

Transforming Finance Back Office Operations Through Secure AI-Powered Invoice Processing and Reconciliation with AirgapAI and Intel Core Ultra



Executive Summary

Challenge: A Top 10 Global Professional Services Firm, “The Firm” with 85,000 employees across 140 countries, faced critical operational bottlenecks in their Finance Back Office operations. Finance analysts were spending over 7 hours daily on manual invoice processing, multi-currency reconciliation, and sensitive financial data preparation—creating backlogs during month-end close, exposing the firm to compliance risks, and diverting skilled professionals from high-value advisory work.

Solution: Intel and Iternal Technologies deployed AirgapAI™ powered by Intel Core Ultra AI PCs with OpenVINO optimization, enabling finance teams to automate invoice data extraction, accelerate multi-entity reconciliation, and prepare compliant financial

packages—all while keeping sensitive client and partner financial data 100% secure on local devices with zero cloud exposure.

Results:

- 68% reduction in time spent on routine finance tasks (7+ hours reduced to 2.3 hours daily)
- 78x improvement in AI accuracy versus traditional RAG pipelines
- ~850 hours saved per finance analyst annually, equating to 41 FTE equivalent for a 100-person finance team
- Projected annual productivity value of \$7.6 million for a 100-person finance organization
- Month-end close cycle reduced from 12 days to 5 days
- 100% offline operation ensuring client financial data and proprietary pricing never leaves organizational control

Technology Stack: Intel Core Ultra 7 with NPU + OpenVINO | Blockify® + AirgapAI™ + AI Assist Bundle

Introduction: AI as a Strategic Asset for Professional Services Finance Operations

AI is rapidly becoming a strategic asset for global professional services firms. To maintain operational excellence and protect fiduciary responsibilities, finance back office teams must access the right information, at the right time, in a safe, secure, and trusted manner—while being absolutely certain every reconciliation is factually correct and compliant with international accounting standards.

For The Firm, managing finance operations across 140 countries with multiple currencies, regulatory frameworks, and intercompany structures is highly complex. The organization operates in an environment where accurate, fast, and secure data analysis isn't just nice to have—it's essential for maintaining client trust and regulatory compliance. With billions of dollars flowing through accounts payable and receivable annually, the margin for error is zero.

Together, Intel and Iternal Technologies have partnered to provide a unique solution that supports The Firm through AirgapAI, transforming manual finance back office operations into an intelligent, automated workflow that maintains the ironclad data security that professional services clients demand.

The Challenge: The Hidden Cost of Manual Finance Operations



The Problem

Professional services firms operate in a uniquely challenging financial environment. Unlike product companies with standardized transactions, every client engagement creates a cascade of complex financial activities: time and expense capture, project-based billing, multi-currency invoicing, intercompany allocations, and partner compensation calculations. This complexity compounds at scale.

The Reconciliation Burden: For a curated subset of The Firm, the team can process a scale of 180,000 vendor invoices and 95,000 client invoices annually across its global operations. Each invoice requires validation against purchase orders, contracts, rate cards, and budget allocations—with the added complexity of 45 different currencies and 80+ legal entities requiring intercompany elimination.

Current Process Pain Points

The manual finance operations process creates significant operational burden:

- **Invoice Data Extraction Friction:** Invoices arrive in 30+ different formats (PDF, email, portal downloads) requiring manual data entry into the ERP system
- **Multi-System Validation:** Staff must cross-reference invoices against contracts, purchase orders, timesheets, and expense reports across 6 different internal systems
- **Currency Complexity:** Each transaction requires currency conversion, hedge accounting consideration, and proper entity assignment
- **Month-End Crunch:** The 12-day close cycle creates intense pressure, with analysts working 12-14 hour days during the final week
- **Intercompany Chaos:** Reconciling transactions between 80+ legal entities requires extensive manual matching and follow-up
- **Partner Sensitivity:** Compensation calculations require absolute accuracy and discretion—errors damage trust and create legal exposure

The Risk

Without an effective approach to finance operations, the firm risks:

- **Compliance Exposure:** Inaccurate financial reporting creates audit findings and regulatory penalties
- **Cash Flow Impact:** Delayed invoice processing affects vendor relationships and misses early payment discounts
- **Client Trust Erosion:** Billing errors damage client relationships and create collection challenges
- **Partner Dissatisfaction:** Compensation calculation errors create internal friction and retention risks
- **Talent Drain:** Skilled finance professionals leave due to burnout from repetitive manual work

It's a case of garbage in, garbage out—and if you can't trust your finance operations to continually be correct, you can't trust them at all because the mistakes are unpredictable.

Why AI Matters for Finance Back Office Operations

Beyond simple automation, finance teams need AI that can interpret unstructured invoice data, apply business rules contextually, and ensure compliance with accounting standards—all without exposing sensitive financial information to cloud-based systems.

Traditional Process Pain Points:

- Hours spent manually keying invoice data from PDFs into ERP systems
- Constant context-switching between contract management, PO systems, and accounting platforms
- Risk of transposition errors in high-volume data entry
- Inability to scale during peak periods without temporary staffing
- Sensitive compensation data scattered across email and spreadsheets
- Delayed identification of discrepancies until month-end close

The finance back office is the nervous system of a professional services firm. When it operates efficiently, partners can focus on client service. When it struggles, the entire organization feels the friction.

The Solution: AirgapAI on Intel Core Ultra AI PCs**Blockify® Data Optimization**

Blockify is Iternal's patented data ingestion and optimization system that improves AI accuracy by up to 78x (7,800%). Through a three-pronged approach of ingestion, distillation, and taxonomy creation, Blockify transforms the organization's vast repository of contracts, rate cards, purchase orders, and policy documents into a single source of truth—distilled to just 2.5% of original size while virtually eliminating AI hallucinations.

For The Firm, Blockify processed:

- Master Services Agreements and Statements of Work across 3,000+ active clients
- Vendor contracts and purchase order archives
- Rate cards and billing policies by practice area and geography
- Intercompany transfer pricing documentation
- Expense policies and approval matrices
- Partner compensation frameworks and allocation rules

AirgapAI™ Edge Inference with Intel Core Ultra + OpenVINO

AirgapAI is a powerful, network-independent AI solution designed to run 100% locally on Intel Core Ultra-equipped AI PCs. By operating completely offline, AirgapAI upholds stringent data-protection standards—no external connection is required, minimizing

potential vulnerabilities and ensuring sensitive client financial data, proprietary pricing structures, and partner compensation details remain strictly private.

Finance-Specific Security Requirements:

For a global professional services firm handling sensitive client financial information, the security requirements are non-negotiable:

- **Client Confidentiality:** Financial data from Fortune 500 clients cannot be exposed to third-party cloud services
 - **Regulatory Compliance:** SOX, GDPR, and local financial regulations require data residency controls
 - **Competitive Protection:** Rate cards and pricing strategies are highly confidential competitive assets
 - **Partnership Trust:** Compensation data requires absolute discretion and access control
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Benchmark Results

Intel Core Ultra 7 265V (AI PC) Performance

Leveraging Intel Core Ultra 7 265V with OpenVINO optimization, AirgapAI processing achieves up to 4.9x faster inference speed and up to 112x faster first-token latency compared to generic implementations. The ability to process 4,860 pages of financial content per month demonstrates the capability to handle invoice volume at scale.

Processing Performance:

- **Total Financial Documentation Processed:** ~750,000 words (contracts, rate cards, policies)
- **Blockify Processing Time:** ~375,000 seconds on AI PC
- **Total Optimized Blocks:** ~535 chunks
- **Tokens per Second:** 2.66 tokens/second (AI PC baseline)
- **OpenVINO Optimized:** Up to 34.27 tokens/second with GPU acceleration

Accuracy Improvements: Beyond speed, Blockify's approach increased the precision of vector searches and RAG models, virtually eliminating hallucinations and improving LLM accuracy by approximately 78x (7,800 percent) compared with a traditional RAG

pipeline. Vector search precision improved by 51%, ensuring that invoice-to-contract matching is accurate and discrepancies are reliably identified.

The "Better and Best" Dynamic

Intel's OpenVINO toolkit unlocks the true potential of Intel Core Ultra hardware, delivering:

- **Up to 4.9x faster inference speed** compared to generic implementations
- **Up to 112x faster first-token latency** for immediate responsiveness
- **Up to 9.2x higher ingestion throughput** for large document processing

The OpenVINO optimization enables a "Better and Best" dynamic: the Intel NPU delivers efficient, high-performance processing for sustained workloads like batch invoice processing, while the integrated GPU provides maximum burst performance for demanding tasks like complex reconciliation analysis.

AI-Accelerated Finance Workflow: The Transformation

The intelligence of Iternal's AirgapAI, powered on the Intel Core Ultra AI PC, automates, augments, and amplifies key finance back office activities—freeing analysts for high-value work like exception handling and strategic analysis, all while keeping sensitive data local and compliant.



Invoice Processing Workflow

Finance Activity	User Goal	Manual Tasks	Daily Time (Manual)
Invoice Receipt & Triage	Route invoices to appropriate queues	Download from portals, sort by type, log receipt	45 minutes
Data Extraction	Capture invoice details accurately	Manual data entry from PDFs, verification, correction	95 minutes
Contract Matching	Validate against agreements	Search contracts, compare rates, verify terms	75 minutes

Three-Way Match	PO/Receipt/Invoice reconciliation	Cross-system lookups, variance identification	85 minutes
Currency & Entity	Proper financial treatment	Conversion, entity assignment, intercompany tagging	55 minutes
Exception Handling	Resolve discrepancies	Investigation, communication, documentation	65 minutes
TOTAL			420 minutes (~7 hours)

AI-Enhanced Finance Workflow

Finance Activity	AI-Enhanced Workflow	Daily Time (AI PC)	Time Saved
Invoice Receipt & Triage	AI auto-categorizes, extracts metadata, routes intelligently	8 minutes	37 minutes
Data Extraction	AI reads invoices, extracts all fields, validates format	15 minutes	80 minutes
Contract Matching	AI surfaces relevant contracts, highlights rate variances	22 minutes	53 minutes

Three-Way Match	AI performs automated matching, flags exceptions only	28 minutes	57 minutes
Currency & Entity	AI applies rules, suggests treatment, validates compliance	18 minutes	37 minutes
Exception Handling	AI pre-analyzes issues, drafts communications, tracks resolution	45 minutes	20 minutes
TOTAL		136 minutes (~2.3 hours)	284 minutes saved

Net Time Saved Per Analyst, Per Day: ~4.7 hours (68%+ productivity improvement)

Business Use Cases: Finance Back Office Transformation



The initial deployment focuses on core accounts payable and receivable operations, but the platform enables expansion across the finance function:

Intelligent Invoice Processing

Automate extraction of invoice data from any format—PDF, email, scanned images—with AI-powered field recognition that learns vendor-specific layouts. The system validates data against contracts and purchase orders in real-time, flagging exceptions before they enter the accounting system.

Multi-Currency Reconciliation Automation

Process intercompany transactions across 80+ legal entities with AI that understands currency conversion requirements, transfer pricing rules, and elimination entries. Reduce month-end intercompany reconciliation from days to hours with automated matching and variance explanation.

Sensitive Financial Package Preparation

Generate audit-ready financial packages with AI-assisted compilation of supporting documentation, variance analyses, and management commentary. Ensure

completeness and accuracy while maintaining strict access controls on sensitive information.

Contract-to-Invoice Compliance Verification

Automatically validate that billing rates, terms, and conditions on vendor invoices match contracted agreements. Identify rate creep, unauthorized charges, and contract violations before payment approval.

Partner Compensation Analysis

Securely process confidential partner compensation calculations with AI that understands allocation rules, performance metrics, and adjustment factors. Generate individualized statements while maintaining absolute discretion and audit trails.

Regulatory Reporting Assistance

Accelerate preparation of regulatory filings with AI that extracts relevant data, applies formatting requirements, and validates completeness against checklist requirements—reducing compliance preparation time while improving accuracy.

Financial Impact Analysis (Projections)

Quantifiable Productivity Gains

Metric	Per Analyst	100-Person Finance Team
Daily Time Saved	4.7 hours	470 hours
Annual Time Saved	~850 hours	85,000 hours
FTE Equivalent	—	41 FTEs

Annual Value (@ \$90/hr)	\$76,500	\$7.65 million
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Month-End Close Acceleration

Metric	Before AI	After AI	Improvement
Close Cycle Duration	12 days	5 days	58% faster
Overtime Hours (per analyst)	35 hours/month	8 hours/month	77% reduction
Late Adjustments	45 per close	12 per close	73% reduction
Intercompany Exceptions	180 per close	35 per close	81% reduction

Strategic Business Impact

Beyond direct labor savings, AI-accelerated finance operations deliver compounding operational advantage:

- **Faster Close = Earlier Insights:** Leadership receives financial visibility 7 days earlier each month
- **Higher Accuracy = Lower Risk:** Reduced error rates minimize audit findings and restatement risk
- **Scalable Operations:** Handle 40% volume growth without proportional headcount increase
- **Talent Retention:** Finance professionals engage in meaningful analytical work instead of data entry
- **Vendor Relationships:** Consistent, accurate payment processing strengthens supplier partnerships
- **Early Payment Capture:** Faster processing enables capture of early payment discounts worth \$2.1M annually

Security and Compliance: 100% Offline Operation



For a professional services firm managing confidential client financial information, data security isn't optional—it's foundational to client trust and regulatory compliance.

Data Sovereignty Requirements

The Firm finance operations handle sensitive information requiring absolute protection:

- **Client Financial Data:** Revenue, cost, and profitability information for Fortune 500 clients
- **Vendor Terms:** Negotiated rates and payment terms (competitive intelligence)
- **Partner Compensation:** Individual earnings and allocation details
- **Intercompany Pricing:** Transfer pricing documentation subject to regulatory scrutiny
- **Audit Materials:** Confidential working papers and supporting documentation

AirgapAI's Security Architecture

- **100% Local Processing:** All AI inference occurs on the Intel Core Ultra AI PC—no data transmission to cloud services

- **Zero Network Dependency:** Operates in fully air-gapped environments if required
- **Financial Data Protection:** Proprietary pricing, client information, and compensation data never leaves organizational control
- **Audit-Ready Operations:** Complete transparency into AI processing for compliance verification
- **Role-Based Access:** Different Blockify libraries can be assigned based on role sensitivity

By operating completely offline, AirgapAI upholds the stringent data-protection standards that professional services firms require—no external connection is required, minimizing potential vulnerabilities and ensuring sensitive financial information remains strictly private.

Value-Added Capabilities: Enhancing the Technology

Maximizing AI Investment with The AI Strategy Blueprint

Technology alone doesn't guarantee AI success—85% of enterprise AI investments fail to deliver expected results. Iternal enhances its technology deployment with *The AI Strategy Blueprint*, a complete framework for AI transformation written by Iternal's CEO based on seven years of enterprise deployment experience.

The Blueprint addresses the 70% of AI success that depends on people and processes:

- **5x revenue gains** compared to competitors stuck in pilot programs
- **Governance frameworks** that enable speed rather than create barriers
- **Crawl-walk-run deployment strategies** that prove value before scaling risk
- **ROI quantification methodologies** that satisfy CFO scrutiny

This strategic foundation ensures The Firm extracts maximum value from their AirgapAI deployment rather than joining the majority of failed AI initiatives.

Accelerating Adoption with Iternal AI Academy

The fastest path to AI ROI is workforce capability. Iternal enhances its technology with the AI Academy (edu.italernal.ai)—comprehensive AI fluency training that accelerates how quickly finance professionals can leverage AirgapAI:

- **610+ courses** spanning every major industry and job role
- **Three proficiency tiers** - Beginner, Advanced, and Expert tracks
- **Real-time AI feedback** - Prompts scored and critiqued for immediate improvement
- **Verified certificates** - Independently verifiable credentials demonstrating competency
- **Universal application** - Skills transfer to any AI platform

By combining foundational education with interactive practice, AI Academy ensures the finance organization can fully leverage their technology investment from day one.

Immediate Productivity with 2,800+ Quick Start Workflows

AirgapAI's technology is enhanced with more than 2,800 pre-configured Quick Start Workflows—enabling finance professionals to achieve immediate productivity gains without a learning curve.

Pre-built workflows for finance teams include:

- Invoice data extraction and validation
- Contract-to-invoice rate comparison
- Intercompany transaction matching
- Variance analysis and explanation generation
- Month-end close checklist completion
- Regulatory filing data compilation

Custom workflow generation: Users can describe their work process in natural language, and AirgapAI automatically creates a custom workflow tailored to their specific needs—no technical expertise required.

Maximizing ROI with AI Assist Bundle

For organizations seeking to maximize their return on AI investment, the AI Assist Bundle enhances AirgapAI with comprehensive end-to-end services:

- **Full deployment and integration** - Expert setup and configuration across the finance organization
- **Training and education** - Workforce enablement programs tailored to finance workflows
- **Tier 1, 2, and 3 support** - Phone and chat support for all user levels
- **Ongoing optimization** - Continuous improvement and workflow refinement

The AI Assist Bundle transforms technology deployment into measurable business outcomes—cost reduction, productivity gains, and operational accuracy—at a fraction of the cost of cloud-based alternatives while keeping all data 100% on-premise.

Technical Workflow: The Blockify Process for Invoice Processing

The Blockify workflow steps included:

1. **Document Ingestion and Chunking:** Contracts, rate cards, and policy documents are processed through Blockify's proprietary algorithm. Documents are divided into smaller content chunks, passed into a specially configured LLM, outputting modular blocks with robust taxonomy for precise data extraction.
2. **Embeddings and Normalization:** Content blocks are converted into embeddings (vector representations) capturing unique context and structure. Contract terms, rate structures, and policy requirements are normalized across different source formats, enabling accurate invoice validation.
3. **Retrieval and Validation:** Based on invoice content, the system retrieves relevant contracts, rate cards, and policies. The AI correlates invoice data against authoritative sources, identifies matches and discrepancies, and generates structured output with citations identifying the source of each validation.

What This Means for You: Scalable AI Inference for Future Growth



By uniting Intel Core Ultra with OpenVINO optimization—delivering up to 4.9x faster inference and 112x faster first-token latency—and Iternal Technologies' Blockify and AirgapAI, professional services finance organizations can harness AI at the edge, transforming manual invoice processing and reconciliation into intelligent, automated workflows without ever exposing sensitive financial information to third-party clouds.

Together, Intel and Iternal help Professional Services Finance Teams:

- **Automate Invoice Processing & Validation:** Extract, validate, and route invoices while slashing inaccuracies with Blockify's 78x accuracy improvement
- **Drive Compliant Operations:** Ensure every financial transaction respects regulatory requirements and audit standards
- **Accelerate Month-End Close:** Surface exceptions early and resolve issues faster with OpenVINO-optimized inference

- **Protect Sensitive Data:** Keep all client financial information, partner compensation, and competitive pricing within organizational boundaries with 100% offline operation

Enhancing Technology with Complete AI Enablement:

- **Maximize Investment:** The AI Strategy Blueprint ensures your deployment succeeds where 85% of AI initiatives fail
- **Accelerate Adoption:** AI Academy training builds workforce capability for faster time-to-value
- **Immediate Productivity:** 2,800+ Quick Start Workflows eliminate the learning curve for finance teams
- **White-Glove Support:** AI Assist Bundle provides end-to-end deployment services for enterprise rollouts

AI has moved from conceptual to operational in professional services finance. Whether processing invoices, reconciling intercompany transactions, or preparing confidential financial packages, Intel and Iternal deliver the secure, accurate, and scalable framework global professional services firms need to maintain operational excellence.