www2.deloitte.com/us/en/pages/life-sciences-and-healthcare/articles/global-life-sciences-outlook.html
IQVIA Institute — Global Trends & Outlook for Biopharmaceuticals (2025) https://www.iqvia.com/insights/the-iqvia-institute/reports/global-trends-in-biopharmaceuticals-2025

1

The Pharma AI Reset 2026

Three forces define the 2026 landscape

Biopharma has crossed a threshold: AI is no longer a collection of pilots — it is becoming the operational fabric behind scientific reasoning, commercial precision, medical inquiry automation, and clinical execution. The shift is driven by mounting scientific complexity, rising development costs, and an omnichannel environment that moves faster than manual teams can respond.

Three developments signal this shift: the emergence of production-grade agentic systems built for regulated workflows; the rise of therapeutics-tuned foundation models capable of scientific and clinical reasoning; and the demand for measurable, repeatable ROI that commercial, medical, and clinical leaders can anchor into planning cycles. Together, they redefine how evidence is generated, how HCP engagement is executed, and how lifecycle value is created. In this chapter, we outline these inflection points.

> "AI will reshape every part of our industry — from how we discover medicines to how we engage physicians and support patients."
> Vasant Narasimhan — CEO, Novartis

FORCE 1 FORCE 2 FORCE 3

Agentic AI Becomes Production-Grade in Pharma

Agentic systems now execute workflows that previously required cross-functional coordination across field teams, medical affairs, safety, commercial operations, and PSPs. These systems perform multi-step tasks with transparent audit trails, deterministic guardrails, and label-aligned constraints, which make them suitable for regulated biopharma environments.

Agents autonomously perform:

- Identifying rising-intent HCPs
- Sequencing compliant omnichannel journeys
- Routing and summarizing medical inquiries
- Prioritizing clinical site interventions
- Triggering PSP onboarding and adherence workflows
- Drafting evidence-based HCP follow-ups

These agents improve outcomes:

- **10–35% uplift in rising-intent HCP activation** (ZS; IQVIA Channel Dynamics)
- **20–40% faster medical inquiry routing and summarization** (McKinsey Medical Affairs 2024)
- **15–30% improvement in patient adherence across PSPs** (IQVIA PSP Index 2024)
- **10–20% reduction in enrollment delays through site-risk prediction** (Deloitte Clinical Ops 2024)

By 2028, analysist estimates that ~30% of pharma workflows will incorporate autonomous agent execution.

Source: McKinsey 2025; Deloitte 2024; ZS 2024; IQVIA 2024

FORCE 1 FORCE 2 FORCE 3

Foundation & Domain Models Built for Biopharma

A new generation of large models — tuned to mechanistic, clinical, regulatory, and medical content — is transforming how scientific knowledge is synthesized and communicated. Unlike general-purpose LLMs, these models integrate therapeutic-area logic, biomarker associations, safety constraints, and clinical evidence pathways. Their outputs are more consistent, more compliant, and more scientifically grounded. Models evolve from "fine-tuned" to infrastructure-grade scientific reasoning systems.

2026 models integrate:

- Mechanistic pathways & MOA logic
- Biomarker relationships
- Clinical endpoints & protocol constraints
- Label restrictions & regulatory logic
- Safety profiles (class effects, contraindications)
- Scientific discourse from KOL networks
- HCP behavior signals from omnichannel activity

Compared with general-purpose LLMs, these models offer:

- Higher scientific reasoning accuracy
- Stronger safety & compliance boundaries
- Better ability to parse clinical literature
- Improved summarization of technical evidence
- More reliable generation of MSL-ready content

"Therapeutics-tuned AI models can reduce evidence-review cycles by 60–70% while improving scientific accuracy."

McKinsey, 2025; Nature Medicine, 2024

Sources: McKinsey, "Generative AI in R&D and Medical Affairs," 2025
Nature Medicine, "Performance of Domain-Specific LLMs in Clinical Evidence Synthesis," 2024
IQVIA, "AI in Pharma Scientific Engagement Benchmark," 2025

FORCE 1 FORCE 2 FORCE 3

AI Seen Through an Economic, Not Experimental Lens

By 2026, biopharma no longer evaluates AI as a future innovation category. AI is held to the same performance standard as any enterprise system: it must deliver measurable commercial, medical, and operational ROI. Rising cost pressures, competitive launch environments, and compressed lifecycle economics force leaders to prioritize systems that directly move business outcomes.

Dynamics accelerating this shift:

- Commercial pressure to drive HCP activation, TRx lift, and omnichannel efficiency.
- Medical mandate to accelerate insights-to-action while maintaining compliance and safety-safety boundaries.
- Clinical and operational cost pressure forcing leaders to reduce trial timelines, site burden, and operational waste.

AI impact is quantified across the lifecycle

Commercial Lift

+10–35% HCP activation improvement
(IQVIA Channel Dynamics 2025)

+15–25% TRx growth in targeted segments
(ZS Associates Benchmark 2024)

Medical Acceleration

20–40% faster insights-to-action cycles
(McKinsey Medical Affairs Index)

Patient & Support Outcomes

+15–30% adherence uplift in PSP programs
(IQVIA Patient Support Index 2024)

Operational Efficiency

5–10% reduction in clinical operations cost from enrollment prediction & RBM automation
(Tufts CSDD, DIA 2024)

Sources:
ZS Associates — Next-Gen Omnichannel in Pharma, 2024
IQVIA Institute — The Changing HCP Engagement Model, 2025
IQVIA — Patient Support Index, 2024
McKinsey — Medical Affairs Index, 2024
Tufts CSDD — Clinical Development Economics Report, 2024

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Where Pharma AI Is Already Working in 2026

The 5 structural forces accelerating AI adoption across pharma

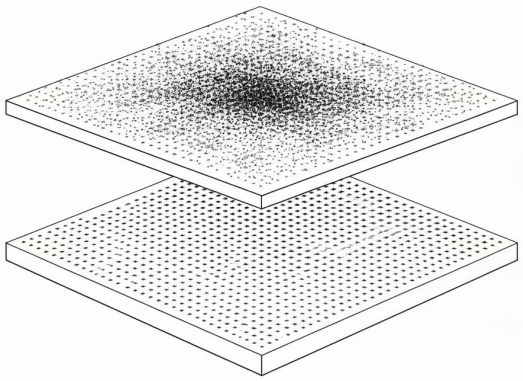
Pharma's pressures are structural — and intensifying. Scientific complexity is rising faster than team capacity, commercial models are fragmenting, pipelines are shifting toward specialty and precision therapeutics, and the economics of development are tightening. AI is gaining traction precisely in the areas where manual processes can no longer keep pace.

This chapter outlines the five forces reshaping how organizations deploy AI to create measurable value across U.S. Pharma.

1 2 3 4 5

Scientific Complexity → Operational Strain

Biologics, cell & gene therapies, precision oncology, and rare-disease portfolios have pushed scientific complexity to historic levels. Commercial and medical teams are now responsible for interpreting vast volumes of mechanistic, clinical, and real-world evidence — far beyond what manual workflows can absorb. AI closes this gap by continuously synthesizing scientific signals, detecting changes in therapeutic landscapes, and guiding compliant field and medical actions at scale.



AI closes capability gaps by:

- Synthesizing mechanistic and clinical evidence
- Mapping evolving scientific sentiment
- Updating therapeutic landscapes dynamically
- Guiding compliant field actions in real time

40%+ of global pipelines now involve oncology or specialty therapies.

Source: EvaluatePharma World Preview 2024

Over 100,000 life-sciences clinical publications are added to PubMed each month.

Source: Mercer Workforce Overview (public)Source: NIH / PubMed Indexing Statistics 2024

62% of medical leaders report that scientific volume is growing faster than team capacity.

Source: McKinsey Medical Affairs Benchmark, 2024

Sources:
EvaluatePharma World Preview 2024
NIH / PubMed Monthly Indexing Statistics (public)
McKinsey Medical Affairs Benchmark 2024

Patent Cliffs & Portfolio Diversification

Looming loss of exclusivity across major therapeutic categories — over $300B at risk by 2030 — is reshaping commercial and portfolio strategy. To sustain growth, organizations are diversifying indications, compressing launch timelines, and reallocating resources more dynamically. AI enables companies to detect early adoption signals, optimize launch execution, and maximize value capture in increasingly compressed market windows.

70% of therapeutic categories exhibit intense competitive saturation.

McKinsey Commercial Pharma Outlook 2025

New launches underperform peak forecasts by 30–40% on average.

ZS Launch Excellence Study 2024

85% of commercial leaders say finding early adoption signals is now “mission-critical.”

IQVIA Launch Readiness Index 2025

Portfolio complexity has increased 25% over the past decade, driven by multi-indication strategies.

Deloitte Life Sciences Review 2024

Companies are leaning on AI to:

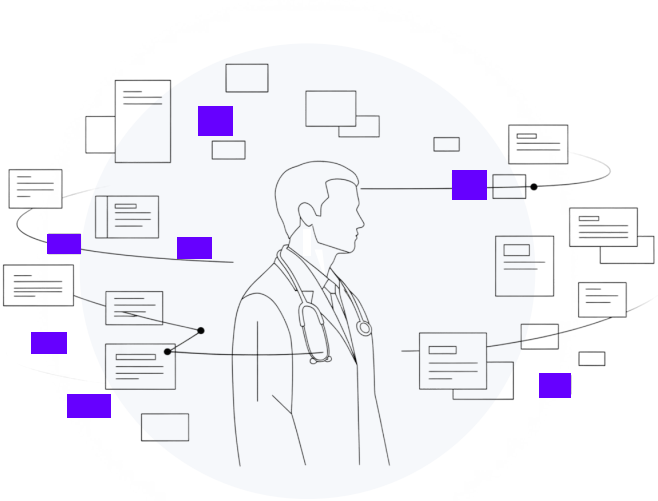
Sources:
EvaluatePharma World Preview 2024
IQVIA Institute — Global Outlook 2025
McKinsey Commercial Pharma Outlook 2025
ZS Associates — Launch Excellence 2024
Deloitte Life Sciences Review 2024

Digital & Omnichannel Fragmentation

HCP engagement has fundamentally changed. Clinicians now navigate a highly fragmented digital world — shifting between EMRs, journals, virtual education, peer forums, and asynchronous communication tools. Traditional reach-and-frequency models no longer reflect how scientific information is consumed. AI is required to interpret intent signals, personalize outreach, detect channel preference, and intervene when engagement drops.

HCP behavior is now:

- More asynchronous
- More digital
- More fragmented across EMRs, journals, peer networks, and educational platforms



AI is required to detect:

- Rising intent
- Channel preference
- Topic-level scientific interest
- Behavioral drop-off

65%+ of HCP engagements now occur digitally or asynchronously.
ZS AffinityMonitor 2025

Rep access has declined 30% over the past decade.
IQVIA Channel Dynamics 2024

Oncologists now interact with 15+ digital channels monthly (journals, EMRs, expert forums).
Accenture Life Sciences Pulse 2024

73% of HCPs expect personalized outreach aligned to scientific needs.
Accenture Digital Health Survey 2024

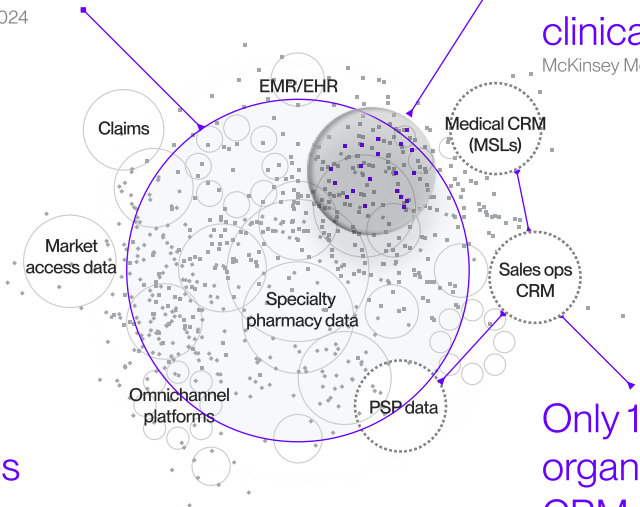
Sources:
ZS AffinityMonitor 2025
IQVIA Channel Dynamics 2024
Accenture Life Sciences Pulse 2024
Accenture Digital Health Survey 2024

Fragmented Commercial & Medical Data Ecosystems

Pharma's data environment remains deeply siloed across claims, EHR systems, CRM platforms, medical inquiry systems, PSP datasets, market access data, and omnichannel tools. Teams lose time reconciling disconnected sources, limiting both visibility and execution speed. AI serves as the orchestration layer — retrieving, connecting, and acting across these systems to create unified, compliant, end-to-end workflows.

82% of commercial leaders cite fragmented data as their top barrier to omnichannel impact.
IQVIA Next-Gen Customer Engagement Report 2024

Medical teams spend 30–40% of time manually searching scientific and clinical data.
McKinsey Medical Affairs Productivity Study 2025



Fragmentation slows insights-to-action cycles by 50–70% in specialty and oncology categories.
ZS Integrated Insights Study 2024

Only 14% of pharma organizations have unified CRM + medical + PSP data into a single workflow.
Deloitte Digital Pharma Ecosystem Report 2025

AI serves as the unifying orchestration layer, retrieving and acting across all systems.

Sources:
IQVIA Next-Gen Customer Engagement Report 2024
McKinsey Medical Affairs Productivity Study 2025
Deloitte Digital Pharma Ecosystem Report 2025
ZS Integrated Insights Study 2024

1 2 3 4 5

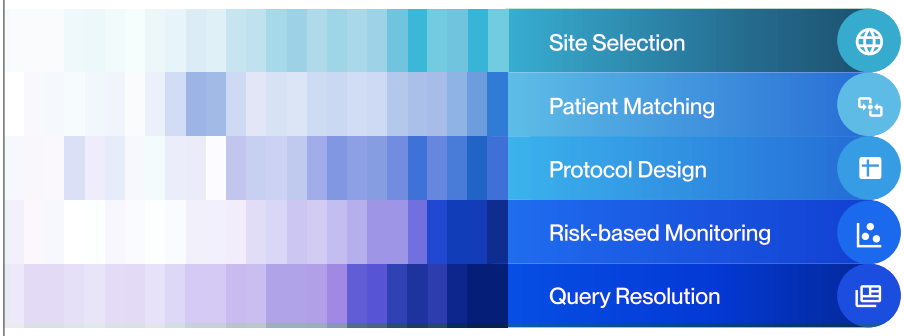
Trial Complexity & Evidence Generation Pressure

R&D costs continue to rise while development timelines remain stubbornly flat. Increasing protocol complexity, stricter eligibility criteria, and multi-arm trial designs are amplifying delays. AI addresses these challenges by improving site selection accuracy, accelerating enrollment, predicting operational risks, and reducing the burden of manual monitoring and query resolution. Clinical efficiency is becoming one of pharma's highest-ROI use cases.

R&D costs continue rising while cycle times stagnate.

AI accelerates:

- Site selection (+15–30% accuracy lift)
- Patient matching
- Protocol design
- Enrollment prediction
- Risk-based monitoring
- Query resolution



Trial efficiency becomes one of pharma's highest-ROI use cases.

Average cost to bring a drug to market now exceeds $2.3–2.6B.

Source: Tufts CSDD 2024

Protocol amendments add 4–6 months on average to development timelines.

Source: WCG Clinical Protocol Deviations Study 2024

80% of trials fail to meet enrollment timelines.

Source: Pharma Intelligence 2024

AI-enabled enrollment prediction can reduce recruitment delays by 10–20%.

Source: Deloitte Clinical Operations Benchmark 2024

Sources:
Tufts CSDD 2024 Drug Development Economics
Pharma Intelligence Trial Performance 2024
WCG Clinical — Protocol Amendments Study 2024
Deloitte Clinical Operations Benchmark 2024

3

Technology Deep Dive: The AI Stack Reshaping Pharma

The AI stack powering commercial, medical, and clinical transformation

Pharma's AI stack has matured into a set of interconnected capabilities — agentic execution, therapeutics-tuned models, retrieval infrastructure, behavioral prediction, and compute acceleration. Together, these layers enable regulated, end-to-end workflows that are accurate, compliant, and measurable.

This chapter outlines the architecture enabling AI to move from experimentation to enterprise-scale impact.

Agentic AI for HCP activation, medical, trials & PSPs

Agentic AI has moved beyond prototypes into production environments, where autonomous systems execute multi-step, label-aligned workflows across commercial, medical, clinical, and PSP functions. These agents coordinate tasks with transparent audit trails, source-based reasoning, and deterministic compliance constraints — a prerequisite for regulated operations.

Agents autonomously perform:

- Identifying rising-intent HCPs
- Sequencing compliant omnichannel journeys
- Routing and summarizing medical inquiries
- Drafting evidence-based HCP follow-ups
- Prioritizing clinical sites and predicted bottlenecks
- Triggering PSP onboarding and adherence workflows

"Autonomous workflows will become a core operating model across life sciences by 2030."
Source: Deloitte Life Sciences Intelligent Operations Outlook 2025

Domain-tuned LLMs for scientific & medical reasoning

2026 foundation models are no longer general-purpose — they are tuned to biomedical structure, mechanistic reasoning, clinical trial logic, and regulatory context. These models interpret complex scientific information, generate medically consistent outputs, and reinforce accuracy through retrieval-grounded workflows.

These models integrate:

- Mechanistic and pathway logic
- Biomarker relationships and disease progression patterns
- Clinical endpoints, inclusion/exclusion rules, and protocol constraints
- Label language, safety requirements, contraindications
- Scientific discourse from KOL networks and conferences
- Omnichannel signals tied to HCP behavior and sentiment

Compared with general LLMs, therapeutics-tuned models deliver:

- Higher accuracy in scientific reasoning tasks
- More reliable medical-affairs responses
- Stronger safety and compliance boundaries
- Faster synthesis of trial, RWE, and mechanistic evidence

"Domain-specific biomedical LLMs reduce evidence-review cycles by 60–70% while improving scientific consistency."
Source: Nature Medicine, 2024; McKinsey GenAI in R&D, 2025

Clinical-Grade RAG & Privacy Architectures

Pharma requires a retrieval layer that is fundamentally different from consumer AI. Clinical-grade RAG systems must enforce strict safety, provenance, and compliance requirements while grounding model outputs in approved, validated sources.

Clinical-grade retrieval systems provide:

- Deterministic sourcing from validated documents
- PHI-safe pipelines and regulatory-grade audit trails
- Label-aware and safety-aware guardrails
- Weekly ingestion of scientific databases (PubMed, CT.gov, EMA/FDA updates)
- Source-linked reasoning chains for medical and clinical workflows

RAG has become the backbone for medical affairs, clinical evidence aggregation, and compliant content automation.

"Grounded retrieval is now the dominant safeguard for scientific accuracy in regulated AI."

Source: Stanford HAI — Biomedical RAG Landscape Report 2024

Behavioral ML Models for Activation & Adherence

Behavior-level AI models analyze HCP intent, scientific interest, engagement patterns, and friction points across the patient journey. These models allow organizations to proactively intervene — improving HCP activation, optimizing educational sequencing, and increasing patient adherence.

Models predict:

- Rising HCP intent and early adoption signals
- Channel and content preferences
- Topic-level scientific interest
- Drop-off risk across PSP onboarding and adherence
- Site-level enrollment probability

AI-enabled behavioral models can improve HCP activation by 10–35% and adherence by 15–30%.

Sources: IQVIA HCP Engagement Benchmark 2025; ZS PSP Performance Index 2024

Advanced Compute Enabling Lifecycle Acceleration

The final layer is the compute infrastructure enabling real-time inference, multi-model orchestration, and scalable deployment across global markets. Optimized runtimes and agent scheduling systems allow AI workflows to operate with speed, reliability, and auditability.

Compute acceleration enables:

- Low-latency inference for field, medical, and PSP tools
- Scalable multi-agent orchestration
- Real-time scientific and commercial signal processing
- Continuous fine-tuning on therapeutic-area corpora
- Efficient deployment of distilled and edge-optimized models

"Compute efficiency is becoming foundational to scaling AI across global pharma operations."

Source: MIT Compute & Life Sciences Infrastructure Review 2025

4

The ROI Mandate: What “Good” Looks Like in 2026

AI’s value in biopharma is now measured, not theorized

Pharma’s AI investments are increasingly tied to tangible performance improvements across commercial execution, medical affairs, clinical operations, and patient support. Organizations are moving past pilots and into enterprise deployment — where workflows, not models, become the core unit of value. This chapter defines what “good” looks like in 2026, anchored in benchmarks from leading life-sciences organizations.

HCP Activation & Commercial Impact

AI-driven activation models reveal rising-intent HCPs earlier, identify unmet scientific needs, and recommend the next best interaction across digital and field channels. Commercial teams that deploy multi-agent orchestration are outperforming traditional reach-and-frequency strategies by double-digit margins.

Source:
IQVIA Channel Dynamics 2025
ZS Commercial Effectiveness Benchmark 2024
Accenture Life Sciences Omnichannel Pulse 2025

Examples of “good” performance, based on reported programs:

+10–35%
Lift in rising-intent HCP activation

15–25%
TRx growth in targeted microsegments

20-40%
Faster insights-to-action cycles

Medical Affairs & Scientific Exchange

Medical affairs teams are under unprecedented pressure: expanding pipelines, more specialized therapies, and a rapidly growing scientific corpus. AI accelerates evidence review, improves consistency in medical responses, and enables proactive, insight-driven HCP education.

Source:
Nature Medicine — Biomedical LLM Performance for Scientific & Medical Tasks (2024)
McKinsey — Medical Affairs Productivity Study (2025)
IQVIA — Scientific Engagement Index (2025)
Deloitte — Intelligent Medical Affairs & Evidence Generation Outlook (2024)

Examples of “good” performance, based on reported programs:

Weeks → Hours
Reduction in evidence synthesis

2-3X
Faster generation of scientifically accurate summaries

30-40%
Improvement in consistency of medical information responses

20-35%
Reduction in medical inquiry turnaround time.

Clinical Development & Trial Optimization

AI is unlocking measurable speed and operational efficiency. R&D groups face rising trial complexity, growing protocol burdens, and persistent enrollment delays. AI optimizes feasibility, accelerates patient matching, predicts site performance, and reduces operational cycle time — producing some of the strongest ROI observed across the pharma value chain.

Source:
Tufts CSDD Drug Development Economics 2024
Deloitte Clinical Operations Benchmark 2024
WCG Clinical — Protocol Amendments Study 2024

Examples of “good” performance, based on reported programs:

+15–30%
Improvement in site-selection accuracy

10-20%
Reduction in enrollment delays

20-40%
Reduction in Protocol-design cycles

Patient Support, Adherence & Access

AI improves adherence by removing friction from the patient journey. PSPs (Patient Support Programs) are expanding in both scope and complexity. AI helps identify risk of drop-off early, personalize outreach, and streamline support operations. With adherence rates remaining stubbornly low across specialty therapies, AI now plays a direct role in revenue preservation and patient outcomes.

Sources:
IQVIA — Patient Support Index (2024)
ZS — PSP Performance Benchmark (2024)
Accenture — Digital Health Consumer Pulse (2024)
McKinsey — Patient Services & Access Trends (2025)

Examples of “good” performance, based on reported programs:

+15-30%
Improvement in adherence and persistence

20-35%
Reduction in early drop-off risk through predictive triage

25-40%
Improvement in PSP onboarding efficiency (Faster eligibility determination, smarter routing, fewer handoffs)

20-30%
Reduction in administrative burden for PSP support teams

HEOR, Real-World Evidence & Value Demonstration

AI accelerates evidence generation across HEOR and market access functions, enabling faster model production, earlier detection of real-world signals, and more rigorous value demonstration. As payers demand deeper RWE and clearer economic narratives, AI improves analytic throughput, strengthens comparative effectiveness insights, and enhances alignment between clinical evidence and payer expectations.

Source:
ISPOR HEOR Trends Report 2025
IQVIA Global Value & Access Benchmark 2024
Deloitte Market Access Outlook 2025

Examples of “good” performance, based on reported programs:

40–60%
Faster Generation of HEOR models, value dossiers, and evidence summarie

25–45%
Improvement in synthesis accuracy across RWE, registries, and observational datasets

20-35%
Better alignment between payer value narratives and clinical/economic evidence

In 2026, AI becomes part of biopharma’s operating spine. It is evaluated by performance, not potential.

2026 marks the shift from pilots to production. AI is held to the same standards as any commercial, medical, clinical, or access investment.

Pharma organizations now require:

- Clear baselines and traceable performance
- Demonstrable, measurable lift across functions
- Transparent reporting and auditability
- Operational reliability at enterprise scale
- Continuous improvement over static models

The ROI mandate is reshaping how AI is prioritized, funded, and deployed. Leaders are replacing hype with accountability and moving from isolated tools to workflow-centric execution.

5

What's Next: 2027–2028 Outlook

The next two years will redefine biopharma operations.

As AI moves from augmentation to orchestration, biopharma will adopt multi-agent systems that autonomously execute commercial, medical, and clinical workflows. These systems will coordinate actions across CRM, EMR, scientific literature, and real-world evidence — creating continuous, closed-loop operations.

By 2028, the industry's competitive advantage will come from AI-operated workflows, not individual models.

"AI will transform how we discover, develop, and deliver medicines — and it's happening faster than any technology shift in our industry's history."
— Albert Bourla, CEO, Pfizer

Multi-Agent Commercial & Medical Operating Systems Become Standard

End-to-end workflows across commercial & medical become AI-operated.

80%+

of repeatable workflows become agent-orchestrated by 2028.

Source: Accenture Life Sciences Pulse 2025; ZS Future of AI in Pharma 2025

AI-Native Trials

Adaptive protocols, predictive enrollment, and automated monitoring make trials faster, cheaper, and more resilient.

20-40%

reduction in trial cycle times

Source: Deloitte Clinical Operations Benchmark 2025; WCG AI Trials Outlook 2024

Precision Medical Engagement at Unprecedented Scale

AI maps scientific sentiment and evidence shifts weekly, enabling near-real-time scientific exchange.

2-3X

faster synthesis to new scientific evidence using LLM-enabled review

Source: Nature Medicine — Biomedical LLM Performance 2024; McKinsey Medical Affairs Benchmark 2025

AI-Powered Field Forces

Reps and MSLs receive real-time copilots generating compliant next steps tailored to each HCP's scientific interest and intent.

+15-25%

lift in scientific engagement and follow through

Source: IQVIA Field Force Effectiveness Index 2025; ZS Commercial Benchmark 2025

Lifecycle Acceleration Across R&D → Launch → Maturity

AI compresses the entire lifecycle, enabling:

- Faster submissions
- Stronger evidence development
- Earlier detection of market signals
- More adaptive post-launch optimization

R&D → launch timelines compress by 10–20% with AI-assisted feasibility, protocol design, and signal detection.

Source: Tufts CSDD Drug Economics 2024; IQVIA Launch Excellence 2025

Pharma is moving decisively toward AI-centralized operations grounded in safety, compliance, and measurable outcomes.

Agentic systems will reshape how therapies are developed, how field and medical teams operate, and how evidence is generated.

Organizations that embrace AI-operated workflows will define the new performance standard for biopharma: faster development cycles, stronger evidence, and more precise engagement across the lifecycle.

Final Notes for Readers

Vi is the Enterprise AI platform powering biopharma — accelerating discovery, improving trial performance, advancing medical insight, and driving measurable commercial ROI. Our platform integrates one of the nation's most comprehensive health data foundations with healthcare-tuned foundation models and agentic workflow systems that operate across real-world evidence, clinical development, medical affairs, and commercial execution.

We work closely with leading biopharma organizations across therapeutic areas, giving us a front-row view into how AI is reshaping the lifecycle — from identifying patients and sites, to enhancing scientific engagement, to optimizing launch performance. This report reflects that vantage point: synthesizing industry data, emerging research, and insights from live AI deployments across R&D, medical, and commercial teams.

If you need additional data not included in this report, reach out to **research@vi.co** — we're always happy to support your team's work or learn from your experiences.

For partnerships or demo inquiries, contact **info@vi.co.**

To learn more, visit **vi.co**

Sources

CHAPTER 1 — The Pharma AI Reset (2026)

EvaluatePharma World Preview 2024
https://www.evaluate.com/thought-leadership/pharma/evaluatepharma-world-preview-2024

IQVIA Institute — Global Outlook 2025
https://www.iqvia.com/insights/the-iqvia-institute/reports/global-trends-in-biopharmaceuticals-2025

ZS Associates — Launch Excellence Study 2024
https://zs.com/insights/launch-excellence-2024

McKinsey — Commercial Pharma Outlook 2025
https://www.mckinsey.com/industries/life-sciences/our-insights

Nature Medicine — Biomedical LLM Performance (2024)
https://www.nature.com/articles/s41591-024-02915-z

McKinsey — Medical Affairs Benchmark 2024
https://www.mckinsey.com/industries/life-sciences/our-insights/medical-affairs-2024

CHAPTER 2 — Where Pharma AI Is Actually Delivering Value

Scientific Complexity → Operational Strain
EvaluatePharma World Preview 2024
https://www.evaluate.com/thought-leadership/pharma/evaluatepharma-world-preview-2024

NIH / PubMed Indexing Statistics 2024
https://pubmed.ncbi.nlm.nih.gov/stats/

McKinsey Medical Affairs Benchmark 2024
https://www.mckinsey.com/industries/life-sciences/our-insights/medical-affairs-2024

Patent Cliffs & Portfolio Diversification
EvaluatePharma World Preview 2024
https://www.evaluate.com/thought-leadership/pharma/evaluatepharma-world-preview-2024

IQVIA Institute — Global Outlook 2025
https://www.iqvia.com/insights/the-iqvia-institute/reports/global-trends-in-biopharmaceuticals-2025

ZS Launch Excellence Study 2024
https://zs.com/insights/launch-excellence-2024

McKinsey Commercial Pharma Outlook 2025
https://www.mckinsey.com/industries/life-sciences/our-insights

Deloitte Life Sciences Review 2024
https://www2.deloitte.com/global/en/pages/life-sciences-and-healthcare/articles/global-life-sciences-outlook.html

Digital & Omnichannel Fragmentation
ZS AffinityMonitor 2025
https://zs.com/insights/affinitymonitor-2025

IQVIA Channel Dynamics 2024
https://www.iqvia.com/library/fact-sheets/channel-dynamics

Accenture Life Sciences Pulse 2024
https://www.accenture.com/us-en/insights/life-sciences/life-sciences-pulse-check

Accenture Digital Health Survey 2024
https://www.accenture.com/us-en/insights/health/digital-health-tech-vision

Fragmented Commercial & Medical Data Ecosystems
IQVIA Next-Gen Customer Engagement Report 2024
https://www.iqvia.com/library/white-papers/nextgen-customer-engagement

McKinsey Medical Affairs Productivity Study 2025
https://www.mckinsey.com/industries/life-sciences/our-insights

Deloitte Digital Pharma Ecosystem Report 2025
https://www2.deloitte.com/global/en/pages/life-sciences-and-healthcare/articles/digital-transformation-in-pharma.html

ZS Integrated Insights Study 2024
https://zs.com/insights/integrated-insights-study

Trial Complexity & Evidence Generation Pressure
Tufts CSDD 2024 Drug Development Economics
https://csdd.tufts.edu/

Pharma Intelligence — Trial Performance 2024
https://pharmaintelligence.informa.com/

WCG Clinical — Protocol Amendments Study 2024
https://www.wcgclinical.com/insights/clinical-trial-protocol-amendments/

Deloitte Clinical Operations Benchmark 2024
https://www2.deloitte.com/us/en/pages/life-sciences-and-healthcare/articles/global-life-sciences-outlook.html

CHAPTER 3 — The AI Operating System for Pharma

McKinsey — AI in Life Sciences 2025
https://www.mckinsey.com/industries/life-sciences/our-insights

IQVIA — Innovation & Technology Trends 2025
https://www.iqvia.com/insights/the-iqvia-institute

Accenture — Life Sciences Technology Vision 2025
https://www.accenture.com/us-en/insights/life-sciences

Deloitte — AI in Biopharma 2025
https://www2.deloitte.com/global/en/pages/life-sciences-and-healthcare/topics/ai-in-life-sciences.html

Sources Cont.

CHAPTER 4 — The ROI Mandate: What “Good” Looks Like in 2026

HCP Activation & Commercial Impact
IQVIA Channel Dynamics 2025
https://www.iqvia.com/library/fact-sheets/channel-dynamics

ZS Commercial Effectiveness Benchmark 2024
https://zs.com/insights/commercial-effectiveness-benchmark

Accenture Life Sciences Omnichannel Pulse 2025
https://www.accenture.com/us-en/insights/life-sciences/omnichannel-commercial

Medical Affairs & Scientific Exchange
Nature Medicine — Biomedical LLM Performance 2024
https://www.nature.com/articles/s41591-024-02915-z

McKinsey Medical Affairs Productivity Study 2025
https://www.mckinsey.com/industries/life-sciences/our-insights/medical-affairs-2024

IQVIA Scientific Engagement Index 2025
https://www.iqvia.com/library/reports/scientific-engagement-index

Clinical Development & Trial Optimization
Tufts CSDD Economics 2024
https://csdd.tufts.edu/

Deloitte Clinical Operations Benchmark 2024
https://www2.deloitte.com/us/en/pages/life-sciences-and-healthcare/articles/global-life-sciences-outlook.html

WCG Protocol Amendments Study 2024
https://www.wcgclinical.com/insights/clinical-trial-protocol-amendments/

Patient Support, Adherence & Access
IQVIA Patient Support Index 2024
https://www.iqvia.com/library/reports/patient-support-index

ZS PSP Performance Benchmark 2024
https://zs.com/insights/psp-performance-2024

Accenture Digital Health Consumer Pulse 2024
https://www.accenture.com/us-en/insights/health/health-consumer-study

HEOR, RWE & Value Demonstration
ISPOR HEOR Trends Report 2025
https://www.ispor.org/publications/journals/value-outcomes-spotlight/heor-trends
IQVIA Global Value & Access Benchmark 2024

https://www.iqvia.com/library/reports/global-value-and-access

Deloitte Market Access Outlook 2025
https://www2.deloitte.com/global/en/pages/life-sciences-and-healthcare/articles/market-access-outlook.html

CHAPTER 5 — What’s Next: 2027–2028 Outlook

Gartner — AI Maturity Forecasts 2026
https://www.gartner.com/en/research/methodologies/magic-quadrants-research

McKinsey Global Institute — Future of Work in Pharma
https://www.mckinsey.com/mgi

Accenture — Digital Health Tech Vision
https://www.accenture.com/us-en/insights/health/digital-health-tech-vision

Glossary of Terms

Agentic AI
AI systems capable of autonomously executing multi-step workflows such as HCP activation, evidence synthesis, enrollment prediction, or next-best-action generation.

AI-Centralized Operations
An operating model where core commercial, medical, and R&D workflows are orchestrated and executed by AI systems rather than manual processes.

AI-Native Trials
Clinical trials designed from the outset to leverage AI for feasibility assessment, protocol design, site selection, enrollment optimization, and real-time monitoring.

Biomedical LLMs
Large language models trained on biomedical, clinical, and scientific corpora to support evidence review, summarization, and medical communication.

Commercial Activation Models
AI-driven algorithms that identify rising-intent HCPs, prioritize microsegments, and recommend compliant next actions across digital and field channels.

Field Force Copilots
AI copilots offering real-time scientific insights, next-step recommendations, and compliant messaging tailored to each HCP's behavior and scientific profile.

HEOR (Health Economics & Outcomes Research)
A discipline evaluating the value, outcomes, and cost-effectiveness of therapies using real-world and modeled evidence.nd health systems.

KOL (Key Opinion Leader)
A clinician or researcher with significant influence on medical practice within a therapeutic area.

Medical Information Automation
AI-assisted generation, triage, and summarization of medical inquiries while maintaining regulatory compliance.

Multi-Agent Systems
Collaborating AI agents that collectively execute workflows across R&D, commercial, and medical operations.

Patient Support Program (PSP)
Services that help patients adhere to therapy, manage side effects, navigate access barriers, and improve persistence.
Protocol Amendments

Changes to clinical trial protocols that often introduce delays, additional burden, and higher R&D costs.

RWE (Real-World Evidence)
Evidence derived from real-world data such as claims, EMRs, registries, sensors, or observational datasets used to support clinical and access decisions.

Scientific Sentiment Mapping
AI analysis of emerging publications, conference abstracts, and KOL discourse to detect evolving clinical perspectives.

Value Demonstration
The process of proving a therapy's clinical, economic, and humanistic value to payers a

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