

Team Arizona

# Autonomous OSINT Investigation Swarm

Transforming weeks of manual research into minutes of  
autonomous analysis



Multi-Agent  
Architecture



forensic-style Evidence

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# The Investigation Paradox



## Time-Intensive Manual Work

Investigative journalists, fraud examiners, and due diligence teams spend extensive hours manually piecing together entity relationships from fragmented data sources scattered across the open web, public records, and proprietary databases.



## Fragmented Intelligence

Critical connections between entities remain hidden in disconnected datasets SEC filings, court records, social networks, and news archives requiring analysts to context-switch between dozens of platforms and interfaces.



## Risk of Human Error

Manual investigation processes are susceptible to oversight, cognitive biases, and incomplete coverage, especially when dealing with complex corporate structures spanning multiple jurisdictions and shell companies.



## The Opportunity

What if AI agents could autonomously research, connect, and verify entity relationships across all data sources simultaneously delivering comprehensive, forensic-style evidence reports in minutes instead of weeks?

# Introducing the Autonomous Swarm

A multi-agent AI system that revolutionizes investigative intelligence



## Autonomous Research

AI agents independently navigate the open web, and public records to gather intelligence on complex entities companies, individuals, and organizations without human intervention.

- ✓ **24/7 Continuous Operation**



## Relationship Mapping

Advanced graph algorithms and neural networks uncover hidden connections, ownership structures, and influence patterns that traditional investigation methods fail to detect.

- ✓ **Multi-Hop Relationship Discovery**



## forensic-style Reports

Every finding is backed by full audit trails, source citations, and confidence intervals ensuring evidence integrity and compliance with legal standards for litigation and regulatory proceedings.

- ✓ **Complete Chain of Custody**



## Target Users

Investigative Journalists • Fraud Examiners • Due Diligence Teams • Compliance Officers

Theoretical Time Reduction

**Weeks → Minutes**

# Lead Agent: The Orchestrator

Chain-of-Thought planning for intelligent task decomposition



## Intelligent Planning Engine

The Lead Agent employs Chain-of-Thought reasoning to break complex investigative queries into sequential, manageable sub-tasks each assigned to the most appropriate specialist agent.

### Example Decomposition:

- 1 "Find CEO connections" → Social Graph Agent
- 2 "Check SEC filings" → Corporate Agent
- 3 "Cross-reference sanctions lists" → Legal Agent



## Dynamic Task Allocation

Automatically routes sub-tasks to specialist agents based on their domain expertise, current workload, and data source requirements optimizing for both accuracy and speed.



## Iterative Refinement

Continuously evaluates intermediate results, identifies knowledge gaps, and triggers additional retrieval cycles ensuring comprehensive coverage before finalizing conclusions.



## Context Management

Maintains investigation context across all agents, ensuring findings from one specialist inform queries to others creating a cohesive, unified intelligence picture.

# Corporate Intelligence Agent

Deep analysis of corporate structures and financial disclosures



## SEC EDGAR Analysis

Leverages Retrieval-Augmented Generation (RAG) to analyze SEC EDGAR 10-K, 10-Q, and 8-K filings extracting ownership structures, executive compensation, related-party transactions, and material risk factors.

10-K Filings

10-Q Reports

8-K Events



## OpenCorporates Integration

Accesses OpenCorporates API via MCP connectors to map corporate networks across jurisdictions identifying beneficial owners, subsidiary relationships, and historical corporate changes.

 **Theoretical coverage: 120M+ companies globally**

## Red Flag Detection



### Shell Company Indicators

Nominee directors, circular ownership



### Related-Party Transactions

Undisclosed beneficial interests



### Jurisdiction Hopping

Frequent reincorporation patterns



### Financial Anomalies

Unusual revenue recognition



## MCP Connectors

Custom Model Context Protocol servers enable seamless, standardized access to SEC EDGAR and OpenCorporates APIs with unified query interfaces.

# Social Network Analysis Agent

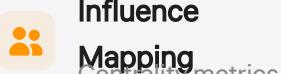
Graph Neural Networks for relationship intelligence



## Graph Neural Network Analysis

Employs state-of-the-art Graph Neural Networks (GNNs) to analyze social network structures, identifying influential nodes, community clusters, and anomalous connection patterns across professional and social platforms.

### Network Analysis Capabilities:



#### Influence Mapping

Centrality metrics



#### Path Discovery

Multi-hop connections



#### Community Detection

Cluster analysis



#### Anomaly Detection

Suspicious patterns



## Twitter/X Network Analysis

Analyzes follower relationships, retweet patterns, and mention networks to map information flow and identify coordinated influence operations.

Follower Graphs

Engagement Patterns



## LinkedIn Professional Graph

Maps professional connections, employment history, and organizational affiliations to uncover hidden business relationships and career trajectories.

Career Paths

Organizational Ties

## Hidden Connection Discovery

Uncovers non-obvious relationships through shared connections, overlapping networks, and temporal correlation analysis and revealing associations that surface-level investigation misses.

# Legal & Compliance Agent

Comprehensive legal intelligence and regulatory monitoring



## PACER Court Records

Utilizes RAG technology to analyze PACER (Public Access to Court Electronic Records) database extracting litigation history, case outcomes, party relationships, and judicial patterns from federal court proceedings.

- ✓ Civil litigation tracking
- ✓ Criminal case monitoring
- ✓ Bankruptcy proceedings



## State Business Filings

Accesses state-level business registration databases via MCP connector tracking entity formations, dissolutions, name changes, and registered agent modifications across all 50 states.

- 🔌 MCP-enabled state database integration

## Risk Indicator Detection



### Sanctions List Matches

OFAC, UN, EU sanctions screening



### Regulatory Actions

SEC, FTC, state AG enforcement



### Contract Disputes

Breach of contract patterns



### Financial Crimes

Money laundering indicators



## Compliance Monitoring

Continuous monitoring of regulatory changes, enforcement trends, and compliance requirements proactively alerting investigators to emerging risks and legal obligations.

# MCP Integration Layer

Model Context Protocol for seamless data connectivity



## Unified Data Access

The Model Context Protocol (MCP) architecture provides standardized, secure connections between AI agents and diverse data sources—eliminating integration complexity and enabling rapid deployment of new data connectors.

### MCP Server Ecosystem:

#### SEC EDGAR

Filing retrieval & analysis

#### OpenCorporates

Global corporate data

#### GDELT 2.0

Global news & events

#### Twitter API v2

Social network data



## Standardized Interface

All data sources expose consistent query interfaces enabling agents to interact with SEC filings, social media APIs, and court records using unified commands and response formats.



## Rapid Connector Deployment

New data sources can be integrated by developing MCP compliant connectors—reducing integration time from weeks to days and enabling continuous expansion of intelligence coverage.



## Secure Authentication

Built-in credential management and API key rotation ensure secure, compliant access to paid and restricted data sources without exposing sensitive authentication details.



## Public Data Sources

Leverages freely available datasets including SEC EDGAR API, OpenCorporates (theoretical 120M+ companies), GDELT 2.0 (theoretical 2.5TB news/events), and ICIJ Offshore Leaks Database.

# Self-Correction & Reflexion

Autonomous quality assurance through iterative refinement



## The Reflexion Pattern

Agents continuously critique their own findings, identify knowledge gaps, and autonomously trigger new retrieval cycles ensuring comprehensive coverage and minimizing oversight risks.

### 1 Self-Assessment

Agent evaluates completeness and confidence of current findings against investigation objectives

### 2 Gap Identification

System identifies missing information, unanswered questions, and areas requiring deeper investigation

### 3 Retrieval Triggering

New search queries are formulated and dispatched to appropriate specialist agents for follow-up

### 4 Convergence Check

Process repeats until confidence thresholds are met or diminishing returns indicate completion

## Example Reflexion Query

"Need to verify if CEO mentioned in Panama Papers database. Current findings show corporate connections but lack individual offshore entity verification."

→ Triggers ICIJ Offshore Leaks search



## Confidence Scoring

Every finding is assigned a confidence score based on source reliability, corroboration level, and evidence strength enabling investigators to prioritize high-confidence intelligence.



## Audit Trail Generation

Complete documentation of all search queries, data sources accessed, and reasoning steps ensuring transparency and reproducibility for legal and compliance purposes.

# Live Demonstration

Money laundering investigation with interactive knowledge graph

 Investigation Query  
**"Investigate Company X for money laundering red flags"**

The Lead Agent decomposes this request into parallel sub-tasks: corporate structure analysis, beneficial ownership mapping, sanctions screening, transaction pattern analysis, and adverse media monitoring.

## Execution Timeline

0-30 sec		Query decomposition
30-90 sec		Parallel data retrieval
90-180 sec		Analysis & synthesis
180+ sec		Reflexion & refinement



## Interactive Knowledge Graph

Visual network representation showing entities, relationships, and risk indicators with drill-down capabilities for detailed evidence inspection.

## Nodes

Entities & documents

## Edges

Relationships & flows



## Risk Score Dashboard

Composite risk scoring across multiple dimensions: regulatory, financial, reputational, and network-based indicators with trend analysis.



Risk Score



## Evidence Citations

Every finding hyperlinked to source documents with confidence intervals, enabling investigators to verify claims and build forensic-style case files.

# Transforming Investigative Intelligence at Scale

Weeks of manual research condensed into minutes of autonomous analysis while maintaining the highest standards of evidence integrity, auditability, and legal compliance.



## Autonomous

Self-directed multi-agent swarm



## Compliant

forensic-style evidence



## Scalable

Unlimited parallel investigations