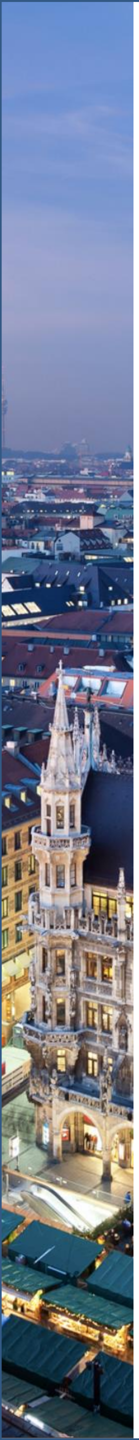
The Current AI Landscape

Otakar G. Hubschmann

TransRe Artificial Intelligence Team



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AUF DER SPEISEKARTE FÜR

Current AI Landscape → What has changed in ~2 years → What (re)insurance is building with AI → How TransRe Uses AI → How AI Fails at Your Company → AI Future

Discriminative vs. Generative AI

Two Fundamental Approaches in Artificial Intelligence

theaiunderwriter.substack.com

Discriminative AI

D

Definition

Models that learn boundaries between classes to classify or predict specific outcomes

Mathematical Focus

Models P(y|x) - the probability of a label y given input x

Examples

- Support Vector Machines (SVM)
- Logistic Regression
- Neural Network Classifiers
- Random Forests

Applications

- Classification tasks
- Predictive analytics
- Spam detection

Generative AI

G

Definition

Models that learn the underlying data distribution to create new content

Mathematical Focus

Models P(x) or P(x,y) - the joint probability distribution of data

Examples

- Generative Adversarial Networks (GANs)
- Variational Autoencoders (VAEs)
- Large Language Models (LLMs)
- Diffusion Models

Applications

- Text generation
- Image synthesis
- Creative content creation

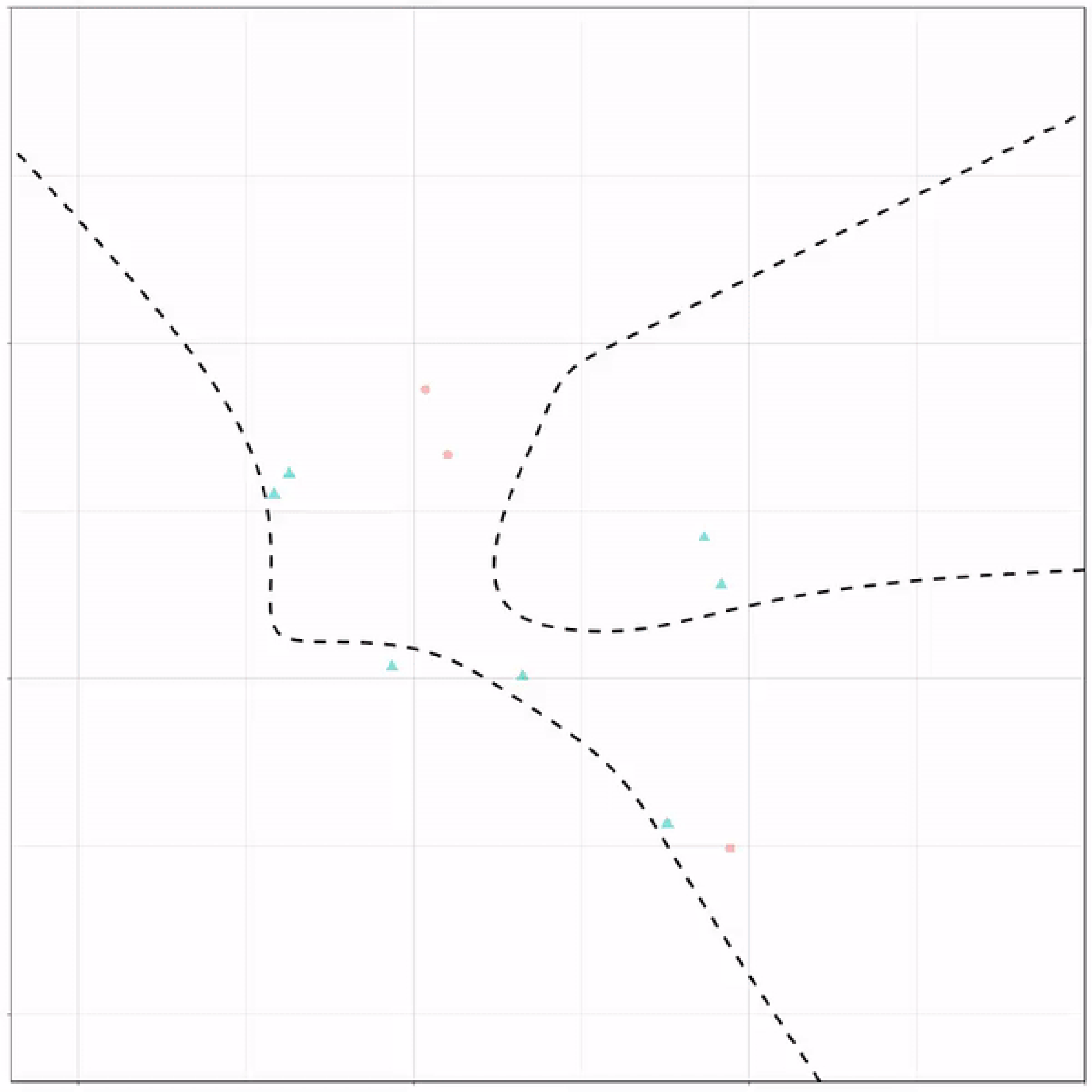

Image credit: Extreme gradient boosting gif by Ryan Holbrook


I

Large Language Model Ecosystem

Key Companies Across the Value Chain

Foundation Model Developers

OpenAI
GPT-4o
GPT-o3

Anthropic
Claude 3.5
Claude 3.7

Google
Gemini

Meta
LLaMA

Cohere
Command
Embed

Mistral AI
Mistral Large
Mistral Small

xAI
Grok

Hardware & Compute Providers

NVIDIA
H100, A100
CUDA, TensorRT

AMD
MI300X, MI250
ROCm

Intel
Gaudi2, Ponte Vecchio
oneAPI

Cerebras
CS-2 Wafer-Scale
WSE-2

SambaNova
DataScale
RDU

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Cloud & Infrastructure Providers

AWS
Bedrock
EC2, SageMaker

Microsoft Azure
Azure OpenAI
Azure AI

Google Cloud
Vertex AI
TPU pods

Oracle Cloud
OCI AI Services
GPU Clusters

CoreWeave
GPU Cloud
Inference Services

Middleware, Tools & Applications

Hugging Face
Model Hub
Transformers

LangChain
Chains, Agents
LLM Frameworks

Pinecone
Vector Database
Embeddings

Replicate
Hosted Models
API Platform

Weights & Biases
Model Monitoring
Experiment Tracking

Weaviate
Vector Database
Semantic Search

Anyscale
Ray
Distributed Computing

LLM Training Methods

Pre-training

Self-supervised Learning

• Learning from massive text corpora
• Predicting next tokens or masked tokens
• Creates general foundation models
• Requires enormous datasets
• High computational requirements
• Develops broad language capabilities

Characteristics

• First phase in LLM development
• No human supervision required
• Focus on general knowledge
• Builds core language understanding
• Creates versatile but unaligned models

Post-training

Fine-tuning

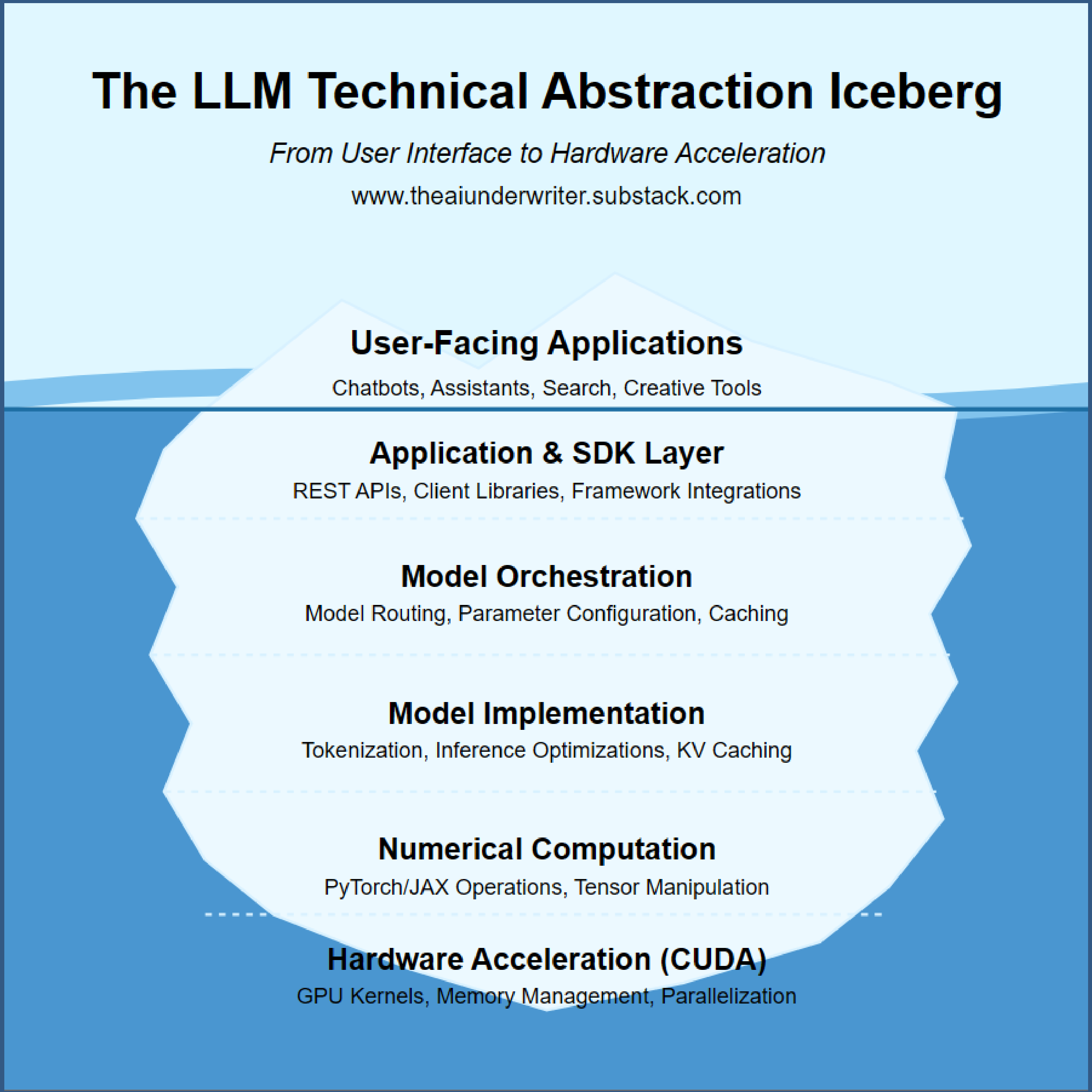
• Training on specific tasks with labeled data
• Adjusts all model weights
• Specializes models for particular domains

RLHF

• Reinforcement Learning from Human Feedback
• Aligns outputs with human preferences
• Requires human evaluators

Instruction Tuning

• Training on instruction-response pairs
• Teaches models to follow user instructions
• Improves helpfulness and safety


The LLM Technical Abstraction Iceberg
From User Interface to Hardware Acceleration
www.theaiunderwriter.substack.com
User-Facing Applications
Chatbots, Assistants, Search, Creative Tools
Application & SDK Layer
REST APIs, Client Libraries, Framework Integrations
Model Orchestration
Model Routing, Parameter Configuration, Caching
Model Implementation
Tokenization, Inference Optimizations, KV Caching
Numerical Computation
PyTorch/JAX Operations, Tensor Manipulation
Hardware Acceleration (CUDA)
GPU Kernels, Memory Management, Parallelization

What's Changed in AI: April '23 - May '25

theaiunderwriter.substack.com

The Jumps

100x
Context Window

10x
Cheaper

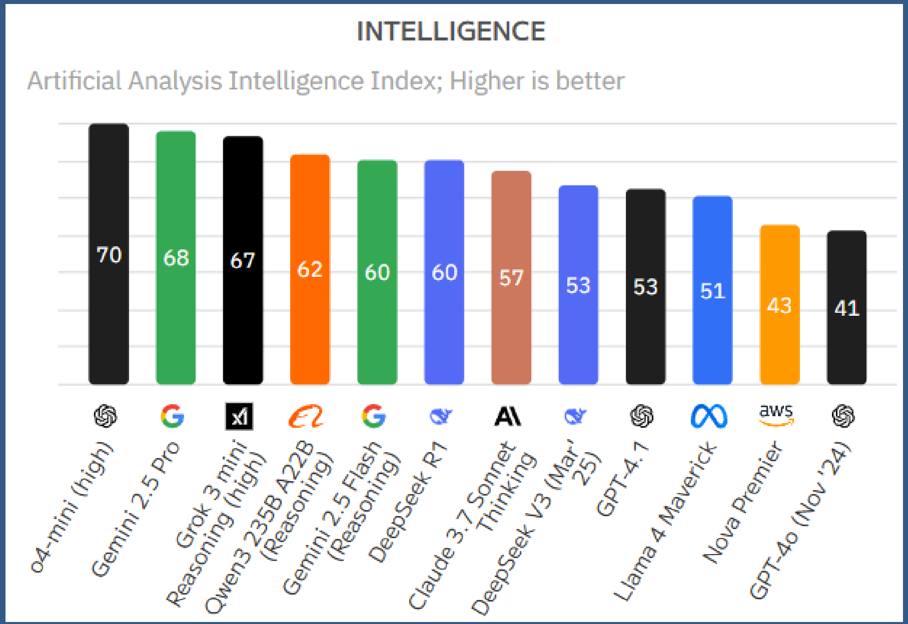
I/O
Multimodal

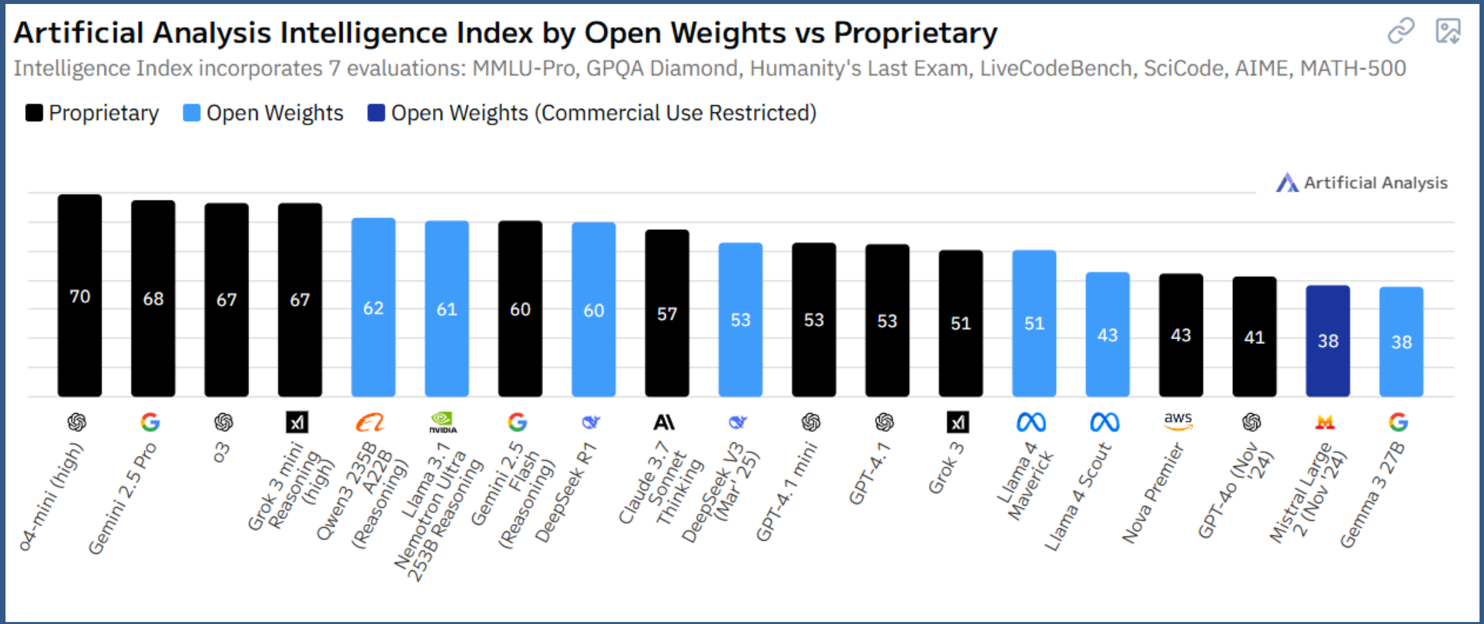
Incremental Improvements

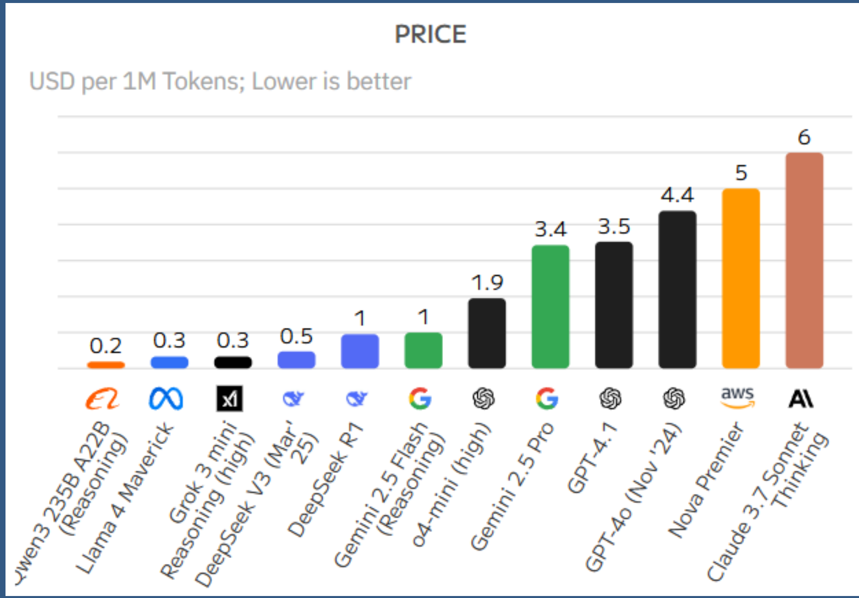
Larger Parameter Counts

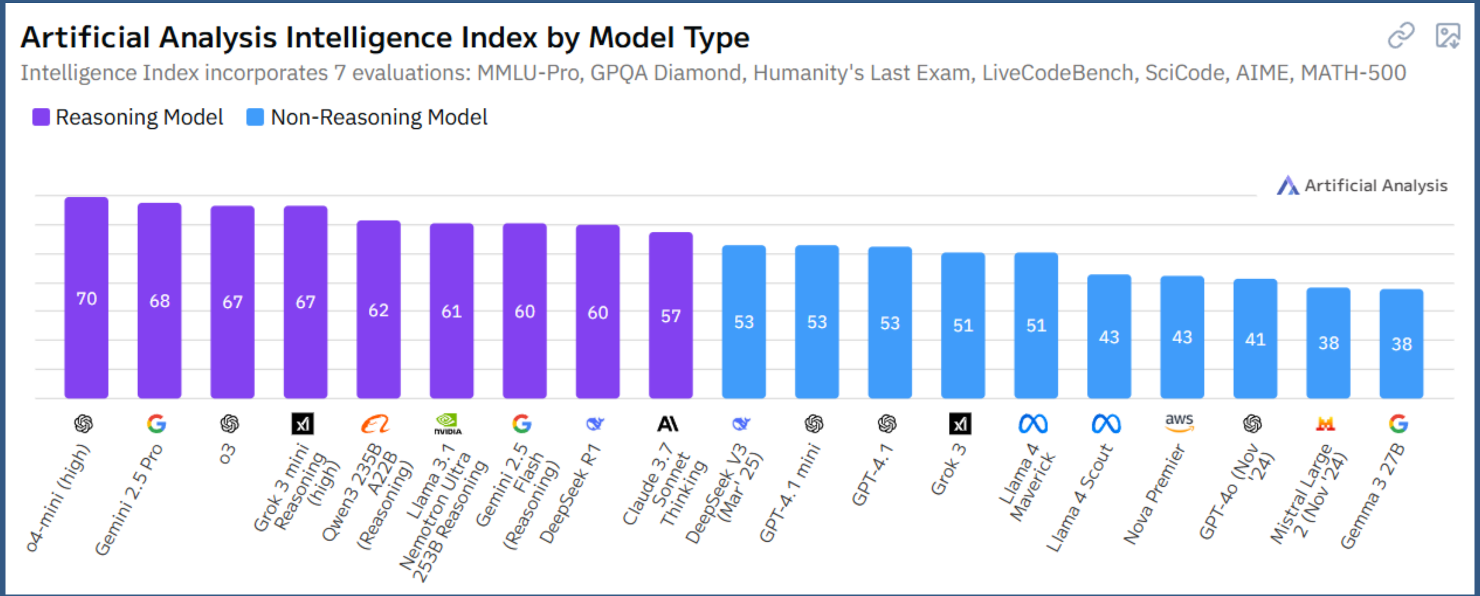
Open Weight vs Proprietary

Benchmark Improvements





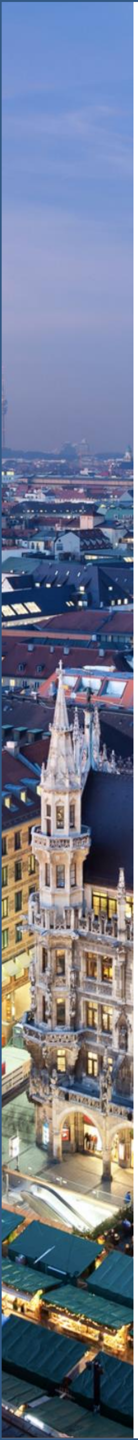




All Image credits: Artificial Analysis

IMAGE GENERATION 2023 AND 2024

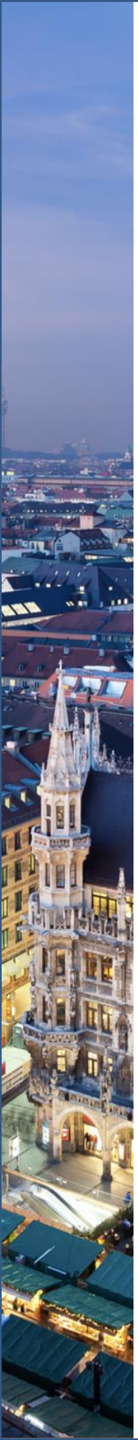
IMAGE GENERATION EARLY 2025



For Travelers, the AI opportunity is profound: CEO Alan Schnitzer

AON’S GREG CASE: “THE OPPORTUNITIES PRESENTED BY AI ARE ‘REAL AND MEANINGFUL’ FOR THE INSURANCE AND REINSURANCE INDUSTRY”

CHUBB CEO Reveals Insurance Giant is Preparing to Roll Out AI at Scale



How Liberty Mutual plugged generative AI into everyday work

Around 1 in 4 employees are using the company's internal, non-public version of ChatGPT, saving an average of 1.5 hours per week.

Aon to roll out generative AI platform for employees

Tools expected to grant a "competitive advantage"

SCOR L&H announces the launch of its GenAI-powered client solution for medical underwriting & claims

Marsh McLennan launches AI-powered solution to transform supply chain risk management

Generative AI - Munich Re is driving automation in the insurance industry

Munich Re's new AI-driven feature REALYTIX ZERO CoPilot enables high-quality product design that also saves both time and money. A major competitive advantage and a big step forward in supporting the digital transformation process of our clients.

Underwriting expertise meets cutting-edge technology – Munich Re's REALYTIX ZERO CoPilot

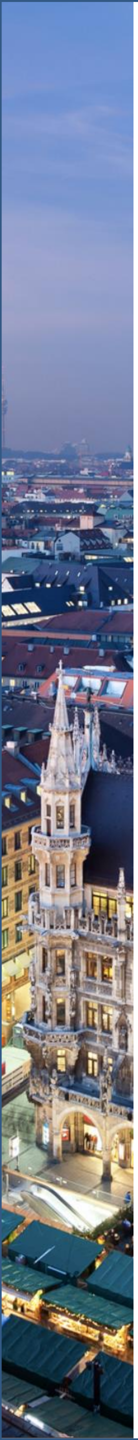
With the new generative AI-driven CoPilot function integrated into the REALYTIX ZERO underwriting platform, Munich Re is at the forefront of underwriting automation development and the only ones using generative AI to build or adapt insurance and reinsurance products.

"AI is supporting our ambition to offer clients underwriting and product-building expertise at the highest level and to the most modern standards. - And we are able to combine our technology with primary or reinsurance capacity, which constitutes a true USP in the market."

Florian Niklas
CEO and Co-Founder of REALYTIX ZERO

SCOR CEO: AI is a game changer for the sector

Above and beyond, SCOR's ambitions with AI extend across the entire solution portfolio, including our automated underwriting system, Velogica, and our newly developed claims system, VClaims. SCOR is investing in its mission of sharing risk knowledge with its clients through innovative reinsurance solutions and the best possible tools, to push the boundaries of the Art & Science of Risk.



BUT STILL NONE OF THESE...

(Re)Insurance Industry AI Applications

theaiunderwriter.substack.com

Loss Ratio Applications

Risk Selection AI
- Unstructured data extraction
- Predictive risk scoring
- Automated underwriting
- Risk cluster identification

Claims Management
- Fraud detection systems
- Severity prediction
- Automated claim triage
- CAT response optimization

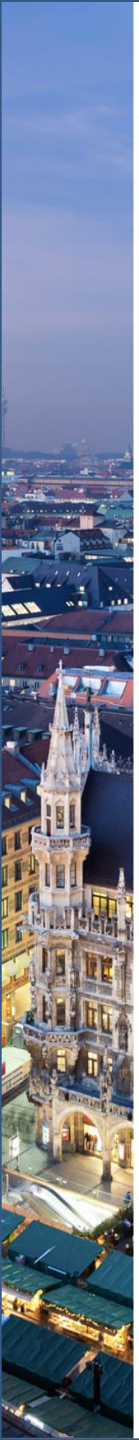
Loss Prevention
- IoT integration & analytics
- Early warning systems
- Behavioral nudging
- Preventative maintenance

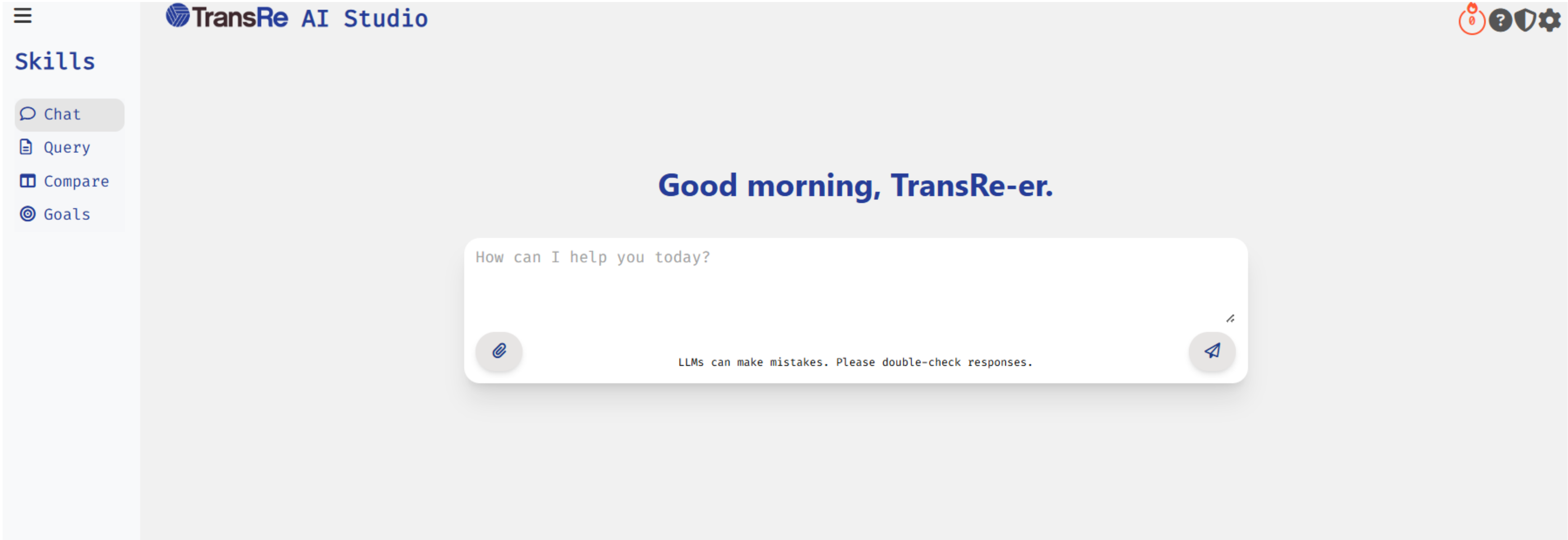
Expense Ratio Applications

Document Automation
- Automated policy generation
- Intelligent OCR extraction
- Contract analytics
- Compliance checking

Customer Service
- Advanced AI chatbots
- Customer lifetime modeling
- Voice AI assistants
- Personalization engines

Operational Efficiency
- Process mining & optimization
- Staff resource allocation
- Workflow orchestration
- AI-assisted decision making




TransRe AI Studio
Skills
Chat
Query
Compare
Goals
Good morning, TransRe-er.
How can I help you today?
LLMs can make mistakes. Please double-check responses.

TransRe AI Studio

Skills

- Chat
- Query
- Compare
- Goals

Image / PDF Q&A

New Chat

Preview

Ask your question here ...

LLMs can make mistakes.
Please double-check responses.

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summarize as a table model: GPT-4o

Here is a summary of Berkshire Hathaway's operating earnings and net earnings for the third quarter and first nine months of 2023 and 2022:

Copy Download CSV

Category	Third Quarter 2023	Third Quarter 2022	First Nine Months 2023	First Nine Months 2022
Insurance-underwriting	$2,422	($1,072)	$4,580	($190)
Insurance-investment income	$2,470	$1,408	$6,808	$4,484
Railroad	$1,221	$1,442	$3,732	$4,477
Utilities and energy	$498	$1,601	$1,699	$3,165
Pilot Travel Centers (PTC)	$183	–	$380	–
Other controlled businesses	$3,341	$3,247	$9,712	$9,521
Non-controlled businesses	$226	$346	$1,329	$810

Microsoft W... 1 / 2 81%

BERKSHIRE HATHAWAY INC.

NEWS RELEASE

FOR IMMEDIATE RELEASE **November 4, 2023**

Omaha, NE (BRK.A; BRK.B) –

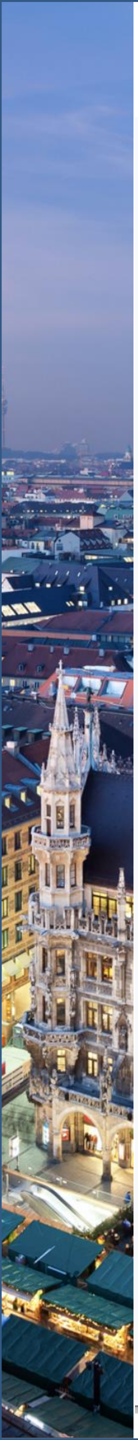
Berkshire's operating results for the third quarter and first nine months of 2023 and 2022 are summarized in tl following paragraphs. However, we urge investors and reporters to read our 10-Q, which has been posted www.berkshirehathaway.com. *The limited information that follows in this press release is not adequate fi making an informed investment judgment.*

Earnings (losses) of Berkshire Hathaway Inc. and its consolidated subsidiaries for the third quarter and first nii months of 2023 and 2022 are summarized below. Earnings (losses) are stated on an after-tax basis. (Doll amounts are in millions, except for per share amounts).

	Third Quarter 2023	Third Quarter 2022	First Nine Months 2023	First Nine Months 2022
Net earnings (losses) attributable to Berkshire shareholders...	$ (12,767)	$ (2,798)	$ 58,649	$ (40,
Net earnings (losses) includes:				
Investment and derivative gains/losses ...	(23,528)	(10,449)	29,780	(65,
Operating earnings ...	10,761	7,651	28,869	24,
Net earnings (losses) attributable to Berkshire shareholders...	$ (12,767)	$ (2,798)	$ 58,649	$ (40,
Net earnings (losses) per average equivalent Class A Share ..	$ (8,824)	$ (1,907)	$ 40,422	$ (27,'
Net earnings (losses) per average equivalent Class B Share ..	$ (5.88)	$ (1.27)	$ 26.95	$ (18
Average equivalent Class A shares outstanding ...	1,446,925	1,466,946	1,450,934	1,470,
Average equivalent Class B shares outstanding ...	2,170,387,690	2,200,419,462	2,176,400,554	2,206,070,

Note: Per share amounts for the Class B shares are 1/1,500th of those shown for the Class A.

Generally Accepted Accounting Principles ("GAAP") require that we include the changes in unrealiz gains/losses of our equity security investments as a component of investment gains/losses in our earnin statements. In the table above, investment gains (losses) in 2023 include losses of $24.1 billion in the third quart and gains of $23.5 billion in the first nine months and in 2022 include losses of $10.1 billion in the third quart and $63.9 billion in the first nine months due to *changes* during the third quarter and the first nine months in tl *unrealized* gains that existed in our equity security investment holdings. Investment gains (losses) in 2023 al include after-tax realized gains on sales of investments of $560 million in the third quarter and $3.9 billion in tl first nine months and in 2022 include after-tax *realized* losses on sales of investments of $378 million in the thi quarter and $946 million in the first nine months. In the first nine months of 2023 investment gains also include net remeasurement gain of approximately $2.4 billion related to Berkshire's acquisition of an additional 41.4 interest in Pilot Travel Centers.



TransRe AI Studio

Skills

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- Query
- Compare
- Goals

PDF Comparison

New Chat

Preview

Ask your question here ...

LLMs can make mistakes.
Please double-check responses.

nov0423.pdf, aug0523.pdf

compare using bullet points- What where the most striking improvements and weaknesses?

model: GPT-4o

Striking Improvements:

- **Insurance-Underwriting:**
  - Significant improvement in operating earnings for the third quarter and first nine months of 2023 compared to 2022:
    - Third quarter: $2,422 million in 2023 vs. $(1,072) million in 2022.
    - First nine months: $4,580 million in 2023 vs. $(190) million in 2022.
  - Reflects a strong recovery in underwriting performance.
- **Insurance-Investment Income:**
  - Substantial growth in investment income:

Microsoft W... 1 / 2 81%

BERKSHIRE HATHAWAY INC.

NEWS RELEASE

FOR IMMEDIATE RELEASE **November 4, 2023**

Omaha, NE (BRK.A; BRK.B) –

Berkshire's operating results for the third quarter and first nine months of 2023 and 2022 are summarized in t following paragraphs. However, we urge investors and reporters to read our 10-Q, which has been posted www.berkshirehathaway.com. *The limited information that follows in this press release is not adequate f making an informed investment judgment.*

Earnings (losses) of Berkshire Hathaway Inc. and its consolidated subsidiaries for the third quarter and first ni months of 2023 and 2022 are summarized below. Earnings (losses) are stated on an after-tax basis. (Doll amounts are in millions, except for per share amounts).

Third Quarter First Nine Months

BERKSHIRE ... 1 / 2 81%

BERKSHIRE HATHAWAY INC.

NEWS RELEASE

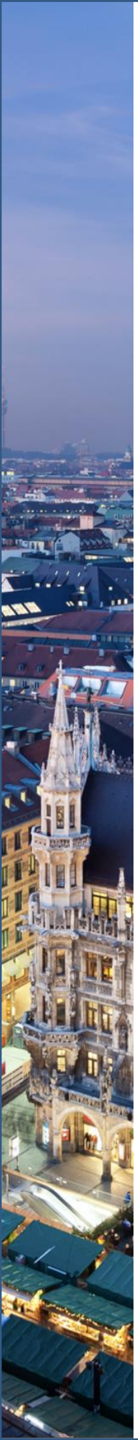
FOR IMMEDIATE RELEASE **August 5, 2023**

Omaha, NE (BRK.A; BRK.B) –

Berkshire's operating results for the second quarter and first six months of 2023 and 2022 are summarized in t following paragraphs. However, we urge investors and reporters to read our 10-Q, which has been posted www.berkshirehathaway.com. *The limited information that follows in this press release is not adequate f making an informed investment judgment.*

Earnings of Berkshire Hathaway Inc. and its consolidated subsidiaries for the second quarter and first six months 2023 and 2022 are summarized below. Earnings are stated on an after-tax basis. (Dollar amounts are in millior except for per share amounts).

	Second Quarter		First Six Months	
	2023	2022	2023	2022



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Treaty No.	1212	U/W Year	2025

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Upload new Contract File

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Dellwood_100_25_Draft_3_3.31.25.pdf uploaded successfully!

Submit

Generate report

provisions of paragraph A above (the "Adjusted Premium") and report such amount to the Reinsurer. However, no return premium shall be due the Company or additional premium due the Reinsurer as respects an excess layer hereunder unless the difference between the Adjusted Premium for such excess layer and the deposit premium for such excess layer is greater than 5%. Any amounts due either party shall be remitted promptly.

Include in report

Addition in New Contract

ARTICLE 12 - PREMIUM

D. ~~Furthermore, in the event the Adjusted Premium is less than 95% of the deposit premium, and there is loss recovery hereunder exceeding $1,935,000, the minimum premium shall be equal to the deposit premium.~~

Include in report

Deletion from Old Contract

ARTICLE 12 - PREMIUM

4_TransRe_910324903_Howden_Dellwood_1

~~E.~~ "Actual Modeled Layer Expected Loss" shall be calculated by the Intermediary as of ~~October 1, 2024,~~ using ~~RMSv22 at settings of NTwDS~~ for the perils ~~of~~ Earthquake and Hurricane, as respects business in force on such date.

F. The Company shall furnish the Reinsurer with such information as the Reinsurer may ~~require~~ to complete its Annual Convention Statement.

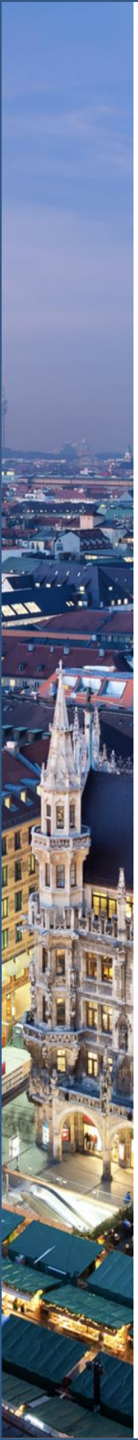
Dellwood_100_25_Draft_3_3.31.25.pdf

D. "Actual Modeled Layer Expected Loss" shall be calculated by the Intermediary as of ____________, using ____________ for the perils of Earthquake and Hurricane, as respects business in force on such date.

E. The Company shall furnish the Reinsurer with such information as the Reinsurer may require, to complete its Annual Convention Statement.

Include in report

Changes in New Contract



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Sanction Clauses

Clause

Cedant Cedant

Broker Broker

Submission Number Submission Number

Add Row

Retire Clause

Active Retired All Search...

Export Save

Clause	Cedant	Broker	Submission_no	Date	Status
A sanctions clause example	TransRe	AON	111	2025-04-22	Active
Another example	TransRe	GC	12	2025-04-22	Retired
A sanction which prevents losses for cedant.	Chubb	HB	333	2025-04-22	Retired
Some more sanctions which are again just a place holder	Axa	AON	444	2025-04-22	Active

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TransRe Submission Data Extraction

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Cummins - Starr Quote - FINAL.pdf

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Results

Compare Extracted Table Stop Clear History

Preview

Cummins - Rat... 1 / 3 81%

Date: **February 28, 2024**
FINAL

To:	Aaron Casey	From:	Thomas Dourgarian
Company:	Woodruff-Sawyer & Co. 50 California Street, Floor 12 San Francisco, California 94111		399 Park Ave, Mezzanine New York, NY 10022
Phone:	415-402-6518	Phone:	646-227-6772
Email:	acasey@wsandco.com	Email:	thomas.dourgarian@starrcompanies.com

Dear Aaron,

Thank you very much for your submission. Based upon the information submitted, we are pleased to provide you with the following indication:

Insured Name:	Cummins Inc.
Insured Address:	500 Jackson Street Columbus, IN 47201
Type of Insurance:	Excess Specialty Professional Liability
Status:	Renewal Renewal of: 1000600286231
Policy Form:	Excess Specialty Professional Liability Form SS FL 002 XS (10/12)
Insurance Company:	Starr Surplus Lines Insurance Company
Policy Period:	March 30, 2024 To March 30, 2025
Retroactive Date:	July 1, 2018
Pending & Prior Litigation Date	July 1, 2018
Quote Expiry Date:	March 30, 2024

Coverage Section	Limit Of Liability (Inclusive of Defense Costs)	Excess Attachment Point	Premium (One Year) **
Excess Specialty Professional Liability	$ 10,000,000 Per Claim $ 10,000,000 Annual Aggregate Part of $ 20,000,000 Per Claim $ 20,000,000 Aggregate	$ 70,000,000 Per Claim $ 70,000,000 Annual Aggregate $ 15,000,000 Insured Retention	$177,500 plus any applicable Surplus Lines Tax &/or Filing fees

** Premium does not include any applicable Surplus Lines Taxes and/or Filing Fees

Accounting PDF POC

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TransRe Accounting Invoice Data Extraction

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Style Standard

Single / Batch

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Extracted Table

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CTr61vJGWV6... 1 / 1 81%

Transatlantic Reinsurance Company
One Liberty Plaza
165 Broadway
New York
NY 10006
United States

账户号码 31092809
您的参考号码请告知
我们的参考号码 14627N22 / 000012TTY
通知日期 2023 年 7 月 5 日

比例分保合约报表

被保险人：ACE 财产与责任保险公司

合约描述：责任份额再保险合同

部分细节：A - USD

业务类别：一般责任超额和剩余线

保单期限：2022 年 6 月 1 日至 2023 年 6 月 1 日

报表期限：2023 年 3 月 1 日至 2023 年 5 月 31 日

订单说明：整体签署线百分比的 10.0000000%

100%份额 您的份额 0.9000000%

保费 USD 250,198,306.67 C 2,251,784.76 C

佣金 USD 86,318,445.56 D 776,866.01 D

经纪费 USD 6,254,957.78 D 56,294.62 D

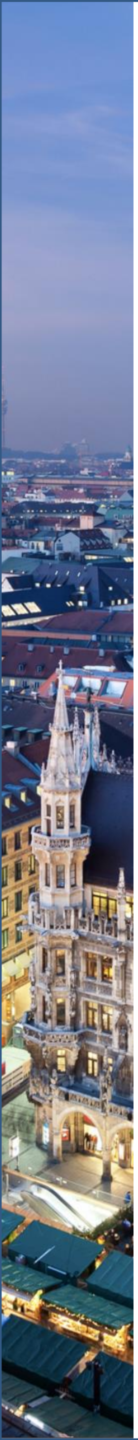
已付赔款 USD 1,109,750.00 D 9,987.75 D

已付 LAE USD 205,505.56 D 1,849.55 D

应付给您的净额 USD 1,406,786.83

信息

GEN AI: DON'T BE A SOLUTION IN SEARCH OF A PROBLEM



This is how GenAI fails at your company

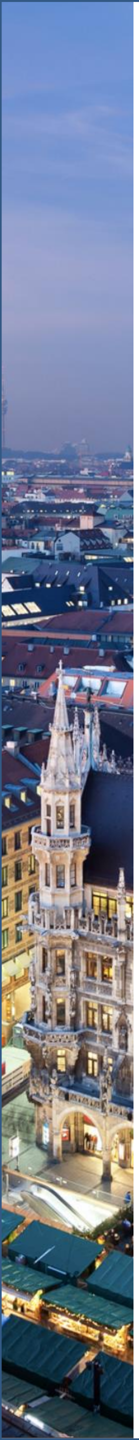
Otakar G. Hubschmann

https://theaiunderwriter.substack.com

B	I	N	G	O
Data Privacy Concerns	Lack of Explainability	Regulatory Uncertainty	Integration Challenges	Professional Fakers/Gatekeepers
High Implementation Costs	Model Bias	Data Quality Issues	Cybersecurity Risks	Resistance to Change
Ethical Concerns	Roadblocks / Fire Drills	**FREE SPACE** **No One Cares What you Built with GenAI**	Model Inaccuracy	Scalability Issues
Legacy System Compatibility	Lack of Trust in AI	Data Silos	Vendor Lock-in / 3rd Party Reliance	Unclear ROI
Model Drift	Compliance Issues	Lack of AI Strategy	Data Governance	Stakeholder Buy-in

THE AI FUTURE: SHAVE OFF THE EDGES, DON’T GUT THE CORE

BIS SPÄTER!!!

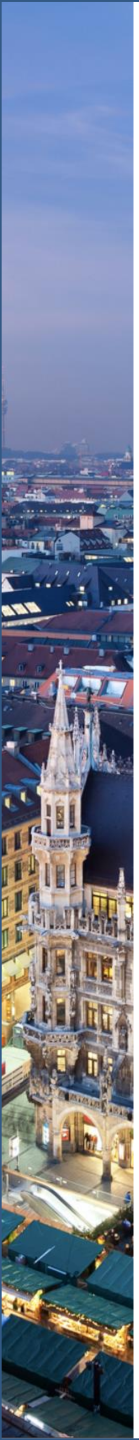


KOMMENTARE, FRAGEN, GELDSPENDEN?

1. transre.com/insights/artificial-intelligence

2. ohubschmann@transre.com

3. theaiunderwriter.substack.com



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