MCP SERVER | NO CODE | CLOUD HOSTED

ABC-XYZ Inventory Classifier MCP for AI Agents

Optimizing Supply Chain Stock Levels with Value and Demand Stability

ABC-XYZ Inventory Classifier uses multi-dimensional analysis to grade every stock keeping unit (SKU). It grades items by economic value (A, B, C) and demand predictability (X, Y, Z), giving you a complete picture of your inventory risk. You can immediately identify which parts need Just-in-Time replenishment and which ones require larger safety buffers.

A+ Quality Score 100/100

inventory | abc-analysis | xyz-analysis | supply-chain | stock-optimization

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vinkius.com/mcp/abc-xyz-inventory-classifier

SCAN TO VIEW

The infrastructure that powers AI agents in the real world.

Vinkius connects AI to the world's software through secure, enterprise-grade infrastructure — enabling real-world execution at scale, built on the Model Context Protocol (MCP).

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the cloud infrastructure where AI agents connect to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

ABC-XYZ Inventory Classifier MCP

3 tools available
Cloud-hosted on Vinkius

Running out of stock or holding too much capital in slow-moving items costs money. This MCP gives your AI agent the intelligence needed to stop guessing about inventory levels. It connects raw SKU data with established supply chain methods: ABC analysis determines how critical an item is by its annual consumption value, while XYZ analysis gauges how predictable its demand is based on historical sales spikes and dips. By combining these two views, you move past simple reports. Your agent can instantly use this MCP to run `classify_abc_priority` and `classify_xyz_stability` to create a full picture of your stock portfolio. The final step, using the `get_strategy_matrix`, generates concrete management policies—telling you exactly what safety stock level or ordering frequency is needed for that specific item. Through Vinkius, this MCP turns simple data points into actionable purchasing and storage rules.

Core Capabilities

01 — Determine economic value priority

The system classifies SKUs into A (high value), B (medium value), or C (low value) based on their total annual consumption cost.

02 — Assess demand stability and predictability

It rates each SKU as X (stable/predictable demand), Y (moderate variability), or Z (highly irregular demand).

03 — Generate combined inventory management policies

The MCP cross-references both value and stability to recommend specific operational strategies, like JIT ordering or safety stock implementation.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/abc-xyz-inventory-classifier** — connect your AI agent in three steps.

01 You give your AI agent a list of SKUs along with their historical demand data and annual cost values.

02 The MCP first runs the individual classifications, determining both the ABC value priority and the XYZ stability rating for every item.

03 Finally, the system combines these two results to produce a specific management strategy matrix, detailing what actions you should take.

The bottom line is that instead of managing inventory based on one metric, this MCP lets you manage it based on both economic impact and demand reliability simultaneously.

Built For

This MCP targets Supply Chain Managers and Operations Analysts who are tired of receiving siloed reports. If your current process forces you to look at value data in one dashboard and demand volatility in another, this tool saves you hours of manual cross-referencing.

Inventory Analyst

Uses the MCP to automatically segment thousands of SKUs into manageable groups (e.g., 'High Value/Irregular Demand'), allowing them to prioritize auditing efforts.

Supply Chain Manager

Runs full portfolio analyses using `get_strategy_matrix` before major purchasing cycles, ensuring capital isn't tied up in slow-moving goods that don't need it.

Operations Planner

Uses the MCP to set dynamic safety stock levels for specific product lines, reducing overstocking risk when demand is highly volatile.

What Changes When You Connect

01 Reduces overstock risk. By classifying items as low value/irregular demand (C-Z), you avoid tying up capital in goods that sit on shelves, improving cash flow.

02 Improves purchasing accuracy. Use the `classify_abc_priority` tool to focus ordering efforts only on high-impact 'A' rated SKUs first.

03 Reduces stockouts. The MCP identifies critical items (like A-X) that require strict control and proactive replenishment, keeping your supply line moving smoothly.

04 Saves planning time. Instead of manually comparing separate ABC reports with XYZ sheets, the `get_strategy_matrix` compiles everything into one immediate plan.

05 Better capital allocation. You stop treating all inventory equally; you target resources where they yield the highest return.

Real-World Applications

Planning for seasonal product lines

A retail operations manager needs to know if their holiday stock is worth the risk. They ask their agent to run an analysis, which uses `classify_xyz_stability`. The agent flags a group of popular but volatile items (like Z-rated) that need highly flexible ordering policies.

Analyzing core product lines

A manufacturing plant manager needs to protect its most valuable parts. They run the `classify_abc_priority` tool and discover several 'A' rated components, immediately knowing which items need dedicated high-security inventory management.

Optimizing safety stock across a warehouse

An inventory team is overwhelmed by manual calculations. They use the MCP to run `classify_abc_priority` and `classify_xyz_stability`, then feed the results into the `get_strategy_matrix` to generate precise, tailored safety stock rules for every item.

Reducing write-offs on slow movers

A purchasing agent wants to identify goods that are both low value and have inconsistent demand. They run the full analysis via the MCP, finding a list of C-Z items that should be cleared out or sold in bulk promotions instead of being stored.

Patterns to Avoid

Only focusing on inventory value (ABC)

✗ AVOID

Assuming that because an item is highly valuable (A), it must also be the most important to manage, leading to over-investing in safety stock for stable, high-value items when they are already well-managed.

✓ INSTEAD

You must use both metrics. Run `classify_abc_priority` first, then cross-reference that result with `classify_xyz_stability`. This ensures you only allocate extra effort where the value is high *and* the demand is unpredictable.

Ignoring demand volatility (XYZ)

✗ AVOID

Running a report that simply identifies items as 'A' priority, but failing to see if their demand history is erratic. This results in either massive overstocking or immediate stockouts.

✓ INSTEAD

Always run `classify_xyz_stability` immediately after `classify_abc_priority`. The resulting matrix directs you on whether the risk comes from value (A) or unpredictability (Z).

Creating static, manual policies

✗ AVOID

Manually updating spreadsheets every quarter to adjust reorder points. This process is slow and often misses dynamic shifts in market demand.

✓ INSTEAD

Use the MCP's `get_strategy_matrix` tool. It generates up-to-date, actionable policies based on current classifications, making your inventory strategy responsive by default.

The Right Fit

You should use this ABC-XYZ Inventory Classifier if your inventory planning fails to account for both economic value and demand predictability simultaneously. If you only run reports that categorize items purely by cost (ABC), you risk mismanaging predictable, high-value goods because they are rarely truly 'critical' in a fluctuating market. Conversely, focusing only on stability (XYZ) ignores the financial impact of losing an item. Use this MCP when you need to determine precise safety stock levels or purchasing policies that factor in both how much an item is worth and how hard it is to predict its next sale cycle. Don't use it if your primary goal is merely reporting; use a simpler classification tool instead.

ABC-XYZ Inventory Classifier for Supply Chain Stock Classification

Today, inventory planning means logging into three different systems. You pull the annual consumption costs from your ERP, then export that list to a separate sheet to grade its value (A, B, or C). Next, you have to manually run historical sales data through another tool just to see if demand is stable or volatile. Finally, you spend hours in Excel trying to merge these three different classifications into one single policy recommendation.

With this MCP, your agent does the heavy lifting. You feed it the raw SKU list once. The system automatically handles both the ABC and XYZ grading, then uses `get_strategy_matrix` to give you a final, clean set of rules—telling you exactly what buffer stock or reorder frequency applies to every single item in one go.

ABC-XYZ Inventory Classifier for Demand Forecasting and Policy

You lose time cross-referencing these results. You might flag an 'A' item that is also Z-rated, but then have to manually check its current safety stock level against market fluctuations. This cycle of checking multiple tabs slows down decision-making and increases human error.

Now you get immediate clarity. The MCP provides a single output—the optimal strategy matrix. You don't just get a grade; you get the required action: 'Needs 60 days safety stock,' or 'Implement JIT ordering.' It makes your entire purchasing process faster and more reliable.

ABC-XYZ Inventory Classifier: 3 Tools for Supply Chain Stock Optimization

Use these tools to classify inventory by value, grade demand stability, and generate complete management strategies.

#	TOOL	DESCRIPTION
01	`classify_abc_priority`	Assigns a value class (A, B, or C) to an SKU based on its cumulative annual consumption cost.
02	`get_strategy_matrix`	Outputs actionable inventory policies by intersecting the ABC and XYZ classification results for optimal management.
03	`classify_xyz_stability`	Assigns a demand stability class (X, Y, or Z) to an SKU based on its historical sales volatility.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U What should my strategy be for SKU-450? It's high value, but demand is wild.

Strategy Matrix Recommendation

- **SKU-450 Classification:** A (High Value) / Z (Irregular Demand)
- **Recommended Policy:** High-Value, Irregular. Requires strict control and significant safety stock buffers to prevent costly stockouts.
- **Action:** Review supplier lead time quarterly.

U Can you check the ABC and XYZ grades for this batch of parts?

Inventory Classification Report

SKU	VALUE GRADE (ABC)	DEMAND STABILITY (XYZ)	SUGGESTED ACTION
12-Beta	A	X	JIT Replenishment
34-Gamma	C	Z	Safety Stock / Promo Sale
78-Delta	B	Y	Standard Ordering Cycle

U I have a new product line. How should I grade these five SKUs?

Initial Grading Results

- SKU-A: Value A, Stability X (Ideal for automated JIT)
- SKU-B: Value B, Stability Y (Standard ordering is fine)
- SKU-C: Value C, Stability Z (Needs manual review and bulk pricing)
- SKU-D: Value A, Stability Z (High risk; needs immediate safety stock policy review)

Frequently Asked Questions

01 **How does the ABC-XYZ Inventory Classifier help me decide on optimal safety stock?**

It determines safe stock levels by combining two factors. If an item is high value (A) and has unstable demand (Z), it automatically signals a need for larger buffers to prevent costly supply chain disruptions. It gives you actionable numbers, not just letters.

02 **Is this tool better than using basic ABC analysis alone?**

Yes. Basic ABC only looks at value. This MCP adds the XYZ layer, which accounts for demand predictability. You might have a high-value item (A) that is actually quite stable (X), meaning you don't need to overstock it; this tool tells you that.

03 **Can I use the ABC-XYZ Inventory Classifier with my existing ERP data?**

Yes. You pass your raw SKU data, including cost and historical demand figures, directly into the MCP through your AI client. It processes the data according to proven industry standards, acting as an intelligent layer on top of your current system.

04 **What kind of items get flagged for immediate attention?**

The tool flags high-value (A) and highly volatile (Z) items. These are the riskiest SKUs because a sudden dip in predictable demand could cause massive financial loss or operational shutdown. The strategy matrix shows you exactly why.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"abc-xyz-inventory-classifier": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

ABC-XYZ Inventory Classifier is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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