



Federated AI is a machine learning approach where multiple organizations train a shared AI model together without sharing their actual data. The result is more accurate models for better Insights.

While Federated AI on the surface is a simple concept, it is complex in execution, which makes it challenging to explain. Add in the fact that *federated machine learning*, *federating learning* and *federated AI* are three terms used to describe the same thing, and well, minds can start exploding.

Federated AI Primer

Why Federated AI is Hard to Understand

Counterintuitive Concept

The idea of learning without sharing data seems contradictory

Abstract Technical Process

What's being shared vs what stays private hard to visualize

Privacy Paradox

People ask "How can you learn from my data without seeing it?"

There are Three Types of Federated AI

Horizontal Federated Learning

Explainer. Many organizations have the same kind of columns (features) but different rows (people, devices, branches). They train a single model together without pooling their raw data.

Super Simple Example. You and your friends each have different puzzle pieces at your own houses, and instead of bringing all the pieces to one place, you all work together to figure out what the whole puzzle looks like by sharing only the clues about your pieces.

Vertical Federated Learning

Explainer. Organizations share the same customers, but each holds different columns about them—think “bank owns credit history, e-shop owns browsing history.” They collaborate to build a fuller model.

Super Simple Example. You have half of a coloring book, and your friend has the other half of the same coloring book, and you work together to color the whole picture by sharing tips about your parts without swapping books.

Federated Transfer Learning

Explainer. Organizations have different columns and different people—almost nothing overlaps—but one side's labelled know-how can still jump-start the other side's model.

Super Simple Example. You learned how to ride a bike really well, and now you're helping your friend learn to ride a scooter by sharing your balance tricks without actually giving them your bike.

Ready to see how Axonis can transform your organization?

Book a free strategy consultation to discuss your unique challenges and explore tailored use cases that deliver measurable ROI. Contact Sales at sales@axonis.ai.