



Explainable AI

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How does AI reach its instantaneous conclusions?



As artificial intelligence advances, humans find it increasingly difficult to understand and trace the steps an algorithmic model takes to produce a result. The entire computational process effectively becomes an impenetrable “black box” that is impossible to decipher.¹

These opaque models are built directly from the data, and remarkably, even the engineers and data scientists who create them often cannot fully explain what happens inside or how the AI arrives at a specific conclusion.

Explainable artificial intelligence (XAI) is a set of processes and methods designed to allow human users to comprehend and trust the results and output created by machine learning algorithms.² It also helps organizations adopt a responsible approach to AI development. As AI becomes more advanced, it will become critical in mitigating compliance, legal, security and reputational risks of production AI.

For instance, AI-powered medical diagnoses could inadvertently misidentify or overlook health issues in specific demographic groups because the data used to train these

models was biased.³ When these diagnostic AI systems operate as “black boxes,” healthcare providers struggle to comprehend the logic behind their conclusions, which in turn makes it harder to identify and rectify such inherent biases or see where the AI data sources were taken from.



The challenge with AI is there are no people involved, so you’ve got to build a control and visibility culture into the organization or into the AI models from the outset.”

Colin Wilson
Enterprise Architect, Verizon Business

¹The Conversation, [Opening the black box: how ‘explainable AI’ can help us understand how algorithms work](#), 2024

²IBM, [What is Explainable AI?](#), 2026

³Bernardo, [EDPS TechDispatch on Explainable Artificial Intelligence](#), 2023



Safeguarding AI is creating extra load on bandwidth

Human input is key to refining AI models and functions as a critical safety net when AI systems become ambiguous or deviate from their training data. A human-in-the-loop (HITL) approach allows humans to provide oversight and input into AI workflows, meaning responsibility doesn't rest solely on the model or its developers.⁴

Some AI regulations mandate certain levels of HITL. For example, the EU AI Act's Article 14 says that "High-risk AI systems shall be designed and developed in such a way, including with appropriate human-machine interface tools, that they can be effectively overseen by natural persons during the period in which they are in use."⁵

As with any data, it is essential to be transparent and ethical when generating, using and sharing. However, the increased requirement for HITL oversight to enhance AI reliability, compliance and accuracy is generating substantial data documentation – creating significant bottlenecks in network bandwidth.⁶

Data centers are facing a massive increase in demand to handle this extra explainable AI documentation, with many organizations needing to invest in scalable, high-bandwidth networking.

Key concepts include:

- Traceability vs black box
- Human interpretable – HITL
- Compliance particularly in European countries and in finance and healthcare
- Need to see the chain of reasoning
- Needs the associated documents and evidence and therefore increased bandwidth with every task

⁴ Stryker, IBM: What is Human-in-the-loop?, 2025

⁵ Kosinski and Scapicchio, What is the EU AI Act?, 2026

⁶ Faculty AI, What is 'human-in-the-loop'? And why is it more important than ever?, 2021

How today's industry is building AI trust and acceptance

Organizations are developing algorithms to clarify complex AI decisions, both generally and for specific cases. AXA, France, for example, is leveraging XAI to predict household damage costs, aiming for greater transparency and proactive risk management in insurance.⁷ Collaborating with the University of Antwerp, the initiative, aims to ensure that automated insurance outcomes are understandable, fostering trust and compliance and moving beyond just prediction to understanding the AI's reasoning.⁸

In manufacturing, organizations are addressing workforce fear and resistance, framing AI as a continuous improvement tool rather than a job threat. As part of their successful AI deployment strategy, Siemens included speaking the operators' "lean language" instead of IT jargon.⁹ As Gunter Beitinger, Senior Vice President of Manufacturing at Siemens explains, "a key element was a phased rollout: starting with explainable AI to build trust (Phase 1), moving to AI suggestions requiring human approval (Phase 2), and finally, allowing AI to act with human oversight and override (Phase 3)". This gradual, transparent approach achieved 80% acceptance among the workforce, ultimately integrating AI as a trusted "coworker."

Deutsche Bank has teamed up with finaXai, an AI company from Singapore that is working on an experimental project, DAMA 2, which uses a unique, secure type of blockchain network.¹⁰ The goal is to make it much simpler and faster for businesses that manage investments to handle funds that have been converted into digital tokens, benefiting both the funds and their investors. The collaboration bridges academic AI research with real-world applications, exploring how explainable AI and tokenization can streamline processes, enhancing the accessibility, adoption and management of digital assets.¹¹

While these industry leaders demonstrate the immense business value of XAI, deploying these transparent models introduces additional infrastructure demands.



⁷ Kitishian, Klover AI: Axa's AI Strategy: Analysis of Dominance in Insurance, 2025

⁸ Martens, Fulfilling the potential of AI: towards explainable deep learning – AXA Research Fund, accessed July 3, 2025,

⁹ Dunford, Guidewheel: How Siemens Rolls Out AI in Manufacturing: A Phased Playbook for Shop Floor Adoption, 2026

¹⁰ Deutsche Bank, Deutsche Bank partners with AI firm finaXai to transform tokenised funds servicing with cutting-edge AI, 2026

¹¹ Deutsche Bank, Deutsche Bank joins "Project Guardian" to explore asset tokenization applications , 2024



Unpacking XAI's data, bandwidth and latency challenges

The opacity of these “black boxes” hinders trust and accountability, prompting the need for explainable AI.

Why it matters:

Operationalizing XAI is fundamentally reshaping infrastructure demands, because transparency is data-heavy, particularly concerning data management, network performance and governance.

- XAI enables human comprehension and trust in AI, crucial for mitigating compliance, legal, security and reputational risks, especially with potentially biased models (e.g., medical diagnoses or financial decision-making).
- HITL workflows are essential for oversight and validation, mandated by regulations like the EU AI Act for high-risk systems, ensuring accountability beyond the AI itself.

What this means:

Implementing XAI and HITL workflows significantly increases data documentation and necessitates robust network capabilities.

- XAI generates extensive metadata, audit logs and explanation layers, demanding high bandwidth and network speed for traceable, accessible operational data across distributed systems.
- HITL workflows require low latency and rapid two-way data flows for real-time human review, validation, or override of AI decisions, often spanning multiple locations and on and off ramps in the process. Checking as they go along to find out where mistakes might have crept in.

And the consequence:

Failure to upgrade infrastructure and implement robust governance measures introduces significant operational risks.

- Organizations face incomplete audit trails, delayed synchronization and inconsistent governance records due to weak or fragmented networks, undermining XAI's transparency goals.
- Network infrastructure must be upgraded to provide secure access to AI systems and governance records, along with enhanced visibility across all environments for scalable monitoring and validation.

Need to know:

The transparency inherent in XAI also heightens security and data exposure risks.

- XAI's explanation layers can inadvertently expose sensitive customer, operational, or proprietary business data, revealing decision-making processes.
- Robust security measures – including secure connectivity, encryption, access controls and network visibility – are critical to protect XAI governance workflows and prevent data tampering or misuse.

How must networks evolve to support explainable AI?

Explainable AI's imperative for transparency and human trust holds immense promise, but unlocking its full potential demands a significant infrastructure overhaul. This table outlines how XAI's needs are driving critical network evolution.

Business need	AI need	Network impact
Ensure transparent, traceable AI decisions	XAI systems generate additional metadata, audit logs, confidence scores and explanation layers to show how AI decisions were reached.	High bandwidth and network speed are essential to move this additional operational data across cloud, edge and enterprise systems – ensuring AI outputs remain traceable and accessible.
Enable real-time human oversight and intervention	HITL workflows require humans to review, validate, or override AI decisions in real time.	Low latency becomes critical, demanding fast two-way data flows between AI systems, users and management teams – potentially across multiple sites, regions, or jurisdictions.
Maintain complete and synchronized AI audit trails	Explainable AI depends on complete and synchronized audit records that document how decisions were made and reviewed, crucial for compliance and governance.	Weak or fragmented networks lead to incomplete audit trails, delayed synchronization and inconsistent governance records across systems – necessitating robust and unified network infrastructure.
Protect sensitive data exposed by AI explanations	Explanation layers may expose sensitive customer, operational, or proprietary business data by revealing how decisions were reached.	Secure connectivity, encrypted data movement, access controls and network visibility become essential to protect AI governance workflows – preventing tampering or misuse.
Monitor, govern and validate AI across distributed environments	Enterprise XAI requires teams to securely access AI systems, governance records and operational data across distributed environments – monitoring decision-making at scale.	Ensure networks provide secure access and greater visibility across systems, clouds and edge locations – enabling effective monitoring, governance and validation of AI decision-making processes.



Helping organizations implement responsible AI

Businesses are identifying the required low latency to cope with the increased customer responsiveness, model speed and dynamic demand that comes with powering data-heavy AI workloads. That means a powerful, scalable, AI-ready network infrastructure.

Verizon Network as a Service (NaaS). Our Tier 1 global network delivers high-performance connectivity across your entire enterprise, from factories to stores, seamlessly supporting AI experiences and massive data transfer across regions.

We leverage AI internally for predictive network optimization, proactively ensuring reliable, low-latency connections vital for continuous computer vision streams. Verizon recognizes that a robust, intelligent network is fundamental for scaling AI. Partner with us to overcome infrastructure barriers and unlock your agentic future's potential.

Find out more

Understanding how to generate value from real-time AI and build the network to support its unique demands is essential. Verizon works with businesses globally, helping them leverage AI to accelerate

innovation, enhance services, harvest insights and drive business intelligence. Learn more about how we can help you [here](#).

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