



Implementing Stablecoin Transactions in Oracle Fusion ERP

A Compliance-First Framework for Enterprise Blockchain Integration

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Abstract: This whitepaper demonstrates the Oracle ERP-focused stablecoin integration research, with DeSuite as the orchestration layer. We outline a compliance-first, modular framework using Oracle Integration Cloud (OIC), Fusion Payables, Payments, General Ledger (GL), Cash Management, and Autonomous Transaction Processing (ATP), paired with Circle USDC APIs, smart contracts, and Chainlink oracles. The research presents an enterprise-level adaptable framework for secure stablecoin integration into Oracle Fusion ERP Cloud, marking a significant milestone in Oracle ERP functionality in terms of faster cross-border settlement, lower cost, auditability, and improved liquidity management.

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1. Introduction

1.1 Background on Cross-Border Transactions and Oracle Fusion ERP

Oracle Fusion ERP Cloud underpins finance operations across multinational enterprises. Cross-border payments today rely on legacy correspondent banking rails (e.g., SWIFT, SEPA), introducing latency, costs, and compliance overheads. This paper recasts the Oracle methodology for Oracle Fusion ERP using OIC to orchestrate stablecoin settlements (USDC) and on-chain flows, with DeSuite as the canonical middleware.

1.2 Limitations of Fiat and Traditional Payment Systems

Traditional rails suffer from multi-day finality, multi-intermediary fees, and limited real-time visibility. In Oracle ERP contexts, this appears as longer AP cycles, manual reconciliation, batch-status dependencies, and delayed cash positioning.

1.3 Emergence and Potential of Stablecoins

Stablecoins are a new class of digital assets that seek to leverage the benefits of blockchain technology while avoiding the price stability associated with traditional fiat currencies. These assets, including USDC, USDT, EURC, KSGD, are pegged to real world currencies like the US Dollar, Euro or SGD, and therefore are designed to minimize volatility making them ideal for financial transactions that require stable value. Unlike other cryptocurrencies that tend to experience extreme price changes, stablecoins are generally backed by reserves stored in bank accounts or regulated custodians, or are controlled algorithmically through market incentives.

These assets are constructed on blockchains because they offer transparency, auditability, and programmability. Permitting near-instant settlement is among the most important attributes of stablecoins. Unlike traditional payment schemes that process payments in batches or during restrictive banking hours, stablecoin payment systems operate 24/7, usually settling transactions in a matter of seconds. Stablecoins have the potential to greatly reduce time and costs associated with payments made internationally.

Programmability is another distinct advantage. Stablecoins can be moved with smart contracts which allow payment to be made based on predefined conditions. For instance, a smart contract within an Oracle ERP workflow could be configured to automatically trigger payments when a shipment is acknowledged, or when a digital invoice is validated. Such features can improve the quality of financial workflows by mitigating fraud, errors, or delays.

1.4 Oracle ERP and Permissioned Blockchains

Oracle's initiative to integrate enterprise systems with distributed ledger technologies is in the form of Oracle Blockchain Platform (OBP). However, this is based on a permissioned blockchain structure which makes it an island of sorts in terms of liquidity and interoperability. Apart from this, the use of blockchain technology in Oracle ERP systems remains limited because of lack of uniform standards, regulatory uncertainty, complex proprietary systems, and many other non-technical factors.

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1.5 DeSuite: Oracle-first Public Blockchain Middleware

Decentralized trust is the most important defining characteristic of blockchain technology, and the very same characteristic serves as an enhancement for ERP functions. Smart contracts enable further automation of processes in ERP systems, so the logic-based execution of invoice reconciliation, payment release, and order shipment can be done without human intervention. Such systems have the potential to not only lower transactional costs, but also expedite the transactions themselves.

DeSuite envisions the stablecoin cross-border payment system as an extension of the existing Oracle ERP financial modules, incorporating smart contracts alongside supplemented blockchain API endpoints. The integration framework is modular so that Oracle ERP's internal logic and architecture are preserved and unaltered, yet still able to communicate with decentralized stablecoin ecosystems like Ethereum, Polygon and other public blockchain networks.

DeSuite and OBP Comparison

FEATURE	PUBLIC BLOCKCHAIN (VIA DESUITE)	PERMISSED BLOCKCHAIN (VIA OBP)	VERDICT
Liquidity	Global & Deep. Access established stablecoins (USDC) and global DeFi capital pools instantly.	Walled Garden. Liquidity is trapped within the consortium. Assets are illiquid outside.	DeSuite Wins
Interoperability	Universal Standards. Connects to any wallet or dApp globally via ERC-20/721.	Bilateral Trust. Requires costly custom integration for every new counterpart.	DeSuite Wins
Cost Basis	Low & Variable. Pay-as-you-go on shared infrastructure (L2s). No license fees.	High Fixed Cost. High licensing, governance, and node maintenance fees.	DeSuite Wins
Security	Decentralized. Guaranteed by billions in global economic consensus rules.	Centralized Risk. Relies entirely on the integrity of the founding consortium members.	DeSuite Wins

2. Methodology — Oracle Fusion ERP Integration

DeSuite provides a canonical finance model (Invoice, Payment, LedgerEntry) and orchestrates Circle payouts and direct on-chain transfers via a unified API. For Oracle Fusion ERP, DeSuite integrates through OIC recipes and accelerators, normalizes webhooks, and posts GL journals with blockchain metadata (tx hash, network, fees, provider).

2.1 Framework Design: Integrating Stablecoin APIs via OIC

Business events from Fusion Payables (e.g., Invoice Ready for Payment) trigger OIC flows. For Circle, OIC invokes Circle APIs; for on-chain, OIC calls DeSuite's Node.js Signer Utility (Phase 1) or Unified Orchestrator (Phase 2). Confirmations arrive via HMAC-signed webhooks into OIC, which updates Oracle Payables and posts GL entries (REST or FBDI).

Key Oracle components:

- Oracle Integration Cloud (OIC): REST/ERP Cloud Adapters; Insight; Lookups.
- Oracle Fusion Payables & Payments: source events and payment lifecycle updates.
- Oracle Fusion General Ledger (GL) & SLA: journal posting and attributes.
- Oracle Cash Management: cash position, bank accounts; optional stablecoin wallet references.
- Oracle Autonomous Transaction Processing (ATP): idempotency, correlation, audit trail.
- Oracle Cloud Infrastructure (OCI) Vault: secrets (API keys, HMAC, RPC URLs).

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2.2 Smart Contract Execution Flow

Upon AP readiness, OIC constructs a settlement request with a deterministic idempotency key and routes it per policy to Circle or On-Chain. On-chain transfers are signed by DeSuite Signer (Node.js, Phase 1) or Unified Orchestrator (Phase 2). Confirmations are broadcast via RPC. Chainlink price oracles may supply FX conversion for ledger narratives. Webhooks (HMAC) return tx hash and confirmations to OIC. OIC updates Payables and posts GL journals with provider/network/tx_hash attributes.

2.3 Canonical Data Model

The following JSON object illustrates the standardized data structure used to communicate between Oracle ERP and the blockchain layer.

```
{ "Invoice": { "InvoiceId": "INV-20251215-001", "SupplierId": "9876543210987654", "Status": "Open", "Currency": "USD", "Status": "Ready for Payment" }, "Payment": { "RequestId": "REQ-20251215-ABC123", "IdempotencyKey": "IDEMP-XYZ7890", "Provider": "circle", "Network": "ETH", "Token": "USDC", "Status": "Completed" }, "LedgerEntry": { "JournalSource": "DeSuite", "Attributes": { "TxHash": "Exabc123...", "Request": "REQ-20251215-ABC123" } } }
```

2.4 Oracle Fusion ERP Modules & Integration Points

2.5 Real-Time FX Handling via Chainlink

DeSuite can query Chainlink oracles for FX rates to annotate GL narratives and reconciliation reports. Oracle ERP retains functional currency accounting; stablecoin amounts are recorded in the journal lines and attributes.

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3. Security & Compliance

Controls aligned to MAS and enterprise standards:

- **Secrets Management:** Secrets in OCI Vault; least-privilege IAM; rotate and monitor.
- **Verification:** Webhook HMAC verification; timestamp/hNonce; IP allowlists.
- **Idempotency:** Idempotency keys to prevent double-spend; ATP event dedupe.
- **Audit Trails:** Immutable logs; GL attributes: provider, network, tx_hash, request_id.
- **Custody:** Key custody migration path: MVP hot wallet → MPC/HSM custody (Phase 2-3).
- **Policy Engine:** Transaction caps, jurisdiction gating, vendor KYC flags (stored in ERP vendor master extensions).

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4. Example: Oracle GL Journal Payload (REST)

This payload demonstrates how on-chain data is formatted for ingestion into Oracle General Ledger.

```
{ "ledger": "Primary Ledger", "accountingDate": "2025-01-02", "journalCategory": "Blockchain Settlement", "lines": [ { "account": "2010-AP-USDC", "debit": "1230.00", "description": "Invoice INV-20251215-001 paid via USDC" }, { "account": "6999-Network-Fees", "debit": "2.00", "description": "Network Fee" } ], "attributes": { "provider": "onchain", "transactionHash": "Exabc123def...", "gasFee": "0.00042 ETH" } }
```

5. BI Publisher Sample Reconciliation Reports

Purpose: Provide finance teams a single view to reconcile ERP vs settlement state (Circle/On-Chain).

Data Sources: Oracle Fusion ERP (Payables, GL), Oracle ATP (DeSuite ledger), DeSuite Orchestrator.

Sample SQL (ATP Data Model)

```
SELECT p.invoice_id, p.supplier_id, p.amount, p.currency, p.provider, p.network, p.token, p.request_id, p.status, p.tx_hash, p.confirmations, p.created_at, e.event_id, e.type AS event_type, e.request_id, e.provider, e.network, e.tx_hash, e.request, e.attributes, e.provider, e.transactionHash, e.gasFee FROM DESUITE_PAYABLES_P p, DESUITE_EVENTS e, DESUITE_GL_SUMMARY g WHERE e.request_id = p.request_id AND g.request_id = e.request_id AND p.created_at >= e.start_date AND e.end_date ORDER BY p.created_at DESC;
```

Recommended Layouts

- **Recon Summary:** Counts by provider/network, completed/failed/pending.
- **Variance View:** Invoice amount vs settled amount, fee impact, FX adjustments.
- **Exception List:** Stalled transactions, failed webhooks, GL posting errors.

6. Deployment & Packaging

Promote OIC packages across DEV > TEST > PROD with externalized lookups and Vault references. Publish recipes/accelerators:

- Invoice → USDC Payment (Circle & On-Chain options).
- Webhook → ERP update → GL journal posting.
- Reconciliation → periodic status check and GL reports.

7. Results & Expected Impact

Based on the internal empirical results, enterprises can expect significant latency reduction (minutes vs hours) and lower per-transaction fees (cents vs dollars) when adopting stablecoin rails for cross-border payments, with improved auditability and liquidity management.

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8. About the Founder

Manish Kumar

FOUNDER & CEO, DESUITE

A visionary leader at the intersection of enterprise technology and decentralized innovation, Manish is the driving force behind DeSuite. With a unique blend of deep corporate ERP expertise and advanced Web3 technical proficiency, Manish is uniquely positioned to architect solutions that bridge the complex divide between traditional enterprise systems and the transformative power of blockchain.

Professional Journey: Mastering Enterprise Systems

Manish's professional journey spans over 11 years of dedicated experience in the intricate world of Oracle ERP, focusing on both Oracle E-Business Suite and cutting-edge Oracle Fusion Cloud ERP. This extensive tenure has cultivated a profound understanding of enterprise financial and operational processes.

As a Senior Engineer at industry giants like Accenture and Oracle, Manish honed a robust technical skillset, becoming proficient in critical Oracle technologies including:

- Oracle Integration Cloud (OIC): REST/ERP Cloud Adapters; Insight; Lookups.
- Oracle Fusion Payables & Payments: source events and payment lifecycle updates.
- Oracle Fusion General Ledger (GL) & SLA: journal posting and attributes.
- Oracle Cash Management: cash position, bank accounts; optional stablecoin wallet references.
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