KPI PARTNERS | Simplifying Data, Scaling Enterprise AI.

ADF to Microsoft Fabric Pipelines Accelerator

Microsoft Fabric

GenAI-powered migration from Azure Data Factory to Microsoft Fabric Data Pipelines.

Accelerate Azure Data Factory to Microsoft Fabric Migration:
Up to 2X Faster, Up to 85% Lower Cost.

The Modernization Challenge

Enterprise Azure Data Factory estates accumulate hundreds of pipelines, data flows, linked services, datasets, and triggers. Manual migration to Microsoft Fabric Data Pipelines is tedious and error-prone, particularly around Mapping Data Flows, Self-hosted Integration Runtime dependencies, parameterization patterns, and complex branching activities. Naïve lift-and-shift misses the opportunity to consolidate orchestration with the Fabric analytical estate.

Risks of Inaction

- Continued ADF costs alongside new Fabric capacity during prolonged dual-tool operation
- Mapping Data Flows require reconsideration: Dataflow Gen2 vs Spark notebooks
- Self-hosted IR and linked service credentials must be re-registered in Fabric
- Complex pipeline parameterization and expression logic is a conversion hotspot
- Fragmented orchestration across ADF and Fabric delays OneLake and Direct Lake value

The KPI Partners Solution: ADF to Fabric Migration Accelerator

A next-generation GenAI-powered, metadata-driven migration accelerator purpose-built for Azure Data Factory to Microsoft Fabric Data Pipelines:

- Assessment module that analyzes your ADF instance via REST API to produce timeline, resource, and cost estimates for complete migration
- Rules-based conversion of ADF pipeline JSON to Fabric Data Pipeline JSON (near-isomorphic; up to 95% automation)
- GenAI-assisted conversion of expression logic, parameter patterns, and derived column expressions
- Intelligent routing of Mapping Data Flows: simple transforms to Dataflow Gen2, complex logic to PySpark notebooks
- Linked service and dataset conversion to Fabric connections
- Self-hosted Integration Runtime reconfiguration guidance for Fabric
- Trigger and schedule conversion to Fabric-native schedulers
- Built-in validation: JSON schema conformance, pipeline dry-run, and end-to-end execution testing

Our Approach

Phase 1: Intelligent ADF Assessment

Automated scan of the ADF instance via REST API to quantify scope, complexity, and cost, including pipeline inventory, Data Flow classification, dependency graph, and Fabric routing recommendations, enabling confident executive approval.

Phase 2: AI-Based Automated Conversion

Rules-based and GenAI-assisted conversion of ADF pipelines, Data Flows, linked services, datasets, and triggers into Microsoft Fabric Data Pipelines and associated artifacts, with built-in validation and human-in-the-loop review.

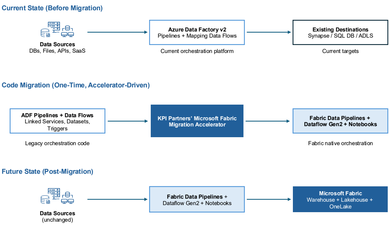
Phase 3: Validation and Cutover

JSON schema conformance checks, pipeline dry-runs, and end-to-end execution testing confirm every migrated artifact before you sunset ADF, so orchestration consolidates onto Fabric without disrupting downstream consumers.

3-Week Quick Start

- Run KPI Partners' Assessment accelerator on your ADF instance to receive timeline, resources, and cost estimate for complete migration to Microsoft Fabric Data Pipelines
- Pipeline dependency graph and Data Flow complexity inventory
- Routing recommendation per Data Flow (Dataflow Gen2 vs Spark notebook)
- Fixed-price: $10,000
- Scope: Convert 10 ADF artifacts (60% simple copy/control pipelines, 20% medium pipelines with expression logic, 20% complex Mapping Data Flows) that you select

Technical Architecture Overview



Target Architecture

Current State

- Azure Data Factory v2 with pipelines, datasets, linked services
- Mapping Data Flows (Spark-based transforms)
- Self-hosted Integration Runtime for on-prem sources
- ADF triggers (schedule, tumbling window, event)
- Integration with Key Vault, Storage, SQL sources

Modernized Future State

- Microsoft Fabric Data Pipelines (ADF v2 engine, Fabric-integrated)
- Dataflow Gen2 for Power Query-style transforms
- Fabric Notebooks (PySpark) for complex data transformations
- Fabric-native scheduling and event triggers
- OneLake-integrated data movement
- CI/CD-enabled deployment via Fabric Git integration

Infrastructure Requirements

- Microsoft Fabric capacity (F64 or higher for production)
- Azure subscription with existing ADF and Fabric in same tenant
- Azure OpenAI deployment (GPT-4.1) in client tenant
- Self-hosted IR reinstallation on Fabric-accessible hosts (for on-prem sources)
- Key Vault and Storage account accessibility from Fabric
- Azure DevOps or GitHub for artifacts-as-code

Technical Benefits and Requirements

Technical Requirements	Technical Benefits
Microsoft Fabric workspace with Data Factory capability	Near-isomorphic pipeline JSON conversion (ADF v2 ≈ Fabric Data Pipelines)
Azure OpenAI access	Intelligent Data Flow routing based on complexity analysis
ADF read access via Azure REST API (Data Factory Reader role)	Expression logic and parameterization patterns handled by GenAI converter
Python 3.11+, VS Code or equivalent IDE	Linked service and credential migration automation
Self-hosted IR available for on-prem source connectivity	Trigger and schedule preservation across migration
Azure DevOps or GitHub for artifacts-as-code	End-to-end pipeline execution validation post-deployment

Success Story

Fortune 500 Healthcare Enterprise

Global health insurance provider consolidating data orchestration onto Microsoft Fabric

- **600+** ADF pipelines across ingestion, transformation, and orchestration
- **120+** Mapping Data Flows with complex expression logic
- **2X** faster migration than prior manual approach
- Up to **95%** automation efficiency on pipeline conversion
- Full consolidation of orchestration within Fabric
- Completed in **~4** months end-to-end

Business Benefits

- **Up to 85%** reduction in cost and TCO over manual methods
- Up to **95%** automation efficiency on ADF pipeline JSON conversion
- Intelligent Data Flow routing: Dataflow Gen2 for simple transforms, Spark notebooks for complex
- Unified orchestration within Fabric, eliminating dual-tool operational overhead

Outcome

Faster migration, consolidated orchestration, elimination of dual-tool costs, and full access to Fabric-exclusive integration capabilities.

Testimonial

> Converting our ADF estate into Fabric Data Pipelines in weeks rather than months let us sunset ADF ahead of plan. The accelerator's handling of Mapping Data Flows was particularly impressive.
>
> **— Principal Data Architect**

Why KPI Partners

- Microsoft Fabric and Azure specialist partner
- Microsoft Solutions Partner for Data & AI (Azure) and Digital & App Innovation
- **150+** Azure Data Factory implementations delivered
- **100+** enterprise data modernization programs
- Proprietary Fabric accelerator with reusable ADF pattern library
- Deep ADF, Mapping Data Flow, and Azure integration experience

SCHEDULE A DEMO TODAY! | See how KPI Partners accelerates Microsoft Fabric modernization with measurable business outcomes.

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