



Your Mission, Our Purpose



AI in Action: Practical Strategies for EHS & Operational Excellence

March 5th 2025

Agenda

- AI Market insights
- AI Showcase -- *Data Quality, Ergonomics, Risk Mgmt*
- Digital Transformation Using AI
- Question & Answers



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Chief Customer Officer
Benchmark Gensuite



AI's Progression: Understanding Its Role and Influence in EHS

Artificial Intelligence (AI) is a branch of computer science involved with the design of computers, programmed devices and software applications having the ability to imitate human intelligence and thought. It encompasses various subfields, including machine learning and natural language processing, to simulate cognitive functions and improve performance over time.



2021: Rapid Advancements

AI models like GPT-3 and DALL-E illustrate large language models and generative AI.



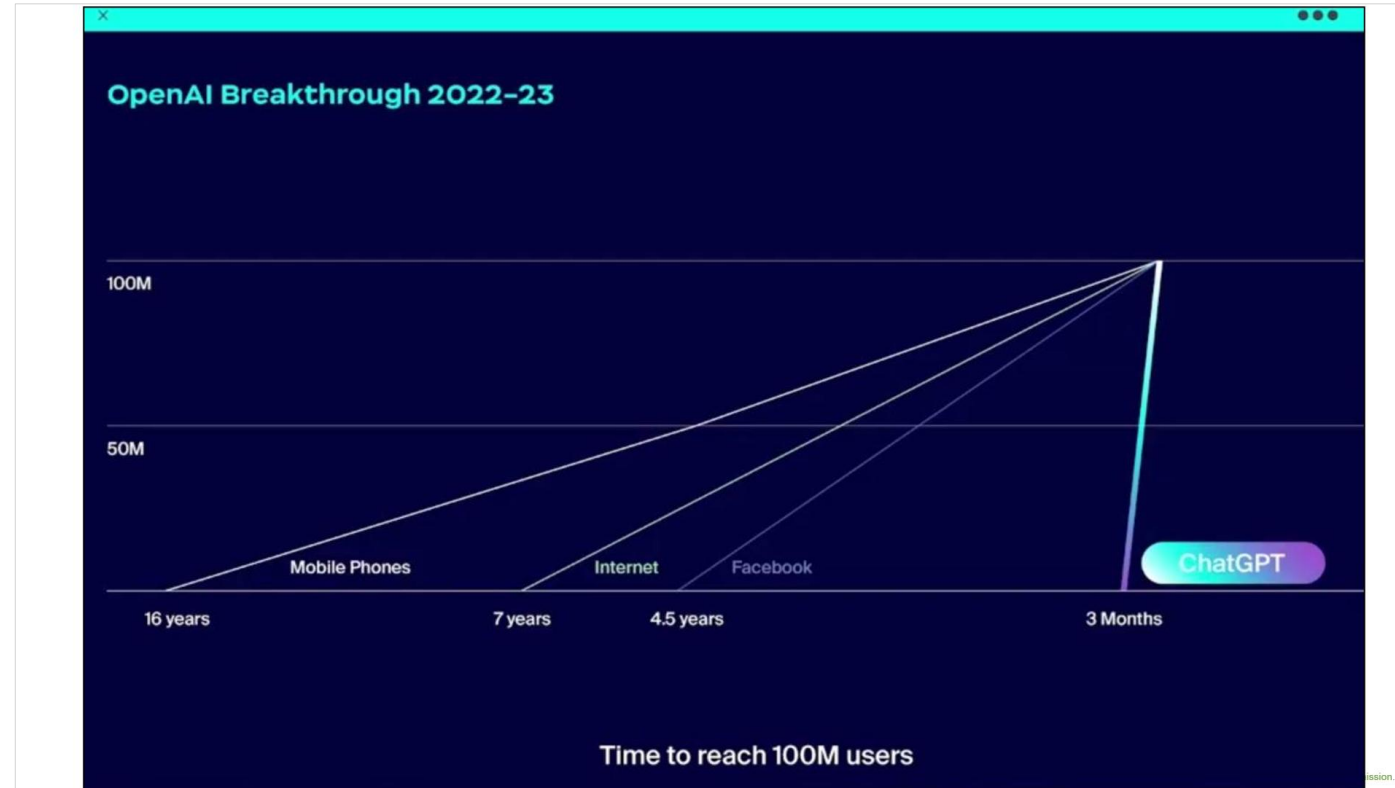
2022: AI Goes Mainstream

Implementation of AI-powered chatbots, virtual assistants, and image generation tools are now widely accessible to the public.



2023 – 2025: AI Tackles Complex Problems

AI is being used to address global challenges in EHS, healthcare and finance.



Increased Adoption in Various Domains:

EHS

AI has been adopted in EHS through the use of predictive analytics, wearables, and automation for monitoring safety conditions.

Healthcare

AI-powered diagnostics, drug discovery, and personalized medicine transform patient care.

Transportation

Autonomous vehicles, traffic optimization, and logistics automation revolutionize mobility.

Finance

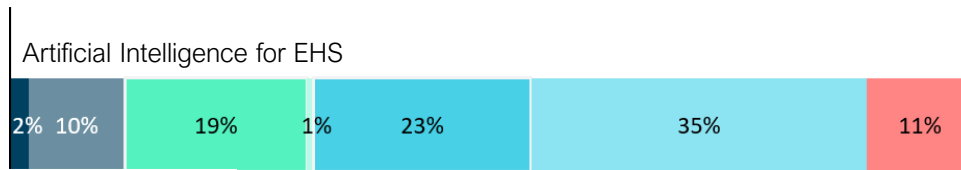
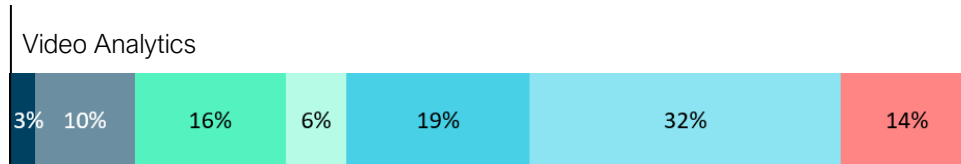
AI-driven investment strategies, fraud detection, and risk management improve financial decisions.



EHS AI Market Insights

Verdantix Digital Technology Adoption Report: August 2024

EHS Leaders: To what extent will your firm roll out the following digital technologies in 2024?



- Fully deployed across applicable areas across the organisation
- Already widely rolled-out across the organisation
- Partially rolled out, looking to increase
- Partially rolled out, not looking to further disseminate technology
- Piloting technology
- No current plans to roll out
- I don't know

verdantix

General AI EHS Deployment Trends

- ✓ 30% have deployed AI technology
- ✓ 25% partially rolled out and piloting AI technology
- ✓ 45% aren't sure yet

EHS Leaders Engaging with Artificial Intelligence

- ✓ 12% already deployed AI across their organization
- ✓ 19% looking to increase implementation

Video Analytics

- ✓ 13% already deployed
- ✓ 19% actively rolling out

“AI Won't Replace Humans – But Humans With AI Will Replace Humans Without AI”

Karim Lakhani, Co-chair of the Digital Data Design Institute at Harvard and Professor at Harvard Business School

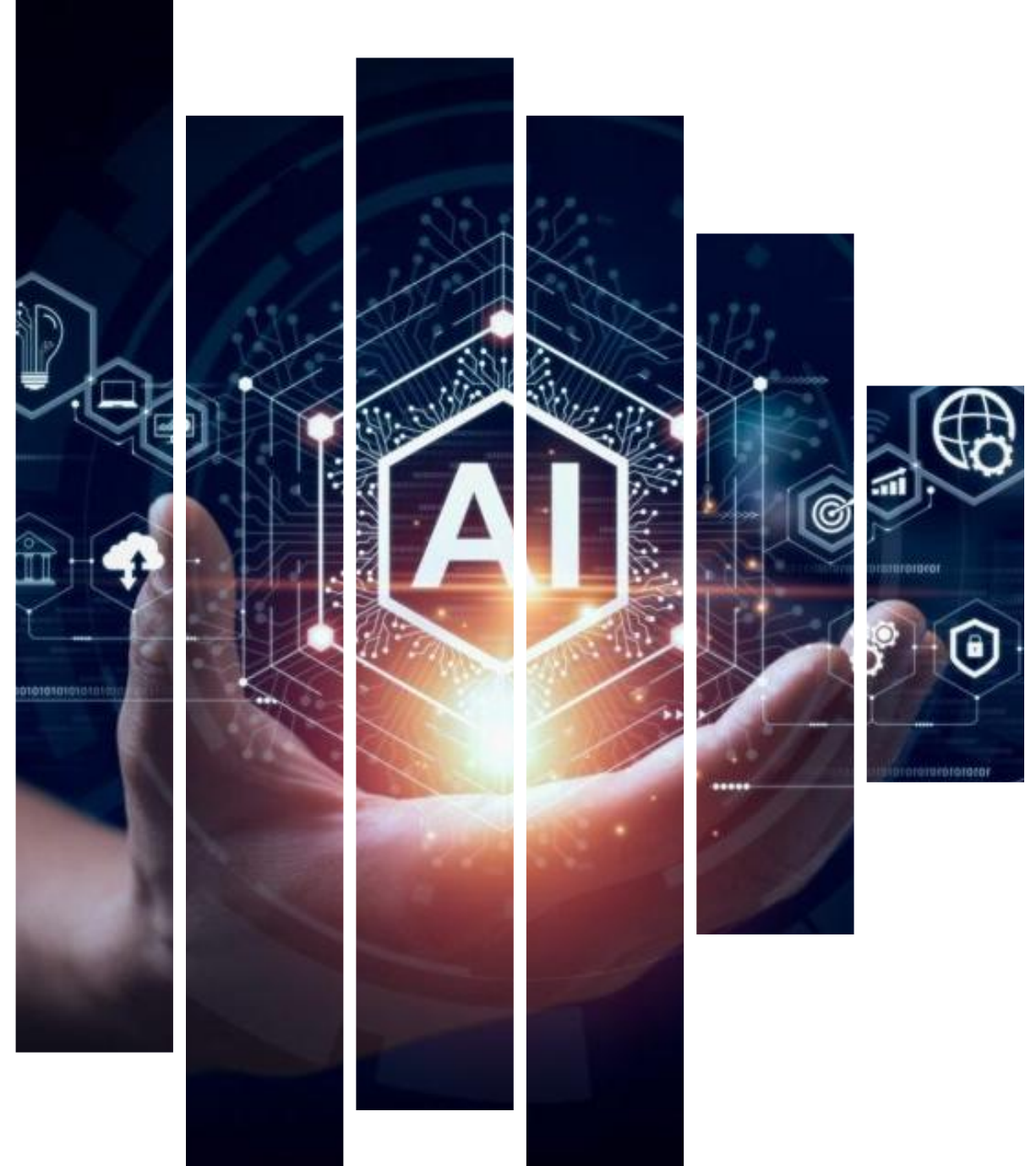


Share Your Perspectives

Where are you on your Artificial Intelligence Journey?

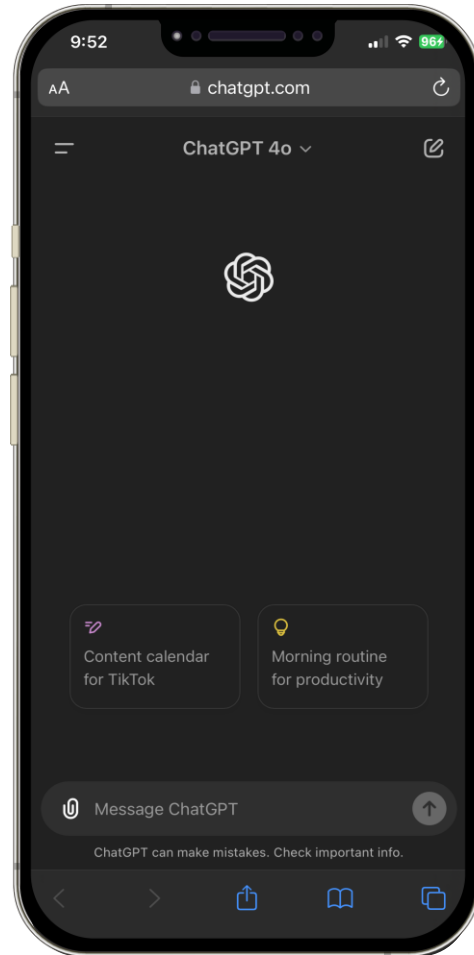
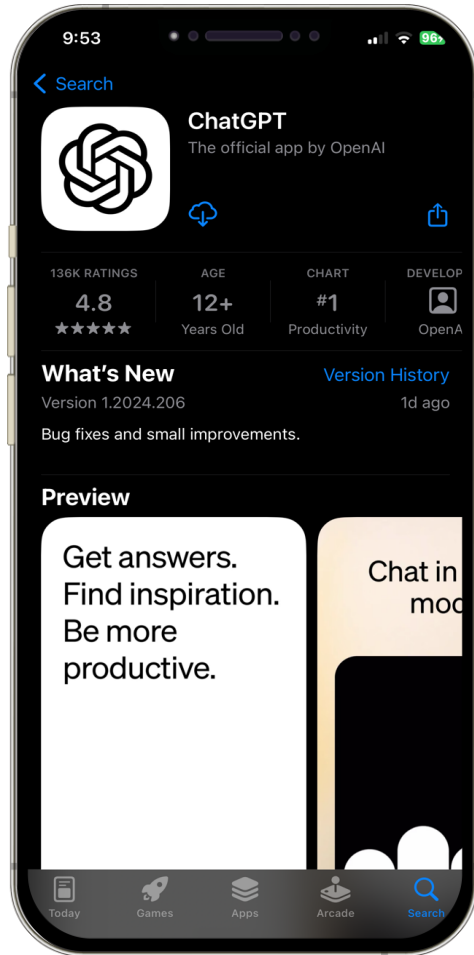
- Implementing
- Actively Exploring
- Observing

How are you using AI today?





What Can ChatGPT Do?



<https://chat.openai.com/>

Using ChatGPT

This tool can be used in many ways, from writing an email to planning a trip to identifying risks in a single image!

Tips on creating your prompts:

- Be Clear and Specific: Clearly state what you need in your prompt to avoid ambiguity.
- Specify the context, required details
- Ask Direct Questions: Formulate your prompt as a direct question or set of instructions.

Let's try it out now!



Creating Your Itinerary With ChatGPT



Thank my interviewer



Write a story in my favorite genre



Fun fact about the Roman Empire



Explain superconductors



I am planning a 7-day vacation to Venice, Italy. Please give me a full itinerary of activities to participate in and must-see locations and restaurants to visit. Ensure that the itinerary includes visits to a beach



ChatGPT can make mistakes. Check important info.



Using ChatGPT to Analyze Risk in a Picture




What can I help with?

 Message ChatGPT 

 Create image

 Summarize text

 Help me write

 Brainstorm

More

ChatGPT can make mistakes. Check important info. 



Let's Take it a Step Further: Translating the Summary into PowerPoint

crucial for coordinated movement and safety, especially when handling machinery and heavy materials.

Recommendations for Improvement:

- Ensure that all workers wear gloves to protect against concrete exposure.
- Cover or mark tripping hazards like exposed cables and rebar.
- Make sure workers have stable footing, possibly by creating temporary platforms or leveling the area before work.
- Confirm that all workers have suitable protective footwear to avoid foot injuries.

Overall, the workers seem to be following some important safety protocols, but there are additional steps they could take to enhance safety on the site.



Message ChatGPT



ChatGPT can make mistakes. Check important info.



Using OpenAI Securely

Integrate AI into your company processes

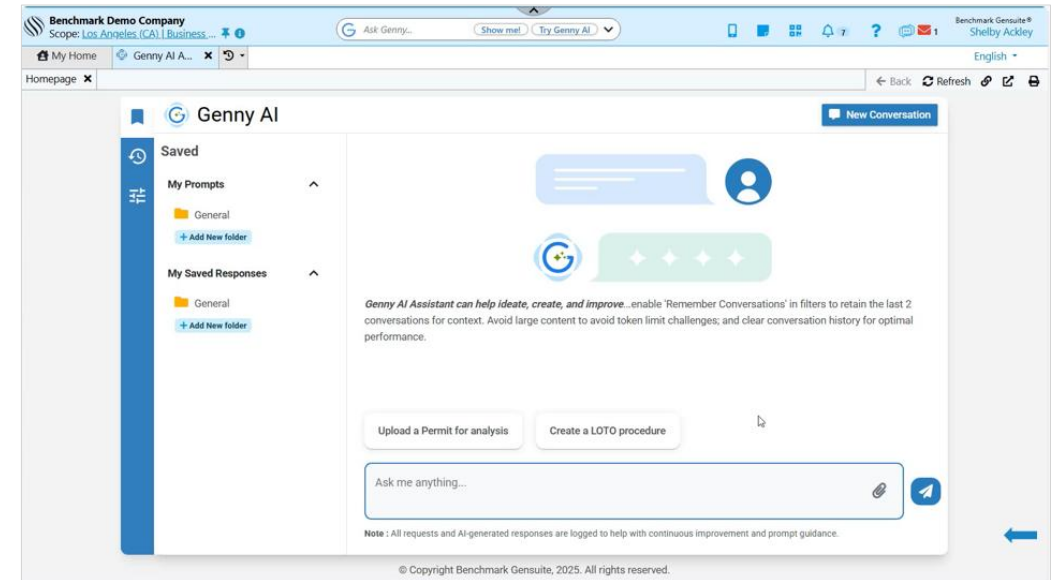
Securing Sensitive Data

- Companies are increasingly deploying AI models on their own **internal servers** or **private cloud environments** to maintain data security

Implementing AI

- **Many AI services offer APIs** that allow companies to securely connect AI functionality into their own systems and applications
- Software Development Kits provide tools and libraries that make it **easier to integrate AI services into applications**
- Host your AI model on internal servers or private cloud platforms like AWS, Google Cloud or Azure. This will keep all associated data within company's firewall

Benchmark's Genny AI



Powered by AWS Bedrock OpenAI

Genny® AI: Integrated AI Solutions for EHS and Sustainability

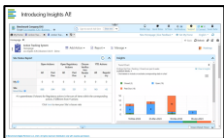
Functional domain-centric AI capabilities
 leveraging cutting-edge Large Language Models (LLMs), fit-for-purpose AI Models, and partner AI solutions

“Helper” AIs

Assist Users with tasks and responsibility execution

- Generate summaries
- Extract insights, and predict trends
- Flag data irregularities
- Interactive purpose-built bots
- Streamline forms; auto-fill input fields
- Assist in intelligent task prioritization

Insights AI



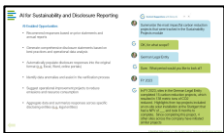
Describe It w/ Writing Help AI ★



Doc Summary AI



Sustainability & Disclosure Reporting AI



Significant Incident Communication AI



Optical Character Recognition



“Model” AIs

Specialized assessments and decision support

- Real-time analysis & alerting
- Risk assessment & mitigation strategies
- Image & video AI analysis

Risk AI ★



Ergo AI ★



Computer Vision



Currently Partnering with:

3motionAI

avathon.

GLYNT.AI

Stantec

Protex AI

DataRocking

Interaptix
 AGGREGATED REALITY



Describe-It AI: Enhancing Data Quality



Solution Features:

- Improve quality of descriptions
- Real-time feedback on how to improve data inputs
- Generative assists in writing descriptions
- Quantify data quality improvements over time



Action Tracking System



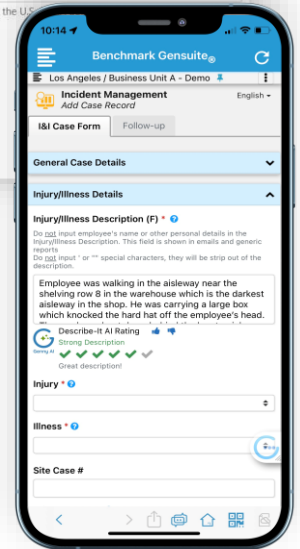
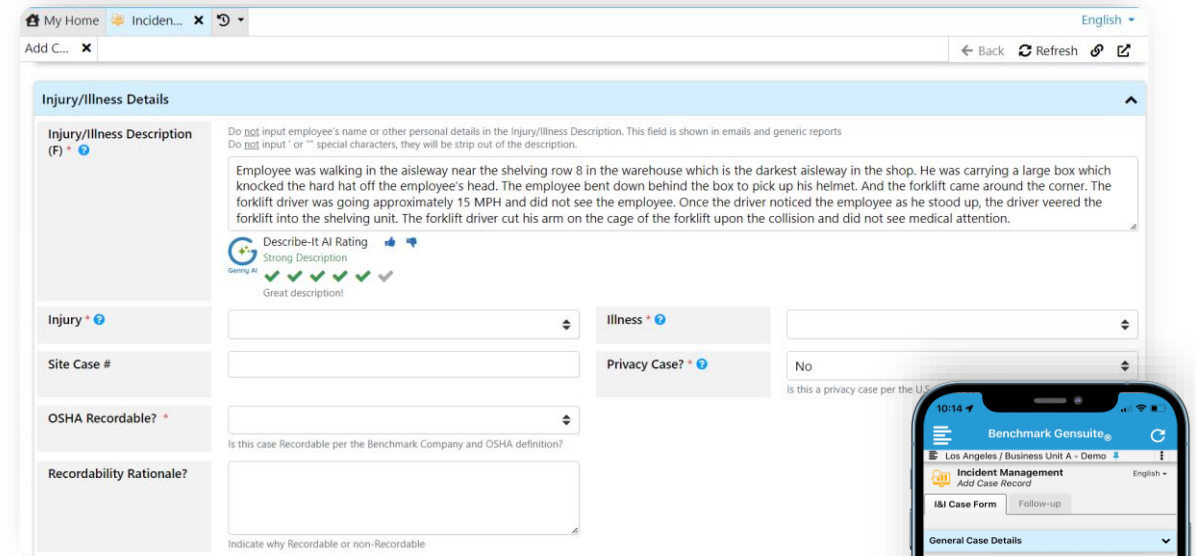
Incidents & Measurements



Concern Reporting

“Subscribers who implement Describe-It AI see data quality scores increase immediately from baseline scores of 3 to improved scores of 5 out of 6”

Benchmark Gensuite Describe-It AI



Weighted Scoring (AI)

- # Meaningful Words
- # Adjectives
- # Adverbs
- Action Words
- Multi-lingual Enabled!





Describe-It Experience Across Our Subscribers

Gamifying Describe-It AI

- Real-time feedback guides Coworkers to provide meaningful information immediately upon submission
- Describe-It AI gamified across Sites ... *"It's a game to get to green!"*

General Report Details

Type * Safety

Date * 12-Dec-2024 X Today

Description *

I have noticed that the eyewash stations are running hot water when I flush them weekly. This does not seem safe and could impart further injury if someone were to need to flush chemicals from their eyes for 30-60 seconds and had hot water hit their eyes.

Describe-It AI Rating
Very Strong Description

Excellent description - nice work!

Writing Help Ask Genny AI for help writing this description

Making Ergo Assessments Accessible to Everyone



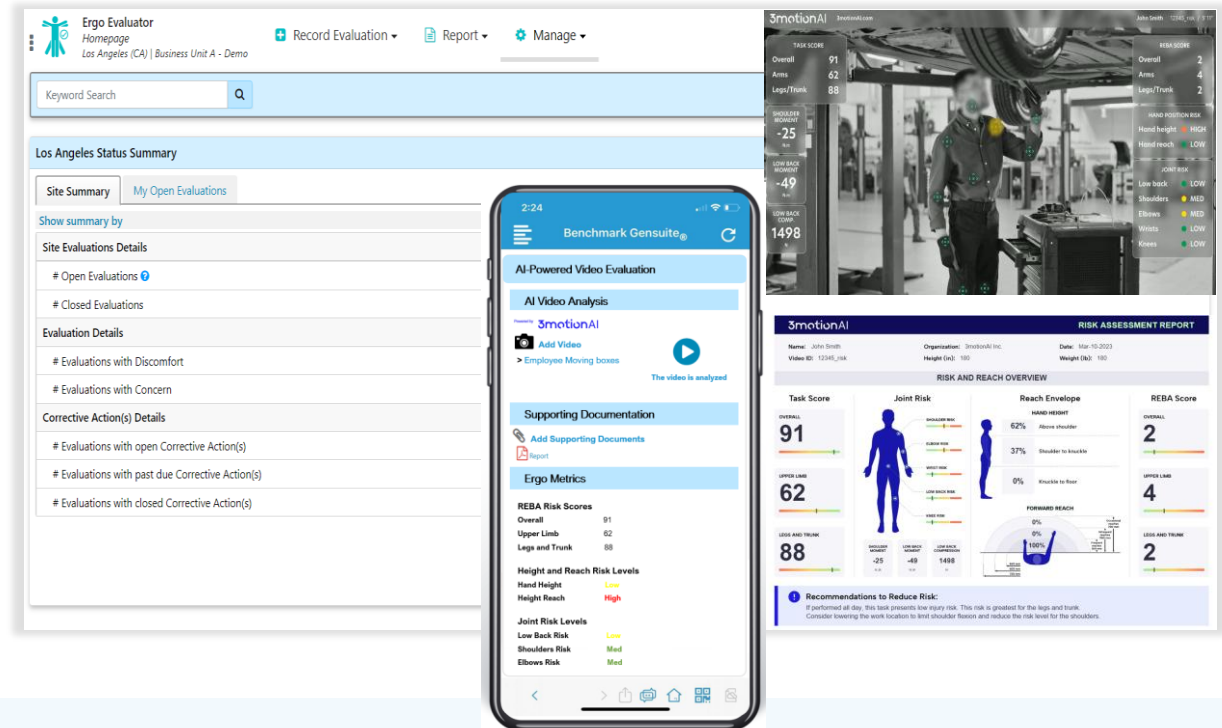
Enables users to standardize the workflow involved in Ergonomic problem solving and helps drive consistency in how Ergonomic Analyses are performed - empowering users to self-assess!

Benchmark Gensuite® Ergo Evaluator Core Capabilities

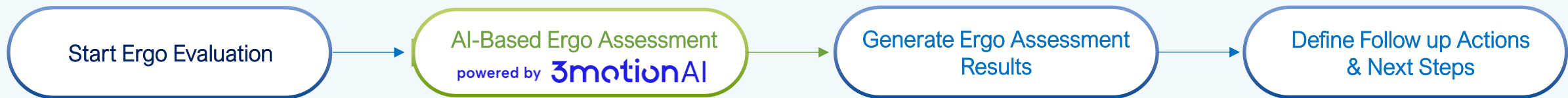
- ✓ Open access to enable employees to complete self-evaluations using the standardized assessment checklist
- ✓ Functionality to configure the “checklist” for each assessment, including specific questions
- ✓ Integrated with Benchmark Action Tracking System for corrective actions

Drivers for Embedded AI & Advanced Tech

- Ensure Standardization
- Increase Accuracy of Evaluation
- Increase Efficiency and Save Time




AI-powered Video Evaluation ... using the power of AI to conduct Ergo Assessments using real-time or uploaded videos



Incorporating the use of A.I.




powered by 3motionAI

Benchmark Production 16722_risk / 5' 10"

TASK DATA

Hand load 30 LB

Frequency 2.0 / MIN


Duration --

REBA ANALYSIS

Overall ● 8

A (Legs/Trunk) ● 6

B (Arms) ● 3




ERGONOMIC RISK SCORE	
Overall	● 26
Arms	● 25
Legs/Trunk	● 27

HAND POSITION RISK	
Hand height	● LOW
Hand reach	● HIGH

JOINT RISK	
Low back	● MED
Shoulders	● MED
Elbows	● LOW
Wrists	● LOW
Knees	● HIGH

JOINT KINETICS	
Shoulder	28 N.m
Low Back	212 N.m
Compression	5405 N

80 % 

Communicating the results



Task Analyzed: Distillery Packaging & Labeling

Task Description: Coworker repetitively lifts full bottles to be labeled and packaged
Coworker uses upward force to adjust bottle under nozzle to be filled with product

REBA Score Labeling: 3

REBA Score Distilling: 6

Summary of Ergonomic Concern:

With both tasks, the coworkers' necks are flexed forward to ~30° with rounded shoulders. The labeling task does not require force whatsoever but does involve repetitive motion specifically at the shoulder and wrist joints. The task is typically performed for ~4 hours and requires the employee to utilize the right arm to grab the bottle onto the labeler and pass it off to the left-hand side to be sealed with the heat gun. One full case is 6-750mL bottles. The weight of one full case is ~12-15lbs. An entire pallet which is manually palletized consists of 72 cases. The coworker observed for this task states, "Labeling is more time consuming" but not as strenuous as distilling.

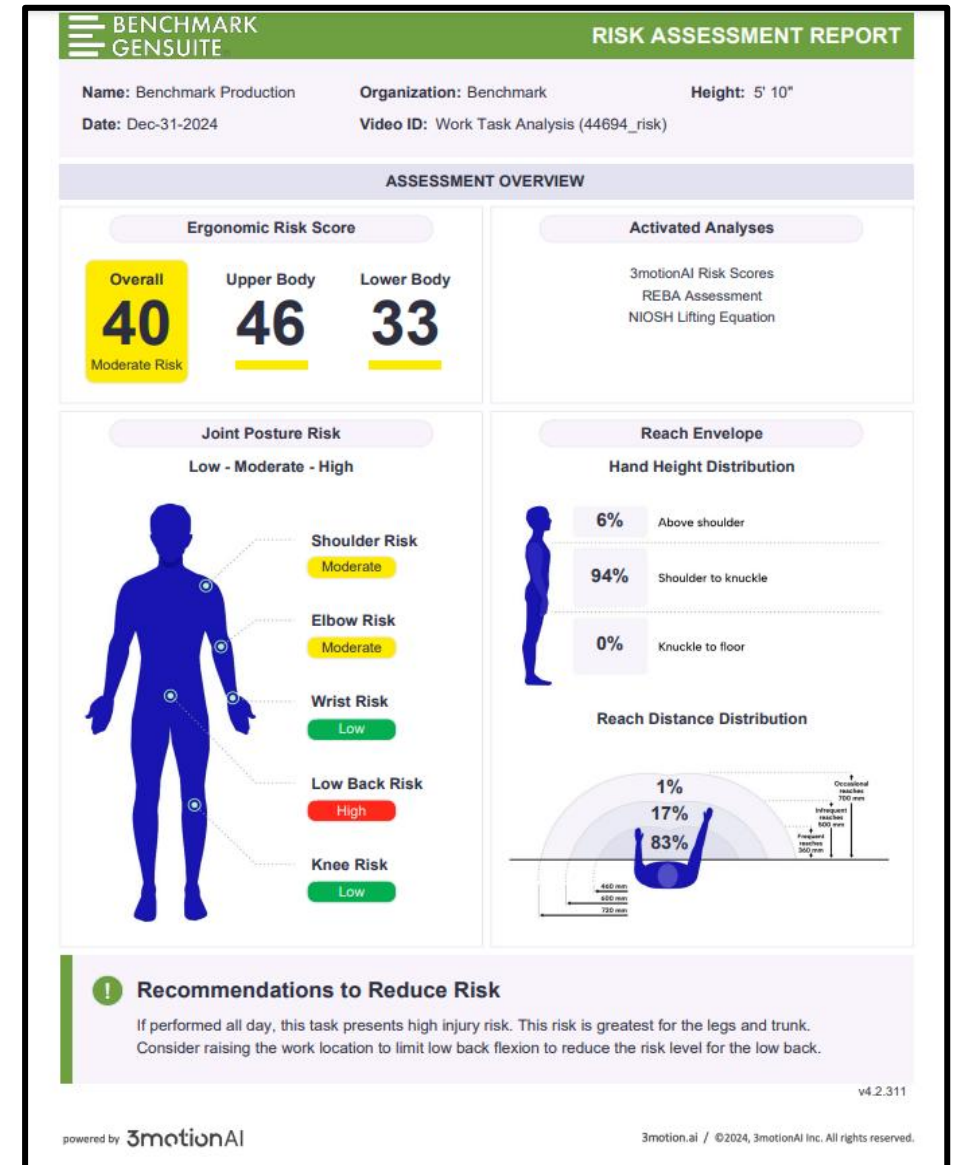
Distilling requires more of a time constraint to complete the task and repetitive actions that cause changes in posture throughout the process. Although the coworker pictured completing the distilling task is at an adequate height in relation to the equipment, a shorter coworker could potentially perform an excessive forceful motion outside of the 'power zone' thus injuring their shoulder, or hand while maintaining the proper grip to place the bottle neck below the nozzle. Although this task is not repeated constantly, it requires muscular strength and endurance, especially when the line is not fully staffed with 3 employees, and a coworker may have to complete two parts within the entire task itself to maintain a proper pace of production.

Injury Risk Concern: These postures and tasks put team members at risk for wrist strain, shoulder, arm and back pathology- including but not limited to elbow tendonitis, labral pathology, and rotator cuff strain or spasm.

Easily understandable



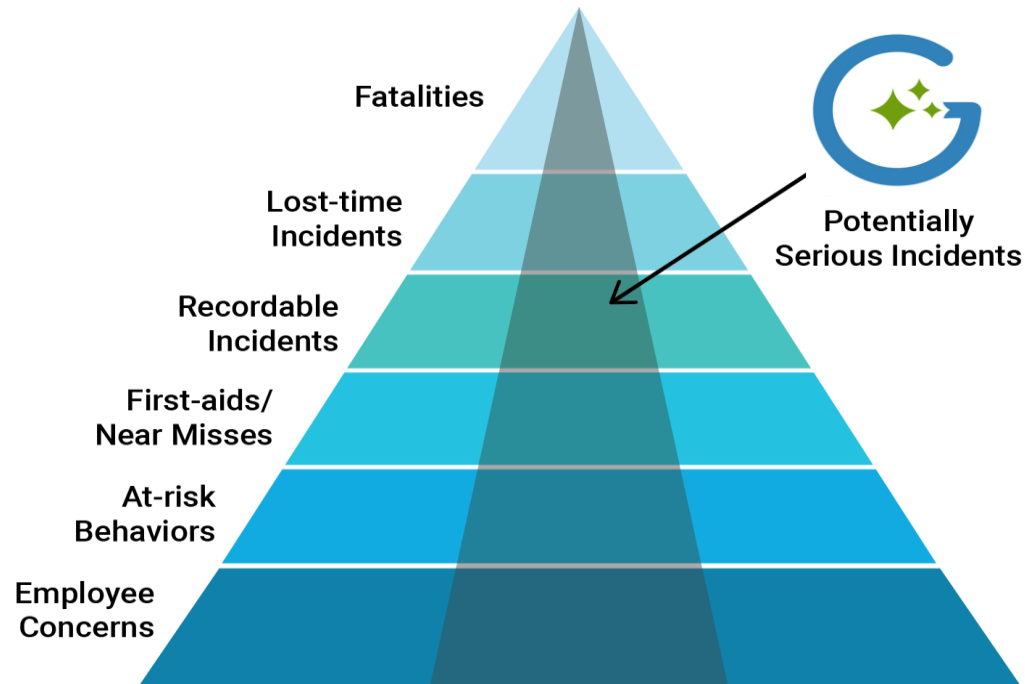
More digestible for the Coworker



Leading Edge of AI Tech – Benchmark PSI AI

Advisor Summary

- ✓ Trained on a database of over 100,000 verified publicly available injury records
- ✓ Designed to monitor incidents to identify Potentially Serious Incidents (PSI) accurately
- ✓ Enables data-driven decisions and advanced insights powered by AI
- ✓ Focuses PSI-training for discovering hidden risks & improving safety performance
- ✓ Allows focus on risks with the greatest potential for high-risk incidents



Example Injury Description Input:

Employee was walking outside of the designated walking areas. A forklift came around the corner driving approximately 15 miles per hour and did not see the employee. The driver veered the forklift but was not fast enough and the cage injured the employees arm. The forklift also sustained damage from hitting the wall.

AI Identified PSI Report:

- PSI Advisor Recommendation / Confidence rating: 98%
- Risk Category: Forklift Risk
- Sub-Risk Category: Struck by Forklift
- Similar Incidents: Forklift collision resulted in employee arm injury.



Risk AI Advisor App ... Real-Time, Actionable Insights



Business Needs

- Real-Time Risk Monitoring & Alerting
- Visibility to Precursor Risks and Potentially Significant Incident Risks
- Predictive risk trends analytics for Data-Driven Decision Making

Risk AI Advisor Application

Advanced AI-powered, enterprise-scale risk monitoring and real-time alerting, proactive precursor risk identification, and trending risk predictive intelligence.





Seeing Risk AI in Action

Risk AI Advisor

Show: Current 365 days

Clear All X

3464

Records Processed
Current 365 days

182 (5%)

AI Identified PSIs
Current 365 days

876 (25%)

AI Identified Precursors
Current 365 days

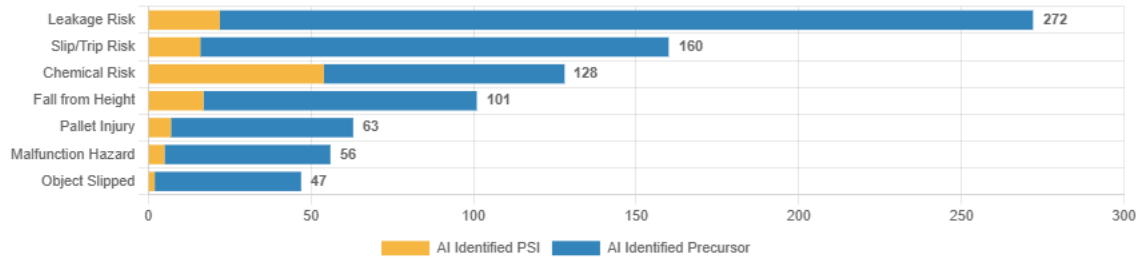
Insights

View recent trends or a snapshot of Risk AI Advisor activity.

Show More ^

Snapshot

Show More ^

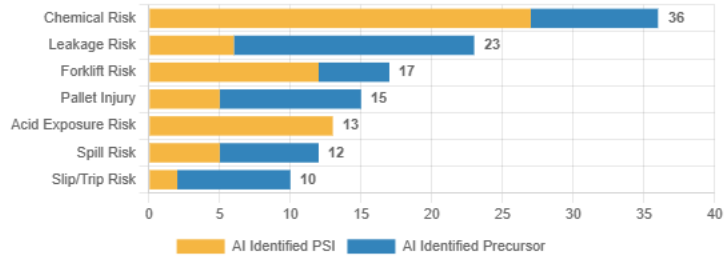


Recent Alerts

Notify Id	Record Type	Risk Category	Risk Type	Scope	Description	Notify Date	Days Ago
24784	Good Catch	Leakage Risk, Fire/Smoke Risk	Precursor	Site A	Water trailing along floor under "Fire Hose" spot at 43 backend dynac table	01-Feb-2025	2
24817	Good Catch	Amputation Risk, Conveyor Risk	AI Identified PSI	Site A	Location: heuft full case kickout. Cover to conveyor is missing. Belt exp	02-Feb-2025	1
24850	Good Catch	Leakage Risk	Precursor	Site A	Chemical should not be hanging from machine drip pan with product running o	02-Feb-2025	0

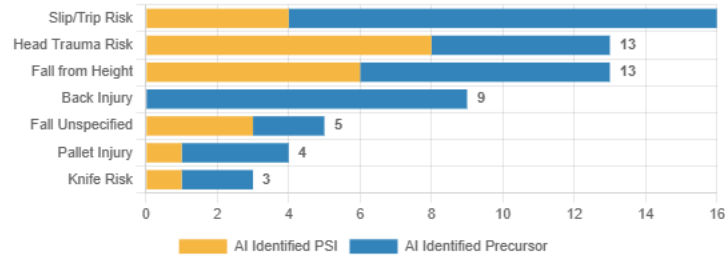
Events

Show More ^



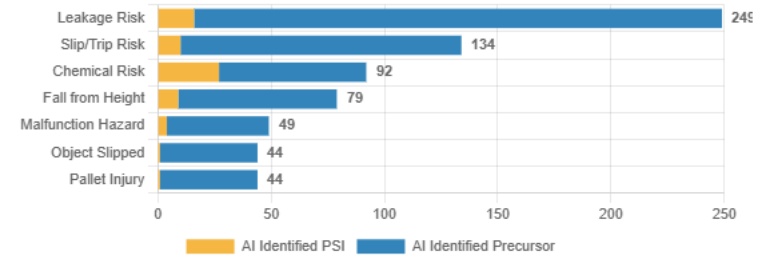
I&I Cases

Show More ^



Good Catches

Show More ^



Synopsis of Causal Factors & Recommendations for Risk Mitigation



- Identifies and summarizes potential risks or blind spots that may have been overlooked
- In a format that is digestible and easy for a manager or department lead to absorb

CHEMICAL RISK:

Risk	Total Analyzed Records	Synopsis of Causal Factors (AI Generated language)	Top 3 Site(s) Trending	Synopsis of Record(s) (AI Generated language)	Recommendations for Risk Mitigation (AI Generated language)
Chemical Risk	124	Inadequate containment or handling of chemicals	Site A	The descriptions highlight multiple chemical leaks, spills, and equipment failures that create safety and operational hazards. Issues included leaking pipes, faulty valves, and malfunctioning pumps releasing hazardous chemicals such as caustic solutions, acids, and glycol, leading to slip hazards, exposure risks, and environmental contamination. Improper storage of chemicals and equipment, lack of secondary containment, and inadequate signage further exacerbate these risks.	<ol style="list-style-type: none"> Install and Maintain Secondary Containment: Ensure all chemical storage and transfer areas are equipped with proper secondary containment, such as spill containment pallets or dikes. Regularly inspect these areas to ensure they remain intact and effective. Improve Spill Response Protocols: Implement clear procedures for immediate containment and cleanup of chemical spills. Provide spill kits in all high-risk areas and train employees on their proper use. Upgrade Equipment and Connections: Replace or repair faulty pipes, valves, and seals promptly. Use high-quality materials and implement regular preventive maintenance checks to minimize the risk of leaks or failures.
			Site B		
			Site C		
		Insufficient safety protocols for chemical usage	Site A		
			Site B		
			Site C		
		Lack of proper personal protective equipment (PPE)	Site A		
			Site B		
			Site C		

