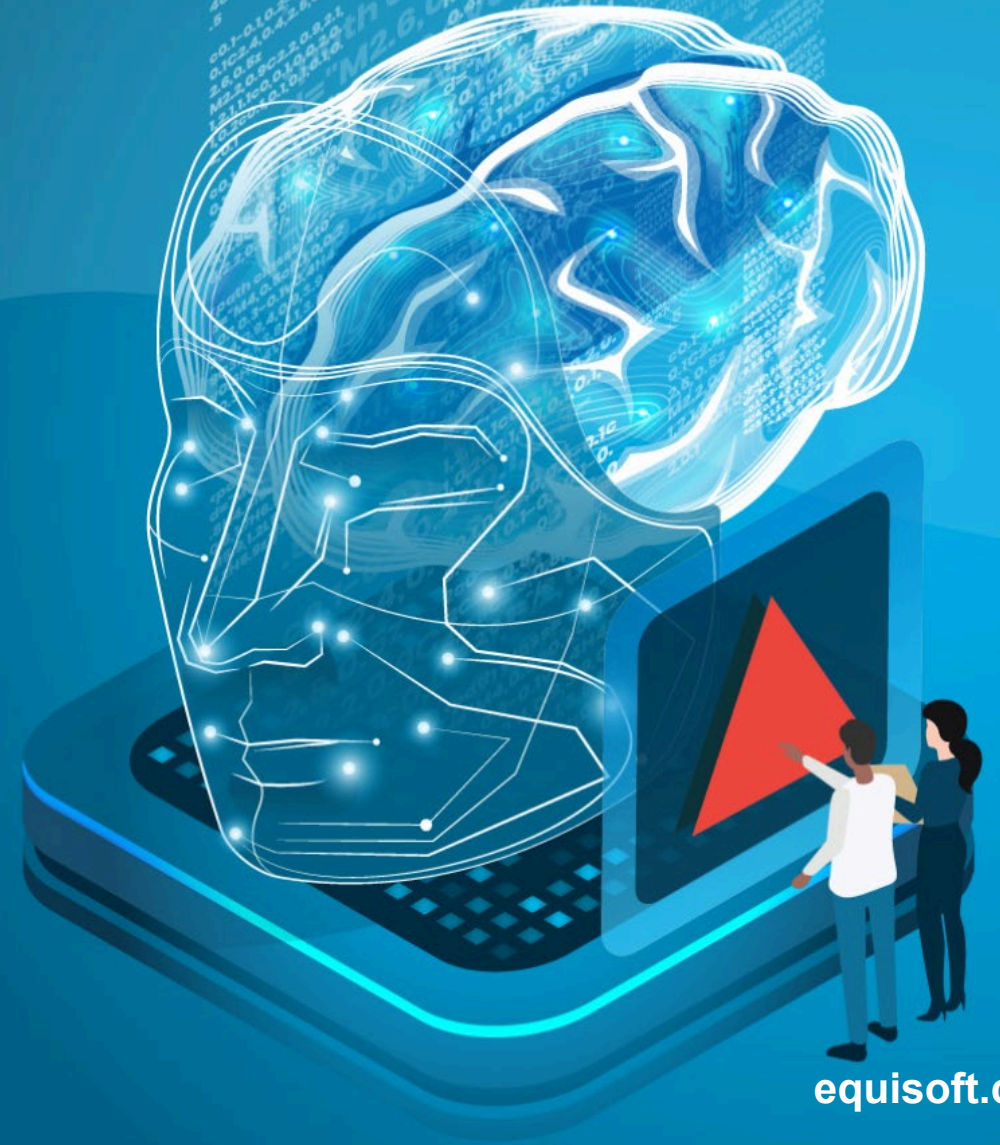




From Machine Learning to Agentic Intelligence: The Next Evolution in Insurance

Ghassan Karam, Equisoft



equisoft.com

Our speaker



Ghassan Karam, ASA, ACIA
AVP, Core Insurance Solutions





**We are in
the future**



The world has changed



**We're just
realizing it**



**AI is
humanity's
greatest
creation**



**AI is
humanity's
greatest
creation**



180°C





**Will you lose
your Job to AI?**

52 weeks

76 years

Our 4,000 weeks of life

Age 24
Invented calculus

Age 27
First reflecting telescope

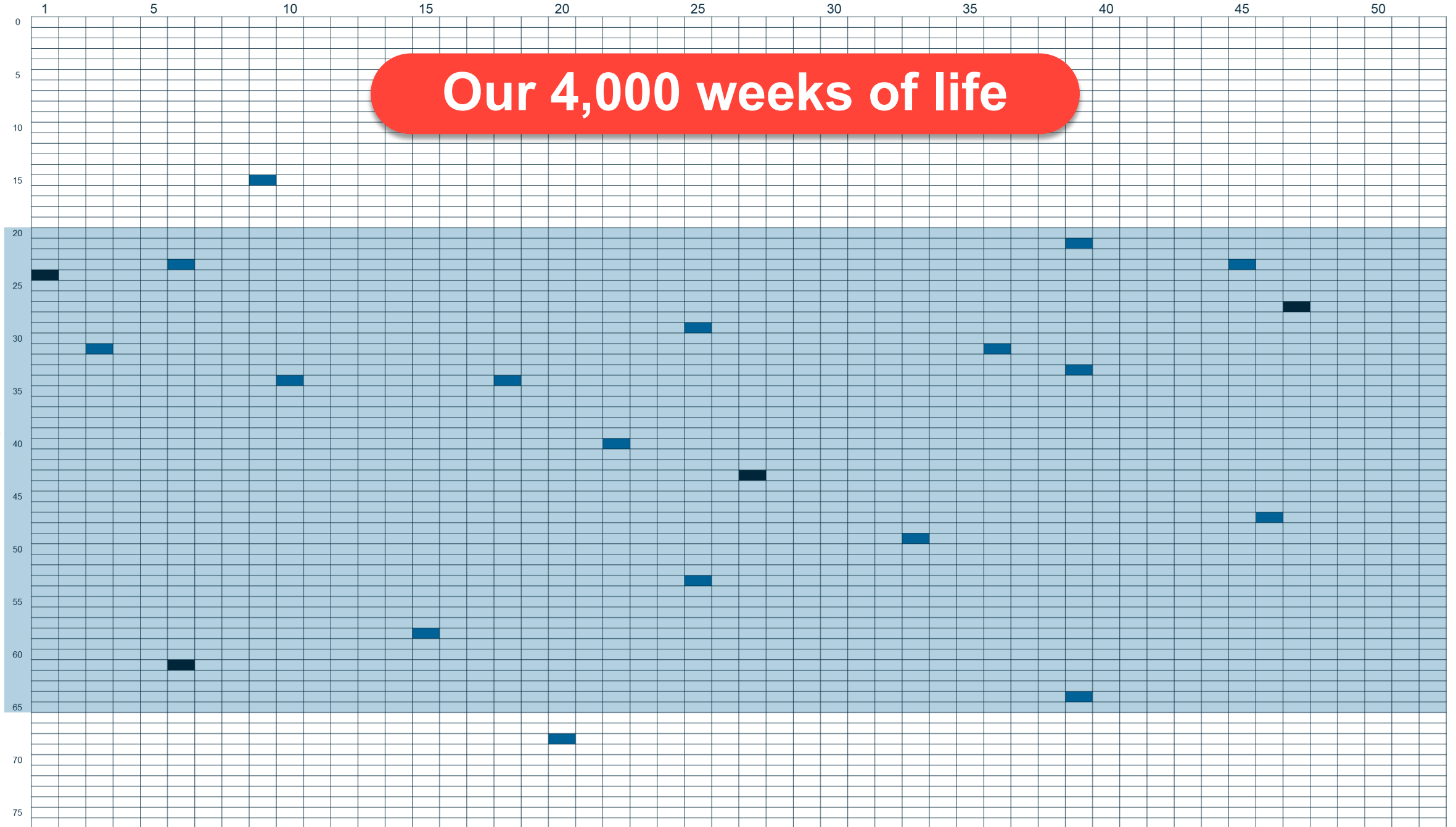
Age 43
Law of universal gravitation

Age 61
Published Opticks

52 weeks

76 years

Our 4,000 weeks of life



An isometric illustration of a city skyline. A central skyscraper with a red-tinted top stands out among other buildings. In the foreground, there are server racks and a winding road. The background features stylized clouds and geometric shapes, all in various shades of blue.

The Fastest Shift in Human History — and How AI Can Help Us Keep Up

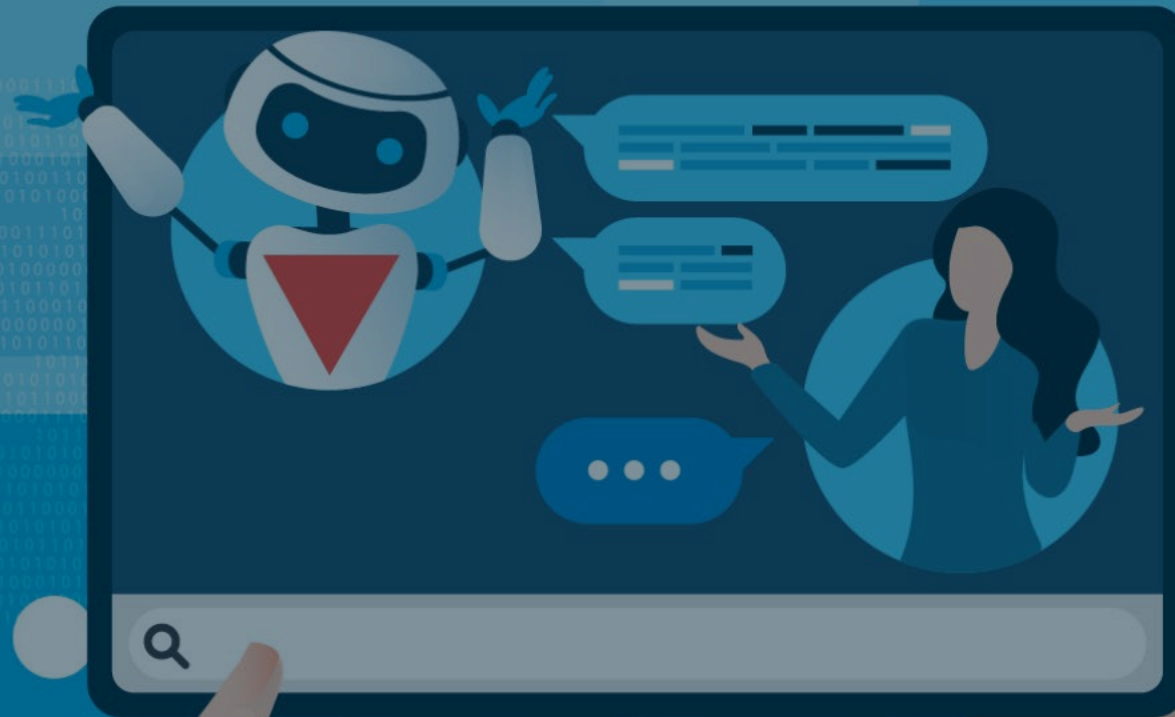


Your Job is at Risk From the Person Using AI



**Let's Go Back
to 2024**

Last Year: Generative AI



ChatGPT

Gemini

* Claude

* perplexity

etc.

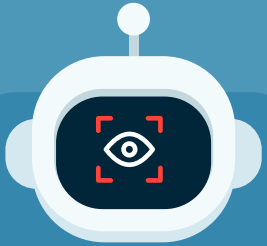
Last Year: The Potential! Digitally Engineered Underwriting

Data Integration
& Processing

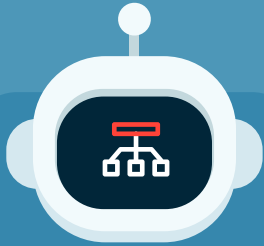
Advanced
Risk Analysis

AI-driven
Decision Support

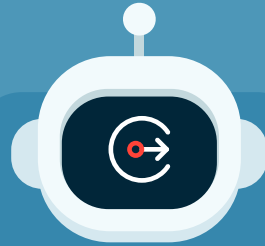
UW
Interaction



Computer
vision



AI for
classification



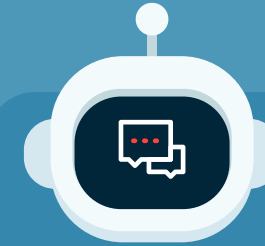
NLP for
extracting data



Risk analysis
models



Deep learning
models

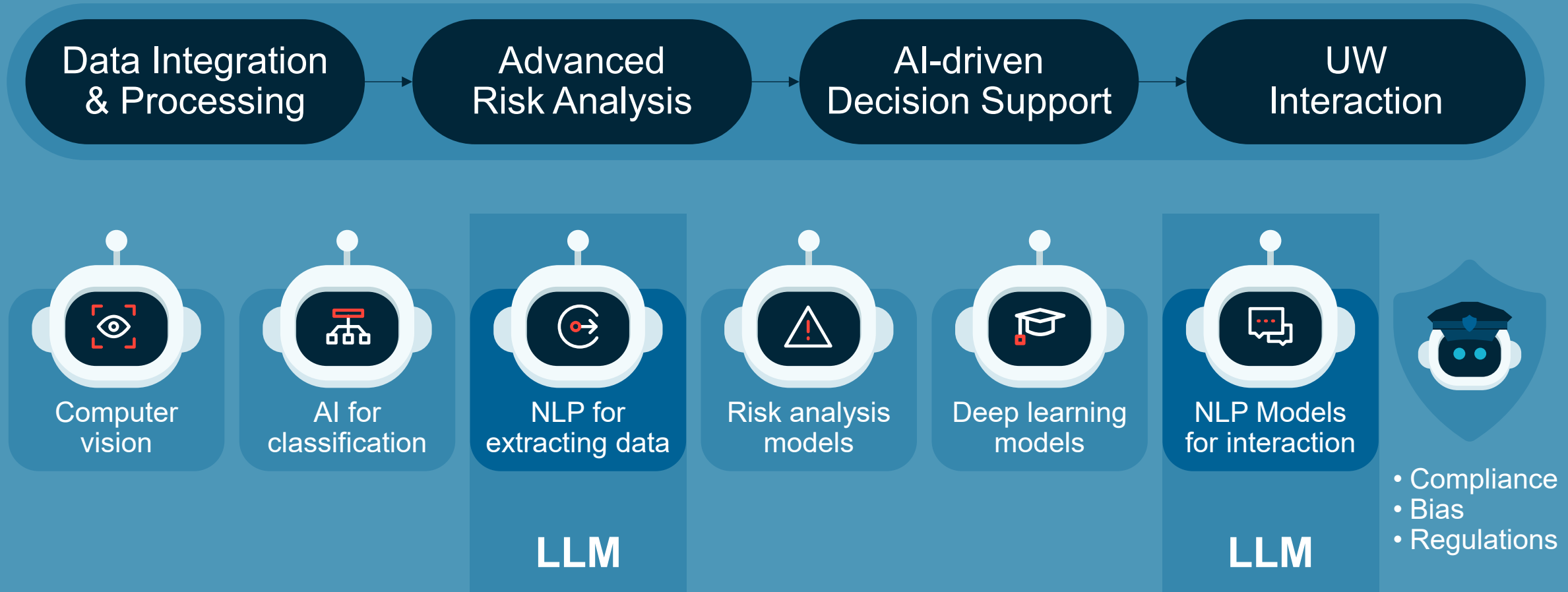


NLP Models
for interaction



- Compliance
- Bias
- Regulations

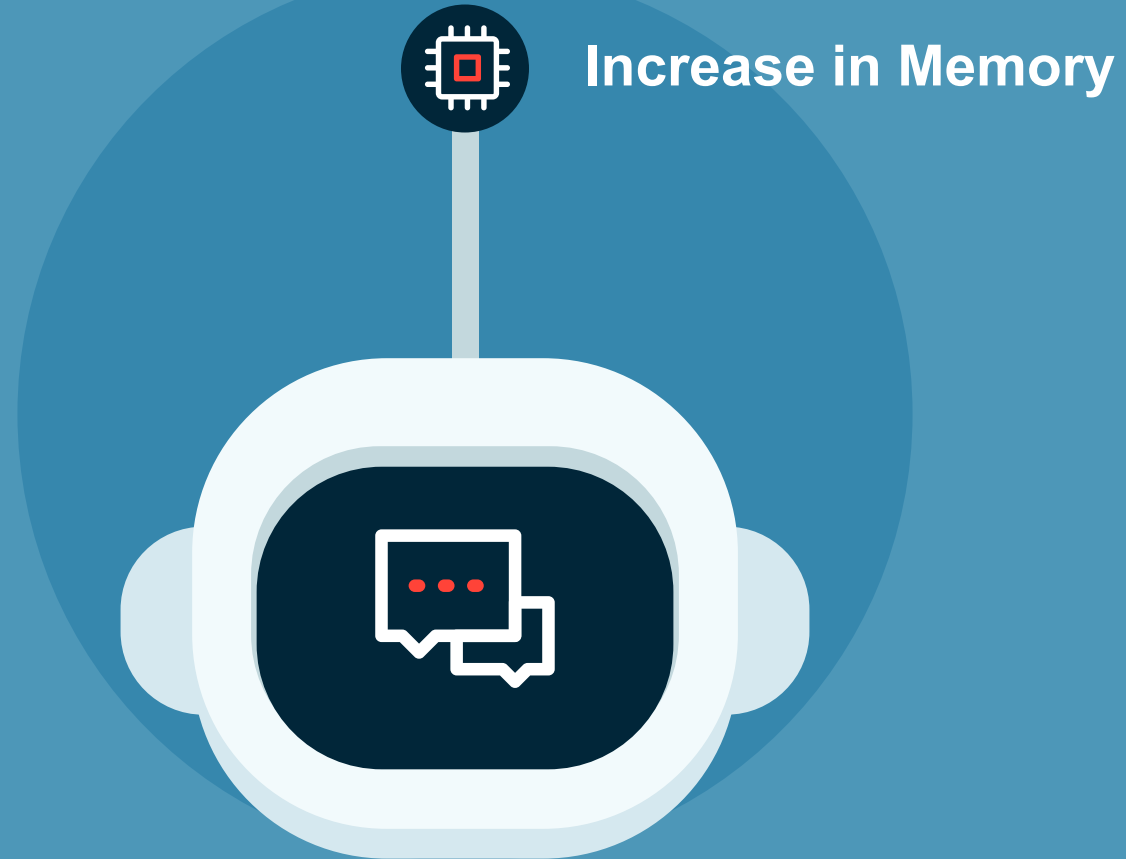
Last Year: The Potential! Digitally Engineered Underwriting



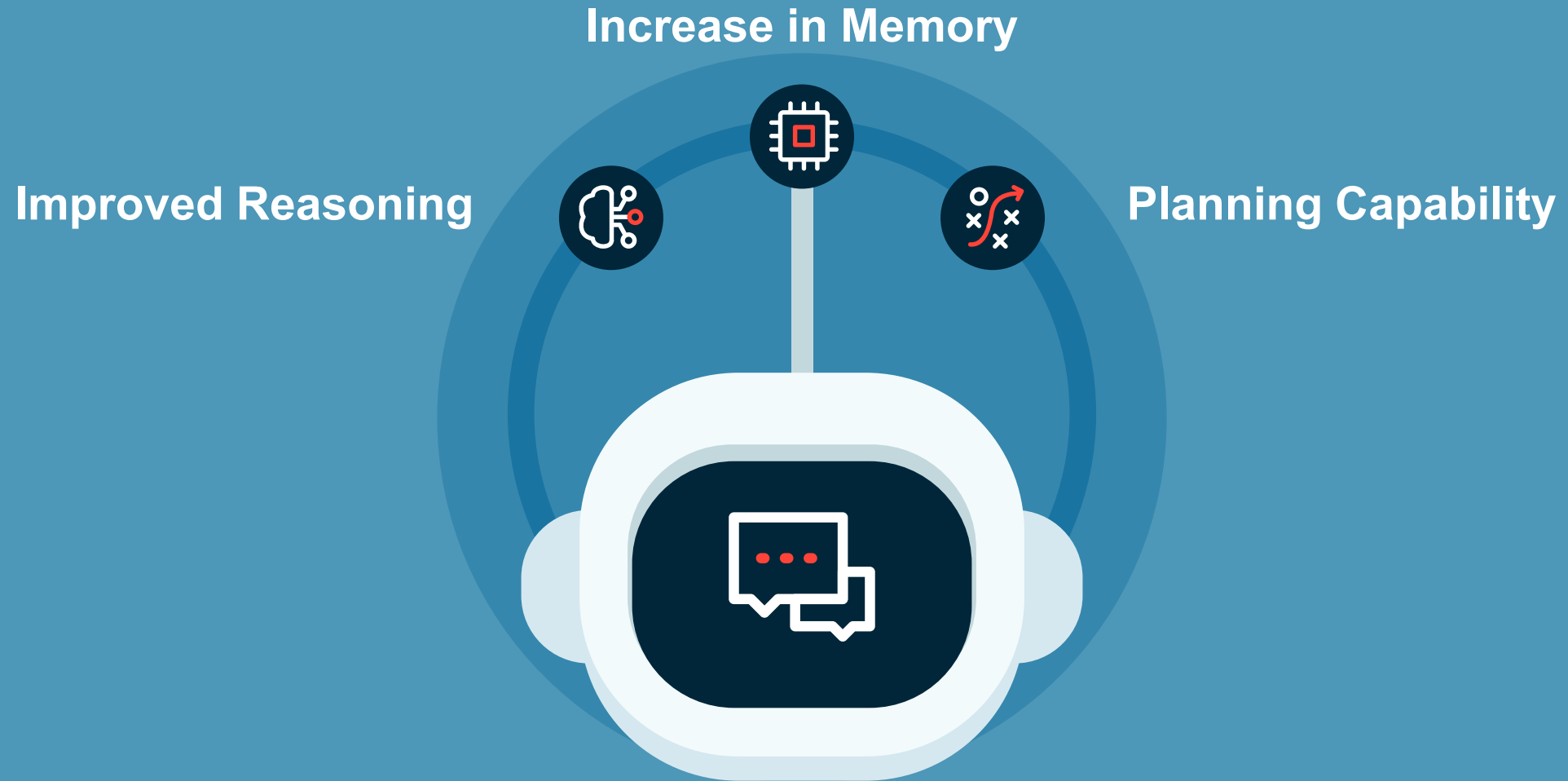
What Happened to the LLMs?



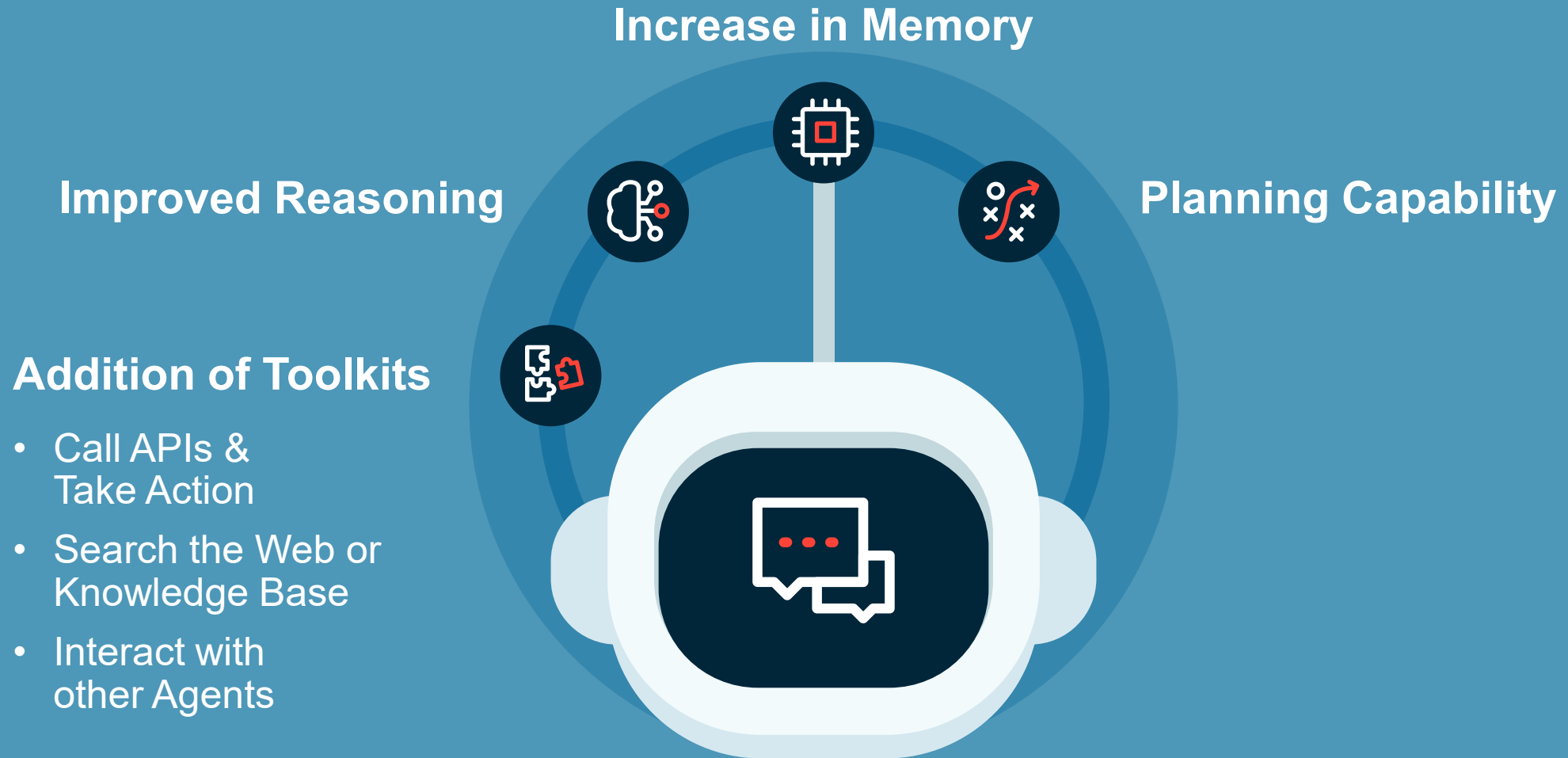
What Happened to the LLMs?



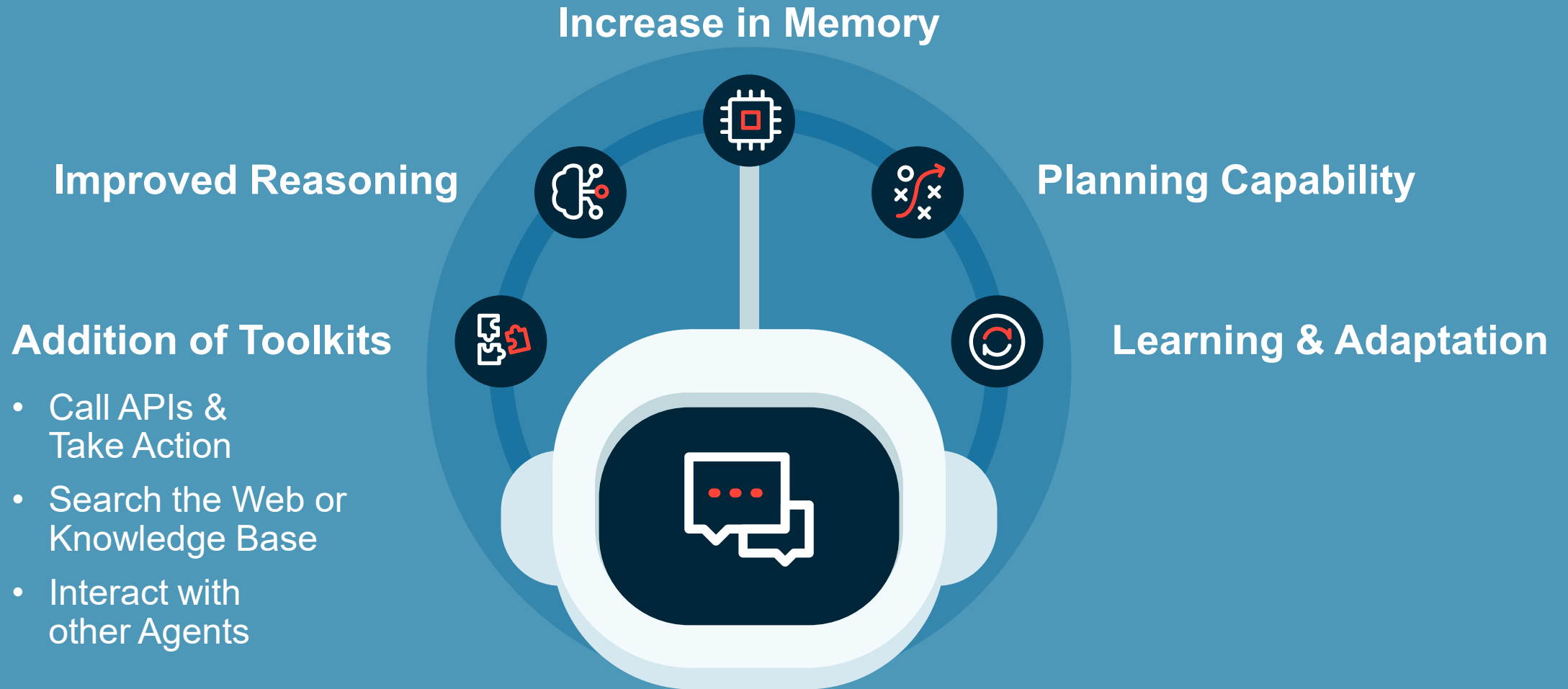
What Happened to the LLMs?



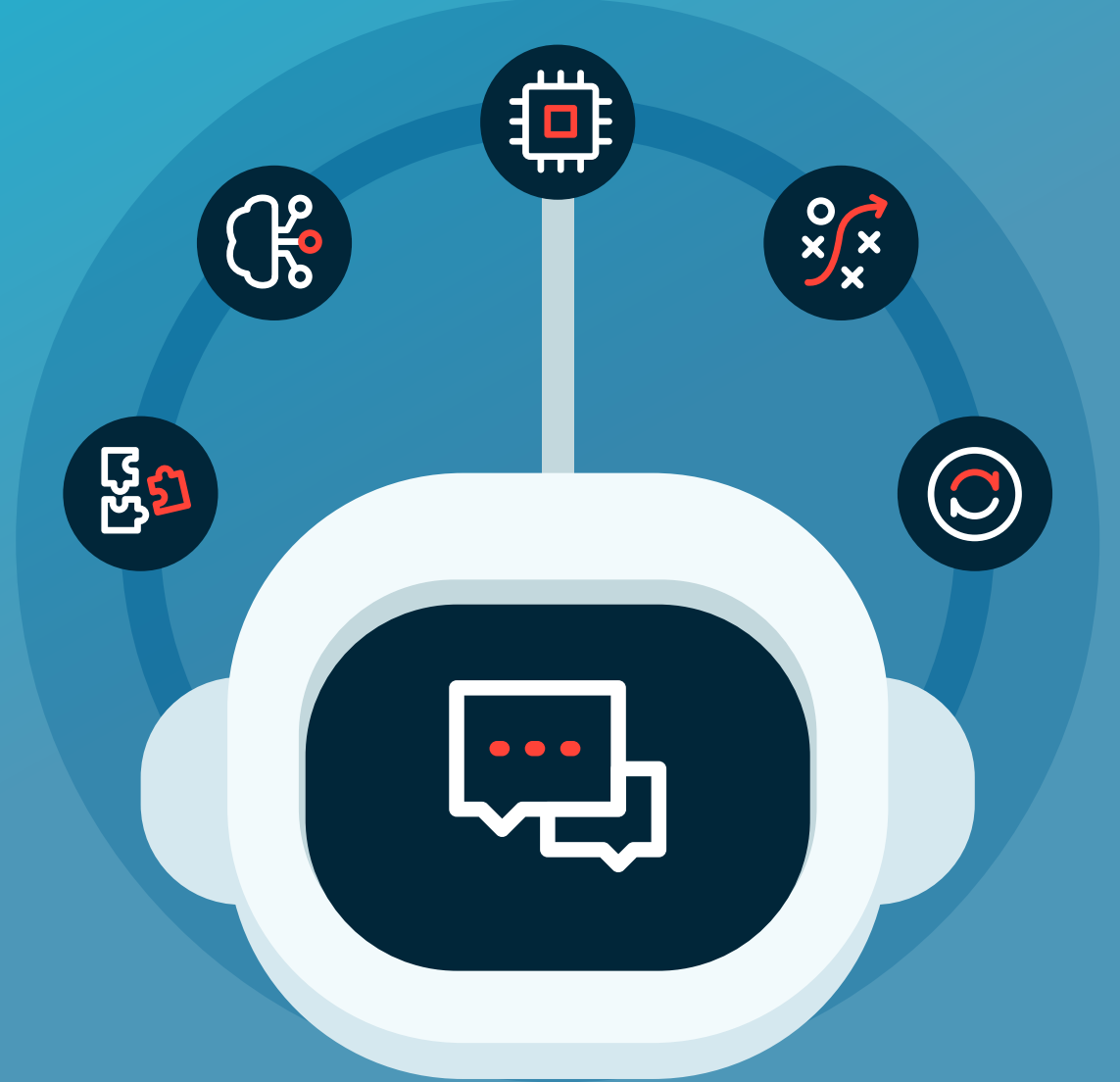
What Happened to the LLMs?



What Happened to the LLMs?



2025 The Year of AI Agents





Now lets revisit Underwriting

Medical Underwriter

Review
Medical Records

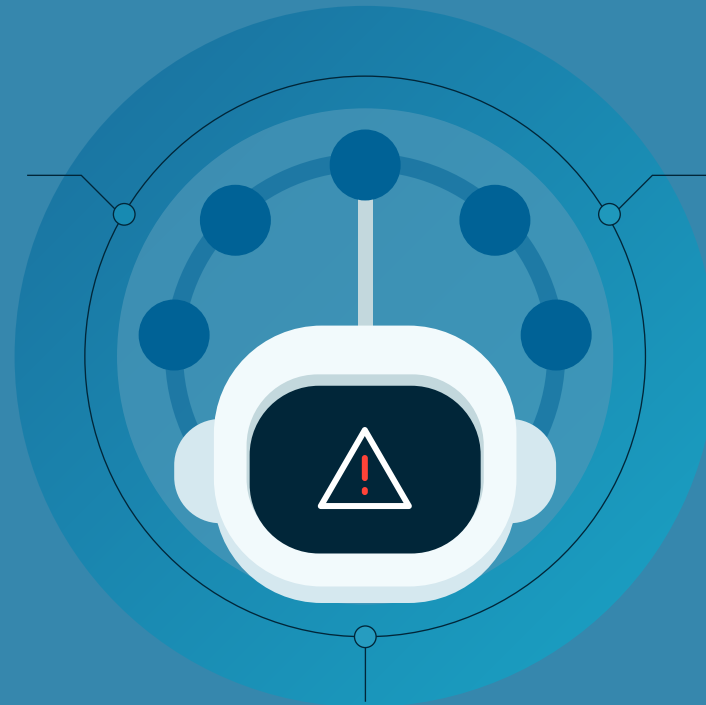


Determine
Medical Risk Class

Assess
Health Conditions

Risk Analyst

Verify
financial capacity



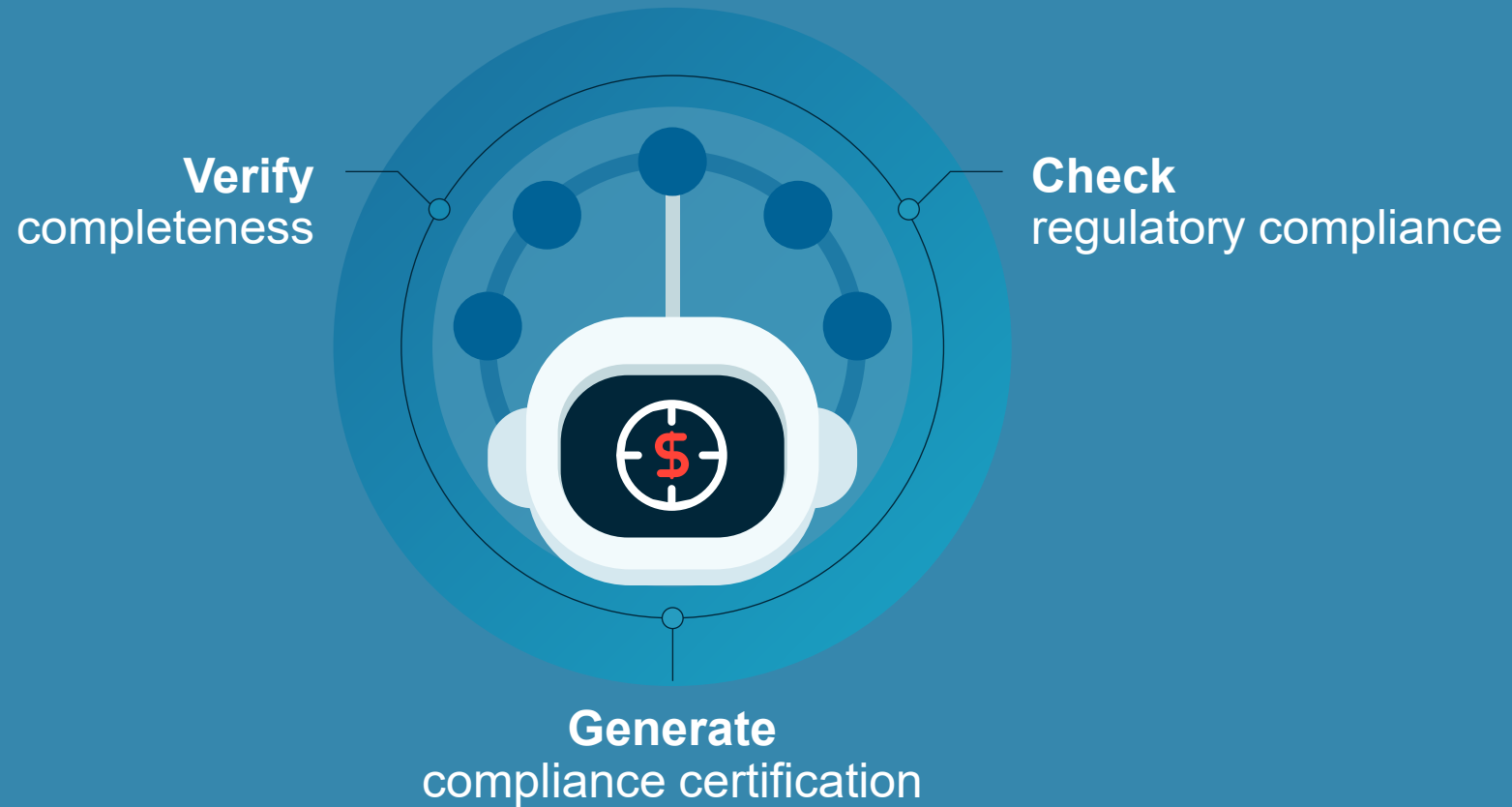
Check
medical risk
scoring

Reinsurance
AI Integration

Medical
Underwriter



Compliance Reviewer



Medical Underwriter

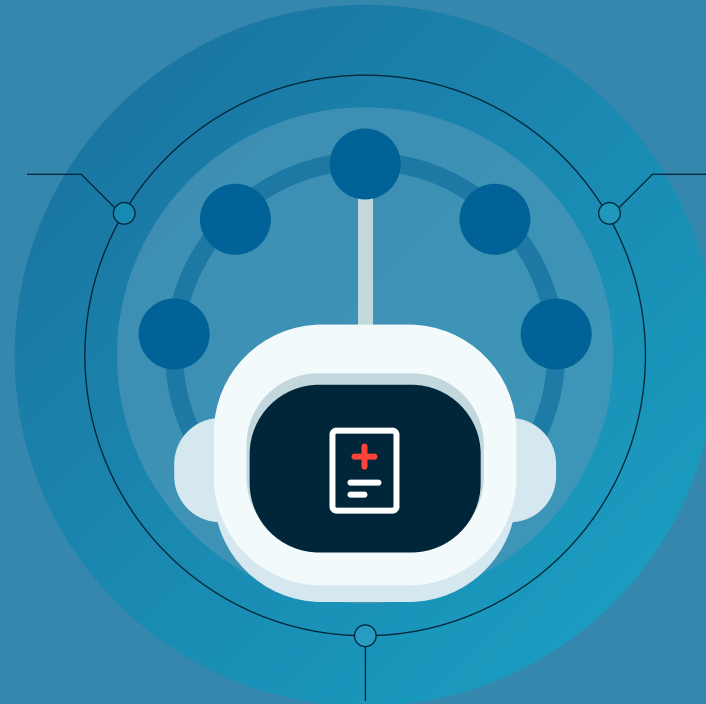


Risk Analyst



Underwriting Writer

Produce
underwriting
summary report



Create
decision
documentation

Prepare
case files

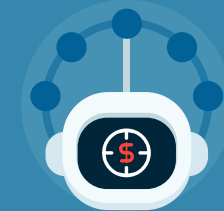
**Medical
Underwriter**



**Risk
Analyst**



**Compliance
Reviewer**



**Medical
Underwriter**



**Risk
Analyst**



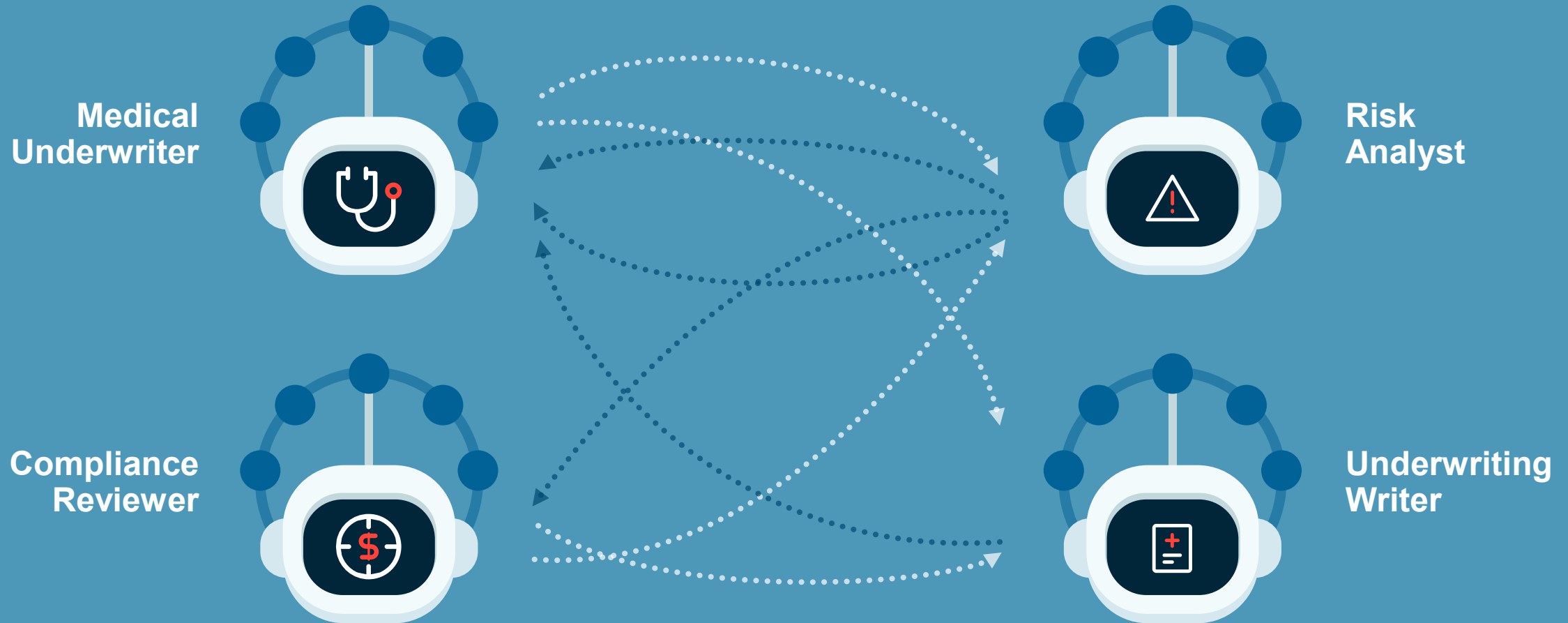
**Compliance
Reviewer**



**Underwriting
Writer**



Underwriting Agentic Crew



Claim Agentic Crew

Medical
Adjudicator



Policy
Adjudicator



Beneficiary
Adjudicator

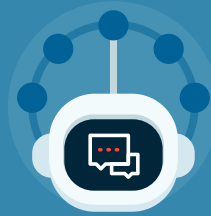


Summary
Preparator



Communication Crew

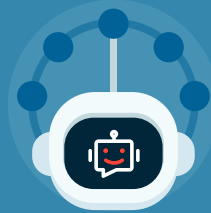
Communication
Coordinator



Internal
Communicator



Customer
Communicator



Agent
Communicator



Underwriting Agentic Crew

Medical
Underwriter



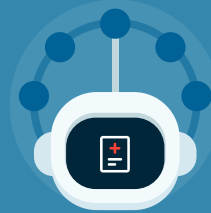
Risk
Analyst



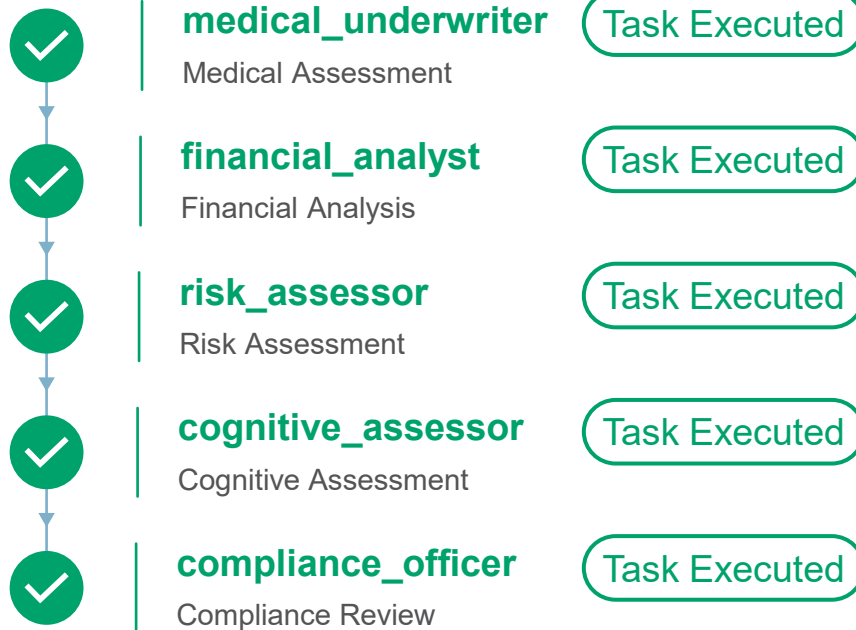
Compliance
Reviewer



Underwriting
Writer



Agent Activity Timeline



Example of Agentic Underwriting

Transforming Insurance
Operations with Intelligent
Automation

Risk Factors

High Priority

- ⚠ Diabetes with Coronary Artery Disease (listed as high-risk combination in guidelines)
- ⚠ Worsening diabetes control with rising HbA1c trend (7.4 → 7.6 → 7.9)
- ⚠ Peripheral vascular disease diagnosed this year
- ⚠ Elevated and rising BMI (29.4, up from 27.8 five years ago)
- ⚠ Uncontrolled hypertension (145/88) despite medication

Medium Priority

- ⚠ Chronic bronchitis with occasional flare-ups
- ⚠ Untreated sleep apnea (non-compliant with CPAP)
- ⚠ Multiple vascular conditions (CAD and PVD)
- ⚠ Recent cardiac intervention (stent in 2019)
- ⚠ Family history of early cardiac death (father at 65)

Low Priority

- ℹ Former tobacco use (quit in 2019)
- ℹ Limited exercise due to PVD symptoms
- ℹ Moderate alcohol consumption (2–3 drinks weekly)
- ℹ Moderate stress level
- ℹ Moderate compliance with diabetic diet

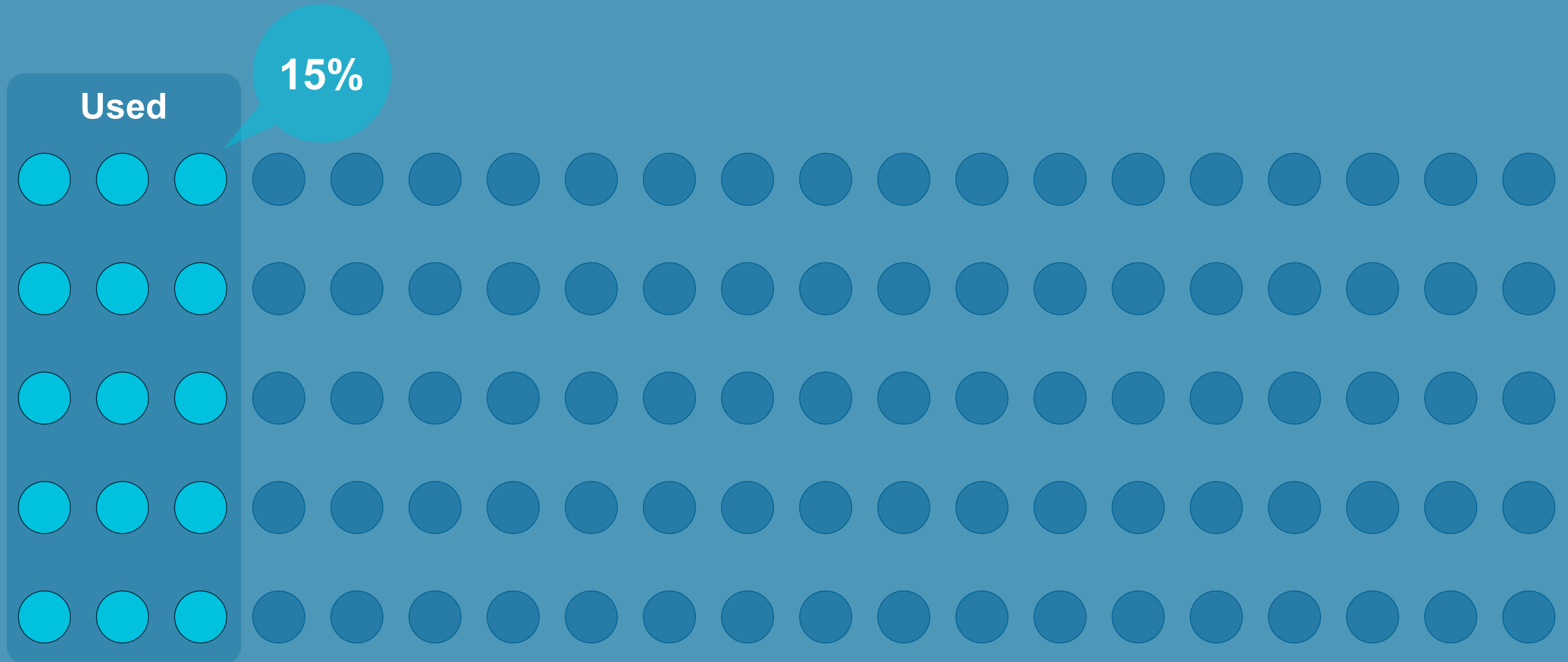
Example of Agentic Underwriting

Transforming Insurance Operations with Intelligent Automation



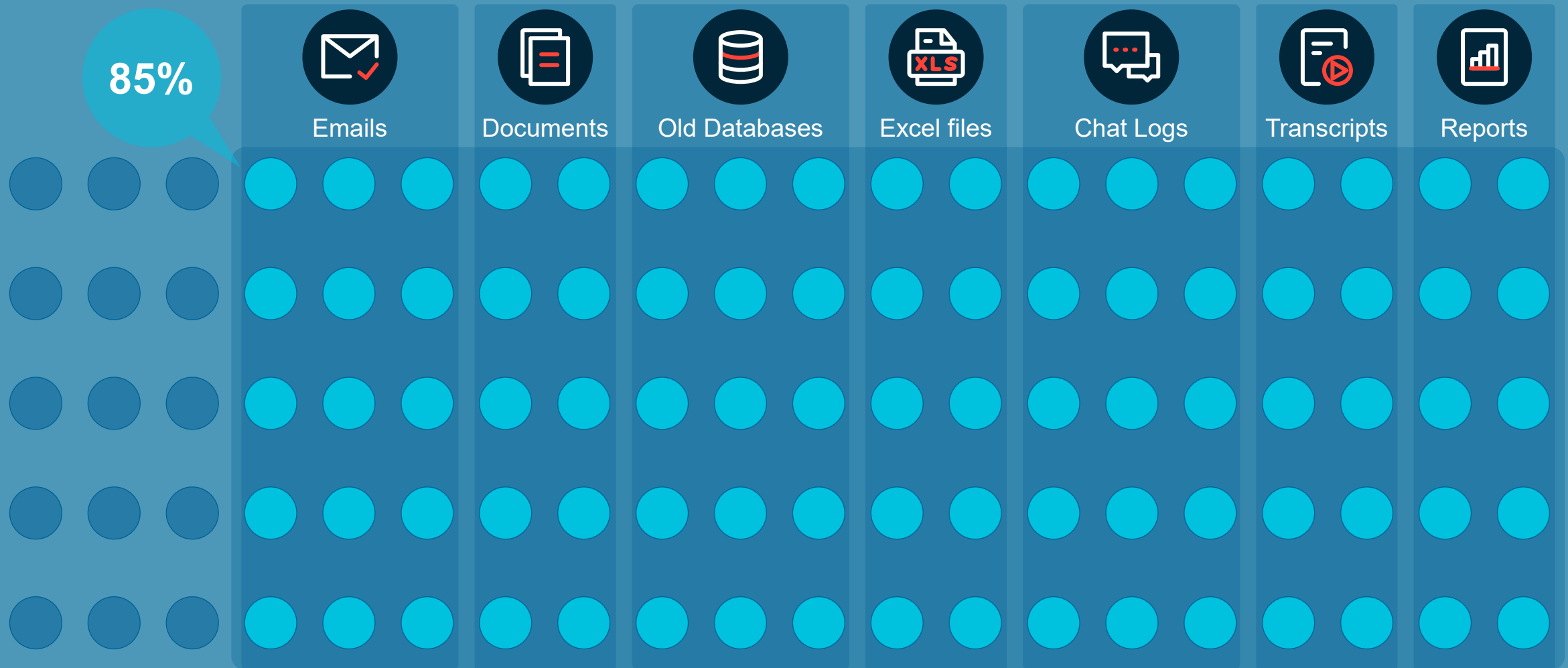
Other Areas Where AI is Having a Major Impact

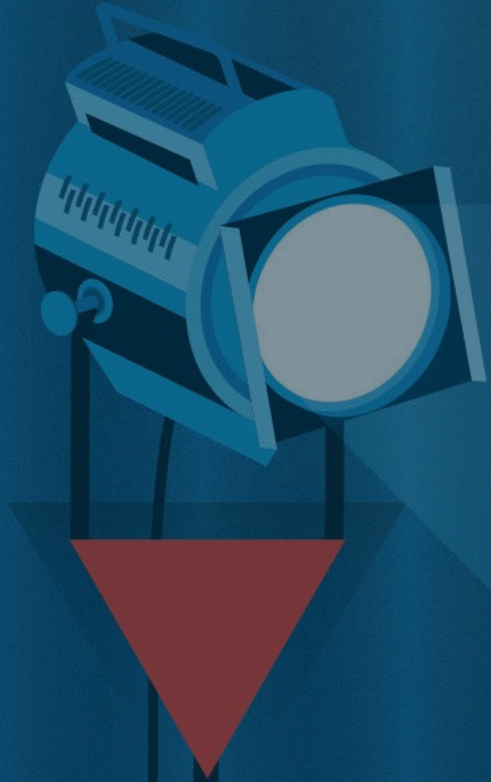
Last Year: Overall, only 15% of Data is Used in Insurance Companies



The 85% You Couldn't Reach — Until Now


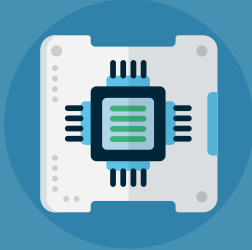
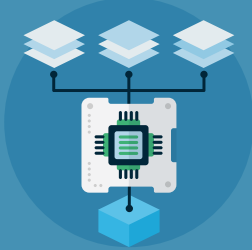
GenAI + Agentics + Lakehouse = Actionable Data



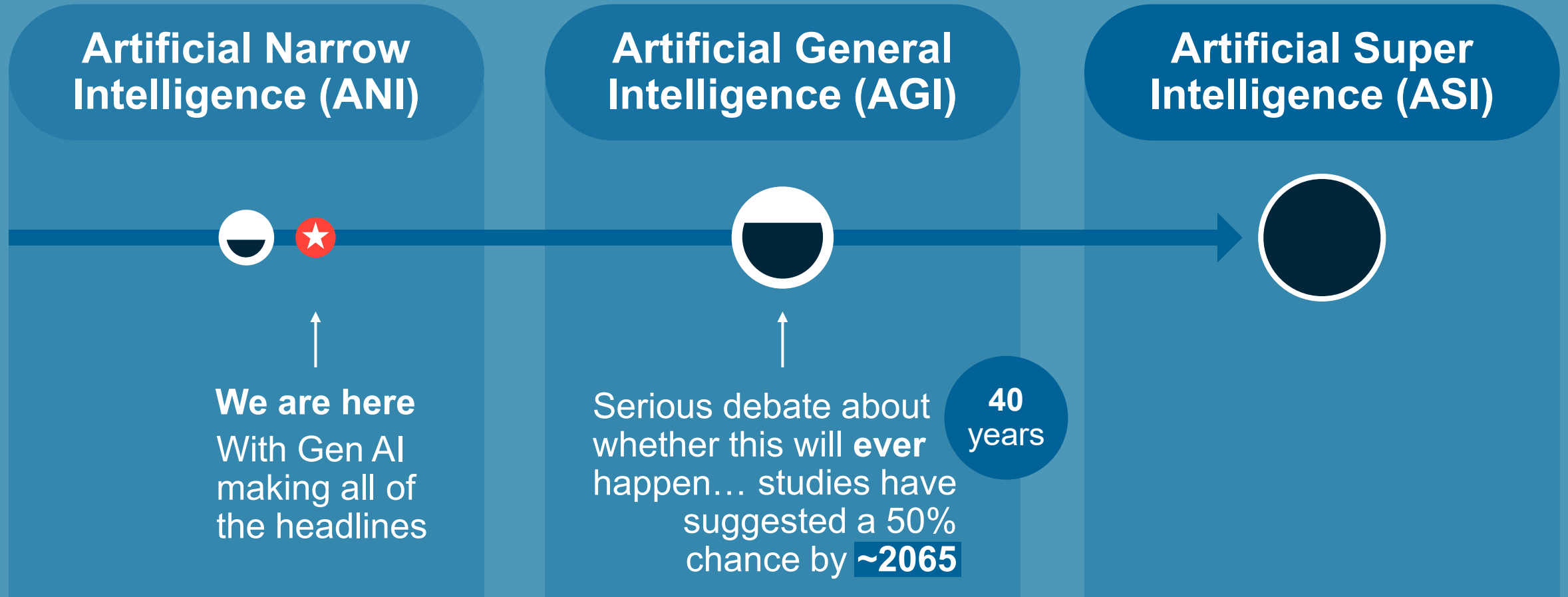


**What Does the
Future Hold?
Will It Slow
Down?**

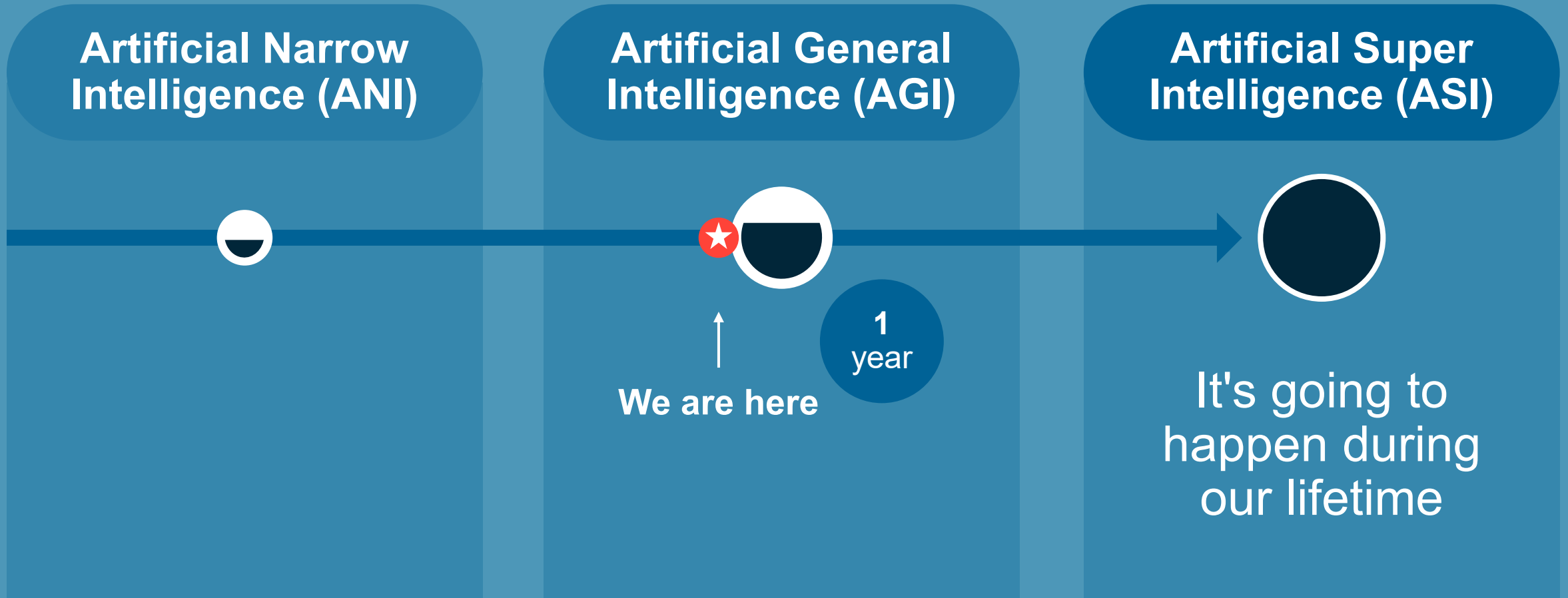
Limiting Factors and the Solutions

Problem		Solution
Electricity AI requires massive computational power and energy consumption		Nuclear investment <ul style="list-style-type: none">• Big tech investing in nuclear power plants• Building 2GW+ data centers• Sustainable energy infrastructure scaling
Hardware <ul style="list-style-type: none">• Computing infrastructure limitations• Chip shortages• Processing bottlenecks		Massive investment <ul style="list-style-type: none">• Huge investment in microchips (Nvidia)• Quantum computing breakthroughs• Next-generation processor architectures
Training data <ul style="list-style-type: none">• Risk of running out of quality content• New data sources for model training		Synthetic generation <ul style="list-style-type: none">• Models can generate new content• New algorithms (Google's latest releases)• Synthetic data creation capabilities

Last Year: Where Are We on the Grand AI journey?



Where Are We on the Grand AI journey?



Key Takeaways

Adoption Challenges

- ▶ Compliance and governance frameworks
- ▶ Human vs. AI error comparison
- ▶ Adoption strategies and change management
- ▶ ROI measurement beyond cost reduction



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