backplain and Generative AI in Life Sciences

December 2025

Generative AI (GenAI) Use Cases

1. IT: Access Control
2. Cross-Function: Boost Productivity and Build GenAI Literacy
3. Clinical / Cross-Function: Additional Curated 3rd Party Models
4. Clinical: Scientific Research Data Contextualization and Summarization
5. Clinical: Scientific, Clinical and Medical Literature Review
6. Clinical: Clinical Trial Management
7. Marketing: Email/SMS Engagement
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9. Sales: Enhancing Field and Commercial Effectiveness
10. Legal: Contract Management

Use Case: Access Control

IT

Goal

Single Pane of Glass (SPoG) access to models

Security, Privacy, and Compliance

Simplified management of Generative AI models

Monitor and manage usage

Reduce Shadow IT

Solution

Singular internal GenAI platform

Provide a curated* model marketplace of Public, Public (Hosted), and Private Large Language Models *(LLMs)* / Small Language Models *(SLMs)*

Manage models via enterprise-grade middleware (e.g., rate limiting, injections)

Pre-built user interface or APIs and tools to build a native experience for users

Business Value

Increase Efficiency

Decrease Cost

Facts

- Only 40% of companies have purchased official LLM subscriptions [1]
- Employees in over 90% of companies regularly use personal AI tools for work [1]
- “Won the war for simple work,” with 70% preferring (Generative) AI for drafting emails and 65% for basic analysis [1]
- Models come and go – in 2023, OpenAI led with 50% of the enterprise LLM market, now just 25%, surpassed by Anthropic at 32% [2]
- Breaches involving employees' unauthorized use of AI tools cost organizations an average of $4.63 million [3]

Customers

Currax pharmaceuticals LLC

*Curated models = selected for function and safety; keep pace with rapid model release and retirement

Use Case: Boost Productivity and Build GenAI Literacy

Cross-Function

Goal

Make GenAI available to all employees, using internal and confidential data, within a safe and secure environment

Access to the “best models for the job”

Make everyday work easier for employees

Manage model sprawl

Solution

Single internal system to access all GenAI models

Provide access to only selected* Public, Public (Hosted), and Private Large Language Models *(LLMs)* / Small Language Models *(SLMs)*

Side-by-side prompt response comparison across multiple models

Guided and learning prompt assistance for employees

Toolkit to quickly build, train, and make SLMs using company data accessible

Business Value

Increase Efficiency

Decrease Cost

Facts

- Time to Complete Tasks (With GenAI vs. Without GenAI) [1]

Writing:	25 minutes	vs. 80 minutes
Troubleshooting:	28 minutes	vs. 115 minutes
Judgement & Decision Making:	28 minutes	vs. 79 minutes
Complex Problem Solving:	25 minutes	vs. 80 minutes
Programming:	33 minutes	vs. 129 minutes
Technology Design:	39 minutes	vs. 142 minutes

- Multiple model use enhances critical thinking (shift from passively accepting AI responses to actively engaging with and verifying information)

Customers

Currax pharmaceuticals LLC

*Selected models = “best models for the job” based on role

Use Case: Additional Curated 3rd Party Models

Clinical / Cross-Function

Goal

Extend access to the “best models for the job”

Data and compute efficiency

Reduce cost by leveraging pre-trained models

Solution

Integration of curated* 3rd party models into the backplain SPoG

Foundation models fine-tuned for:

- Domain-specific optimization
- Data adaptation (adapt to specific vocabulary, abbreviations, etc.)
- Task adaptation (specific output format)
- Reduced need for large amounts of labeled data

Deployed on secure private infrastructure (cloud/on-premise)

Business Value

Increase Efficiency

Decrease Cost

Facts

- 10,000+ Models through Azure AI Foundry / Hugging Face) [1]
  - 500+ with clinical application [2]
- Computational cost savings: 80-90% [3]
- Data annotation cost savings: 80-90% [3]
- Model development time savings: 80-90% [3]

Example Models

BioGPT

BiomedBERT

TrialGPT

MedGemma

Claude for Pharma (via Pre-built/Custom Connectors

*Curated models = selected for function, safety, and security

Use Case: Scientific Research Data Contextualization and Summarization

Clinical

Goal

Extract data from digitized clinical reports to expose the information to scientists for analysis

Integrate internal & external clinical data into early discovery & translational science

Accelerate time to market

Solution

Convert inaccessible and disparate data into systematized and accessible data

Provide interoperability between different centers for drug evaluation

Enable researchers to more efficiently analyze and learn from data in their search for novel health and therapeutic insights

Business Value

Increase Efficiency

Increase Non-Financial Value

Facts

- Pre-discovery & discovery research value [1]
  - Reduce timelines by almost 3 years per successful drug
  - $0.3 - 1.5B Revenue upside per successful drug
  - $600 - 800M Cost reduction per successful drug
- Preclinical & translational value [1]
  - Reduce timelines by almost 1.5 years per successful drug
  - $0.2 - 0.8B Revenue upside per successful drug
- “Adapted large language models can outperform medical experts in clinical text summarization” [2]

Customers

Currax pharmaceuticals LLC

Use Case: Scientific, Clinical and Medical Literature Review

Clinical

Goal

Accelerate the review of scientific, clinical and medical literature to inform (drug) discovery research

Solution

Perform natural language searches to summarize research literature

Use natural language to reduce documents for screening

Outcomes research through publication monitoring to keep teams up-to-date

Business Value

Increase Efficiency

Facts

- 77% of leaders reported gains in operational efficiency as a result of AI [1]
- Perhaps the biggest opportunity of all for rightsizing the cost base and streamlining operations lies in the back office - for example, AI can enable the automation of documentation and literature review, a significant cost line in an industry as highly regulated as biotech [1]
- AstraZeneca achieves 7x faster Systematic Literature Review (SLR) with AI [2]

Use Case: Clinical Trial Management

Clinical

Goal

Patient trial matching

Patient retention

Improve regulatory engagement

Solution

Evaluate a patient's medical history clinical text versus a set of inclusion criteria (both unstructured) to identify potential clinical trial matches

Increase study retention by amplifying patient engagement

Search based on meaning rather than individual keywords to enable much faster identification of relevant materials

Predict potential Health Authority Query (HAQ) patterns for a given submission

"80 percent right" first draft clinical study submission

Business Value

Increase Efficiency

Increase Non-Financial Value

Facts

- Speeding up patient recruitment, with matchmaker AI platforms, is already making inroads into the challenges of bringing sufficient patients into trials [1]
- Trial attrition can cost as much as $20,000 per patient – that expense gives organizations a significant incentive to explore all avenues for retaining clinical trial participants [2]
- Potential 30% faster responses; 50% fewer HAQ follow-ups [3]
- Potential 40% faster regulatory submissions; a 50% improvement in cost efficiency across regulatory organizations; a two times reduction in quality issues [3]

Use Case: Email/SMS Engagement

Marketing

Goal

Improve delivery of the right information to the right people at the right time – while ensuring that each message is tone sensitive, compliant, and timely

Improve the patient experience

Solution

Optimize email subject lines to create high-performing marketing copy that improves with every email sent

Generate personalized content and tailor communication to individual patient needs

Introduce content variability to overcome message fatigue

Business Value

Increase Revenue

Increase Efficiency

Increase Non-Financial Value

Facts

- Average increase in email Open Rate = 24% [1]
- Average increase in email Click Rate = 14% [1]
- 28% increase in engagement [2]

Use Case: Promotional Content Authoring

Marketing

Goal

Generate messaging that resonates with healthcare providers and patients

Increase content output, while reducing content creation costs and speeding up approval processes

Solution

Create on-brand content variations and navigate the medical, legal, and regulatory (MLR) review process

Generate personalized content and tailor communication to individual patient or healthcare provider (HCP) needs

Business Value

Increase Revenue

Decrease Cost

Increase Efficiency

Increase Non-Financial Value

Facts

- Reducing content production costs by up to 70% [1]
- Accelerate content creation by approximately 40% [2]
- Reduce agency costs by 20% to 30% [2]
- Dramatically shorten cycle times through MLR review [3]

Use Case: Enhancing Field and Commercial Effectiveness

Sales

Goal

Enhancing field and commercial effectiveness

Solution

Summarize territory performance, competition insights, and market penetration opportunities

Create personalized messaging for Healthcare Provider (HCP) engagement, including email, call script, etc.

Next best action recommendations

Simplify and accelerate literature research to prepare for HCP interactions

Business Value

Increase Revenue

Decrease Cost

Increase Efficiency

Facts

- “HCP notes, feedback, and call transcripts contain valuable qualitative information on HCP preferences, concerns, and unmet needs”
- Personalization fosters greater trust and uptake among end users [1,2]

Use Case: Contract Management

Legal

Goal

Reduce time and cost for review, comparison, analysis, summarization, and generation of internal legal documents

Reduce time and cost for legal research

Solution

Natural Language Processing (NLP) of clinical trial agreements, supplier and service agreements, licensing agreements, incoming material transfer agreements, confidentiality and non-disclosure agreements, distribution agreements, etc.

Business Value

Increase Efficiency

Decrease Cost

Facts

- Reduce initial contract review time by approximately 90% (from roughly 10 hours to about 10 minutes for complex agreements) [1]
- Save 5 hours per week or 32.5 full working days per person [2]
- Retrieve critical information with an accuracy rate of at least 96% [3]
- Reduce total time researching an average litigation matter from 17–28 hours to just 3–5.5 hours [4]

Customers

Currax pharmaceuticals LLC

backplain ROI Example

Finance

Customer

ACME Pharmaceuticals

500 Employees

Solution

Provide universal access to GenAI across the entire organization

Supplemental to “in-app GenAI” *(dynamic multi-model rather than just the static in-app single-model)*

No singular use case to succeed or fail

No requirement for pilot or POC; staged roll-out only

Add-on one-time service: Prompt Engineering – get the most out of backplain training sessions (customized/recorded)

Platform for future growth

ROI

Total year 1 cost = $164,000

Average 80% (400) employee monthly usage

ROI = 143.90% per 1% increase in productivity*

Facts

- Software-as-a-Service
- Per-user pricing starting at $27 per user per month *(10% Enterprise discount from the standard $30)*
- One-time prompt engineering training $2,000
- Additional services available
  - Model integration (via toolkit)
  - SLM development
  - Retrieval Augmented Generation (RAG)
  - Model fine-tuning

backplain

*Does NOT include additional use case-specific benefits

Putting Generative AI to work...