**Business Requirements Document**

**ETRM Solution Implementation**

Version 1.1

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**Revision History**

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| 1.1 | 17-Jun-2025 | Shanna | * Section 4.1 – Added functional requirements for Indirect Tax. * Section 8.1 – Added new section for Glossary. |
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**Document Approval**

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# Introduction

## Background

*This BRD was prepared for a fictional company from information resulting in the “Build Your Own BA Project With AI” 5-Day Challenge hosted by Bayode (Dona) Simpson on LinkedIn. In addition to the provided script, I used additional prompts to get more information to complete the BRD.*

## Project Summary

Our company, a large-scale player in the oil & gas products trading sector, is facing critical operational challenges stemming from outdated Energy Trading and Risk Management (ETRM) systems and heavily manual, fragmented workflows. These inefficiencies have led to inconsistent data, operational bottlenecks, increased error rates, compliance risk, and a lack of real-time visibility across trading, logistics, and financial processes.

To address these pain points, we are launching a strategic initiative to implement an integrated, automated ETRM solution. This modern platform will unify and automate the full trade lifecycle—including front office (deal capture, trade booking), mid office (risk monitoring, scheduling), and back office (actualization, billing, and accounting) functions. The new system will serve as a centralized source of truth, enabling timely, accurate, and informed decision-making across our global operations.

This transformation will not only reduce operational costs and improve internal controls but also empower the business to respond more effectively to market fluctuations, regulatory demands, and competitive pressures.

## Objectives

* **Centralize ETRM Operations:** Replace legacy systems and spreadsheets with a unified platform to manage end-to-end trading and risk processes.
* **Automate Core Processes:** Reduce manual effort and eliminate data duplication by automating booking, scheduling, actualization, invoicing, and accounting workflows.
* **Improve Data Quality & Visibility:** Ensure a single source of truth for operational, financial, and risk data to enable real-time monitoring and reporting.
* **Enhance Risk Management:** Provide real-time visibility into exposures, P&L, and position management to support faster and smarter trading decisions.
* **Integrate with Enterprise Systems:** Seamlessly connect with ERP, tax engines, market data feeds, and logistics systems to enable end-to-end process flow.
* **Increase Operational Efficiency:** Reduce turnaround times, increase throughput, and eliminate operational redundancies to drive cost savings.
* **Support Regulatory Compliance:** Enable stronger audit trails, segregation of duties, and financial controls to meet internal and external compliance requirements.
* **Improve Scalability & Flexibility:** Implement a future-ready, configurable ETRM system capable of supporting business growth and adapting to changing market demands.

# Project Scope

## In Scope

**1. Implementation of Core ETRM Modules**

* Trade capture, scheduling, actualization, billing, and risk reporting modules.
* Focus on front+, mid, and back office integration.

**2. Integration with Key Internal Systems**

* Interfaces with ERP (e.g., SAP), tax systems, inventory systems, and master data repositories.
* Real-time or batch data flows between ETRM and financial/accounting tools.

**3. Data Migration and Cleansing**

* Migration of relevant master and transactional data from legacy systems.
* Data validation rules and mapping included to ensure integrity in the new system.

## Out of Scope

**1. Upgrades or Overhauls of Upstream/Downstream Systems**

* For example, revamping pipeline SCADA, refinery planning tools, or truck dispatch systems is excluded.

**2. Enterprise-Wide Data Warehouse Redesign**

* While ETRM data may feed reporting systems, rebuilding the full EDW or BI infrastructure is a separate initiative.

**3. Global Rollout**

* This phase may be focused only on one region or business unit (e.g., North America fuels trading); international subsidiaries will be addressed in future phases.

# System Perspective

This section describes external and internal factors that could impact the project’s success, including technical, business, and operational considerations.

## Assumptions

|  |  |
| --- | --- |
| **ID** | **Description** |
| A1 | Required funding and executive sponsorship for the full lifecycle of the ETRM implementation are secured and will remain in place. |
| A2 | All critical business units (Front, Middle, Back Office) will provide Subject Matter Experts (SMEs) and allocate sufficient time for workshops, testing, and training. |
| A3 | Existing legacy system data (contracts, trades, inventory, pricing, tax configurations) can be extracted, transformed, and migrated into the new ETRM platform with acceptable accuracy. |
| A4 | Interfaces with external systems (ERP, tax engines, logistics providers, market data feeds, etc.) are technically feasible and resources from those systems will be available for integration. |
| A5 | Business processes (e.g., trade capture, scheduling, invoicing, actualization) can be standardized across regions and commodities to align with system workflows. |
| A6 | The chosen ETRM vendor/platform will support the required commodity types, trading instruments, physical movement, and settlement logic out-of-the-box or with reasonable customization. |
| A7 | All regulatory, compliance, and audit requirements (including for indirect tax, reporting, and audit trails) will be identified early and incorporated into the design. |
| A8 | The project will have access to accurate and up-to-date master data (products, locations, units of measure, counterparties) prior to migration and go-live. |
| A9 | Change management, user adoption, and training programs will be adequately funded and supported by leadership to ensure smooth transition from manual to automated processes. |
| A10 | Project scope will be managed carefully, and any changes will follow a formal change control process to prevent scope creep. |
| A11 | There will be no major organizational restructures, acquisitions, or divestitures during the implementation that could significantly impact requirements or resourcing. |
| A12 | Key users will be available during User Acceptance Testing (UAT) to validate the solution thoroughly and ensure business readiness. |

## Constraints

|  |  |
| --- | --- |
| **ID** | **Description** |
| C1 | **High Implementation Costs:** Significant upfront investment required for software acquisition, customization, and integration with existing systems. |
| C2 | **Integration Complexity:** Challenges in integrating the new ETRM system with legacy systems and ensuring data consistency across platforms. |
| C3 | **Change Management:** Resistance from staff accustomed to existing processes; necessitates comprehensive training and change management strategies. |
| C4 | **Data Security and Compliance:** Ensuring the new system meets stringent data security standards and complies with data protection regulations. |

## Risks

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Description** | **Impact** | **Mitigation Strategy** |
| R1 | Data from legacy systems may be inconsistent, incomplete, or inaccurate | Poor analytics, failed transactions, decision delays | Conduct early data profiling and cleansing; validate migration rules |
| R2 | Users may resist moving from manual processes to new automated system | Low user adoption, use of offline tools, rework | Involve users in design and testing; provide role-based training and change champions |
| R3 | Integration complexity across ERP, tax, inventory, and logistics systems | Delays, data mismatches, reconciliation issues | Conduct early architecture reviews and define interface specs and responsibilities |
| R4 | Vendor underperformance (delays, low quality, misalignment) | Missed milestones, scope creep, additional cost | Define clear SLAs, payment milestones, and hold regular vendor QA reviews |
| R5 | ETRM system may not fully meet tax or regulatory compliance needs | Audit issues, financial penalties | Engage Tax/Compliance early; include scenarios in UAT and testing scripts |
| R6 | Scope creep due to additional stakeholder feature requests mid-project | Budget overruns, timeline extension | Implement formal change control process and prioritize core MVP functionality |

## Issues

| **ID** | **Description** | **Impact** | **Resolution Approach** |
| --- | --- | --- | --- |
| I1 | Users still rely on Excel/email/manual processes for trade execution | Data fragmentation, rework, increased errors | Map manual processes early and automate them in ETRM workflows |
| I2 | Different teams use inconsistent terminology (e.g., “movement” vs. “shipment”) | Miscommunication, confusion in design and testing | Conduct terminology alignment workshops and define data dictionary |
| I3 | Scheduling practices vary by business unit | Inconsistent execution and delays in product movement | Standardize scheduling workflows as part of system design phase |

# Business Requirements

This section documents the core business requirements, categorized into functional and non-functional requirements.

## Functional Requirements

The list below describes the top seven high level functional requirements.

| **Req#** | **Description** |
| --- | --- |
| HLR 1 | **End-to-End Trade Lifecycle Management:** Automate the entire trading process, including deal capture, scheduling, actualization, settlement, and invoicing, to eliminate manual interventions and reduce errors. |
| HLR 2 | **Real-Time Risk Analytics:** Implement tools for real-time monitoring of market, credit, and operational risks, including Value-at-Risk (VaR) calculations, stress testing, and scenario analysis, to enhance risk mitigation strategies. |
| HLR 3 | **Integrated Logistics and Scheduling:** Facilitate seamless coordination of physical commodity movements through integration with transportation management systems, enabling efficient scheduling and tracking. |
| HLR 4 | **Regulatory Compliance and Reporting:** Ensure the system supports compliance with international regulations such as Dodd-Frank, EMIR, and MiFID II, providing automated reporting and audit trails. |
| HLR 5 | **Scalable Architecture with Open APIs:** Adopt a modular system architecture that allows for scalability and integration with existing enterprise systems (e.g., ERP, CRM) through open and configurable APIs. |
| HLR 6 | **Advanced Analytics and Forecasting:** Incorporate predictive analytics and machine learning capabilities to forecast market trends, optimize trading strategies, and improve decision-making processes. |
| HLR 7 | **User-Friendly Interface and Customizable Dashboards:** Provide intuitive user interfaces with customizable dashboards to cater to the specific needs of different user roles, enhancing user adoption and efficiency. |

The list below describes functional requirements in more detail.

| **Req#** | **Functional Area** | **Requirement** | **Description** |
| --- | --- | --- | --- |
| DLR 1.01 | **Trade Capture & Booking** | Multi-commodity deal capture | Ability to input and manage trades across oil, refined products, and other energy commodities. |
| DLR 1.02 | **Trade Capture & Booking** | Trade templates | Pre-configured templates for recurring trade types (e.g., spot, term, swaps). |
| DLR 1.03 | **Trade Capture & Booking** | Real-time trade validation | Automatic validation of trades against credit, pricing, and risk limits. |
| DLR 1.04 | **Actualization** | Trade-to-movement linking | Associate physical movements to trades for proper reconciliation. |
| DLR 1.05 | **Actualization** | Tolerance checks | Identify volume or quality discrepancies between planned vs. actual deliveries. |
| DLR 1.06 | **Actualization** | Split/blend functionality | Handle partial deliveries, blending, and volume conversions. |
| DLR 1.07 | **Invoicing & Billing** | Automated invoice generation | Generate invoices based on confirmed deliveries and contract terms. |
| DLR 1.08 | **Invoicing & Billing** | Tax calculation | Integrate with tax engines to apply correct VAT, excise, or customs duties. |
| DLR 1.09 | **Invoicing & Billing** | Dispute management | Workflow to log and resolve invoice disputes or payment differences. |
| DLR 1.10 | **Accounting Integration** | GL mapping | Ability to map trades and transactions to ERP chart of accounts. |
| DLR 1.11 | **Accounting Integration** | Accruals & settlements | Automate accounting accruals and trigger actual settlements upon delivery. |
| DLR 2.01 | **Pricing & Valuation** | Price curve integration | Interface with external market data providers (e.g., Platts, Argus, ICE). |
| DLR 2.02 | **Pricing & Valuation** | Formula-based pricing | Support for complex pricing formulas (e.g., index-linked, average-of). |
| DLR 2.03 | **Pricing & Valuation** | Daily mark-to-market (MTM) | Automated valuation of positions and trades using current market prices. |
| DLR 2.04 | **Risk Management** | Position & exposure reporting | Real-time P&L, positions, and risk dashboards (e.g., VaR, Greeks). |
| DLR 2.05 | **Risk Management** | Limit monitoring | Track breaches of trading, credit, or operational limits. |
| DLR 2.06 | **Risk Management** | Hedge management | Manage financial derivatives to hedge physical positions. |
| DLR 3.01 | **Scheduling & Logistics** | Integrated scheduling module | Supports nominations, confirmations, and shipping instructions (pipeline, truck, rail, vessel). |
| DLR 3.02 | **Scheduling & Logistics** | Movement tracking | Real-time visibility into physical movements and status updates. |
| DLR 3.03 | **Scheduling & Logistics** | Inventory management | Track inventory across terminals, tanks, and in-transit volumes. |
| DLR 4.01 | **Contracts & Documentation** | Contract repository | Centralized storage of commercial agreements, Ts&Cs, and trade documents. |
| DLR 4.02 | **Contracts & Documentation** | Counterparty onboarding | Integrated workflow for managing counterparty KYC and credit terms. |
| DLR 4.03 | **Contracts & Documentation** | Compliance checks | Support sanctions screening, tax rules, and internal compliance workflows. |
| DLR 4.04 | **Compliance** | Reconciliation reports | Enable recon between ETRM, ERP, and bank/payment systems. |
| DLR 4.05 | **Compliance** | Audit trails | Full traceability of data changes and user actions. |
| DLR 4.06 | **Compliance** | Regulatory reporting | Support for EMIR, REMIT, SOX, or local jurisdiction reporting needs. |
| DLR 4.07 | **Indirect Tax** | Seamless Integration with Specialized Tax Engines | Given the complexity and frequent changes in indirect tax regulations, it's essential that the ETRM system integrates with specialized tax engines (e.g., Avalara, Thomson Reuters). These engines provide up-to-date tax rates and rules, ensuring accurate tax calculations across various jurisdictions and products. |
| DLR 4.08 | **Indirect Tax** | Real-Time Tax Determination and Calculation | The ETRM system should support real-time tax determination based on transaction details such as product type, location, and counterparty information. This capability ensures that taxes are accurately calculated at the point of transaction, reducing the risk of errors and non-compliance. |
| DLR 4.09 | **Indirect Tax** | Management of Tax Exemptions and Licenses | Managing tax exemptions and licenses is critical in the oil and gas industry. The ETRM system should track and apply relevant exemptions, certificates, and licenses for each counterparty, ensuring that tax treatments are correctly applied and documented. |
| DLR 4.10 | **Indirect Tax** | Comprehensive Audit Trail and Reporting | To facilitate compliance and audit readiness, the ETRM system must maintain a detailed audit trail of all tax-related transactions and decisions. It should also provide comprehensive reporting capabilities, allowing for easy generation of tax reports required by various regulatory bodies. |
| DLR 4.11 | **Indirect Tax** | Accommodate Regulatory Changes | The ETRM system should be scalable and flexible to adapt to changes in tax laws and business operations. This includes the ability to handle new tax jurisdictions, products, and transaction types without significant system overhauls. |
| DLR 5.01 | **Architecture & Integration** | ERP and TMS integration | Seamless interfacing with SAP, Oracle, or other ERP/TMS solutions. |
| DLR 5.02 | **Architecture & Integration** | Real-time data sharing | Enable APIs and messaging for live updates and alerting. |
| DLR 5.03 | **Architecture & Integration** | Role-based access control | Secure access and user provisioning based on business roles. |
| DLR 6.01 | **Advanced Analytics** | Trading Strategy Optimization | Recommend trading strategies based on pricing spreads, freight rates, and market indicators. |
| DLR 6.02 | **Advanced Analytics** | Margin Analysis | Analyze margins in real-time across trades, counterparties, and products. |
| DLR 7.01 | **Custom Dashboards** | Custom dashboards | Role-based dashboards for front, mid, and back office users. |

## Non-Functional Requirements

The list below describes system attributes such as performance, security, scalability, usability, and reliability. These requirements ensure the system meets operational and user expectations.

|  |  |
| --- | --- |
| **Req#** | **Description** |
| NFR 1 | **Performance**: System should support high transaction volumes with minimal latency. |
| NFR 2 | **Scalability**: Ability to scale horizontally to accommodate business growth. |
| NFR 3 | **Security**: Compliance with industry-standard security protocols and data protection regulations. |
| NFR 4 | **Availability**: System uptime of 99.9% to ensure continuous operations. |

# Stakeholder Analysis

Identifies key stakeholders, their roles, and their interest in the project. This ensures proper communication, alignment, and engagement throughout the project lifecycle.

**Internal**

|  |  |  |
| --- | --- | --- |
| **Stakeholder Group** | **Description** | **Project Role or Interest** |
| Executive Leadership & Project Sponsor | Provide strategic direction, approve resources, and champion change both front and back office | Sponsor, approve investment, measure strategic ROI |
| Front Office Trading Teams | Traders, schedulers, and deal desks who will rely on real‑time deal capture, workflow automation, and risk analytics. | Primary users; expect speed, usability, and visibility |
| Back Office Operations | Includes settlement, billing, accounting, and treasury teams needing seamless integration of trade actuals, invoicing, and GL posting | Need reliable booking, actualization, invoicing |
| Risk & Compliance Teams | Responsible for risk modeling, regulatory reporting, audit trails, and ensuring compliance with Dodd‑Frank, EMIR, etc.. | Require real-time analytics, audit trails, reporting |
| IT Department / Solution Architects | Oversee system configuration, integrations (ERP, TMS, CRM), data quality, security, and ongoing support | Ensure full integration, reliability, and security |
| Finance & Procurement Teams | Support budgeting, ROI assessments, pricing, and supplier/vendor management | Track costs, savings, vendor terms |

**External**

|  |  |  |
| --- | --- | --- |
| **Stakeholder Group** | **Description** | **Project Role or Interest** |
| Logistics & Transportation Partners | Essential collaborators for coordinating scheduling, capacity, and confirmations, ensuring data flows bidirectionally. | Improve efficiency in physical movements |
| Suppliers, Vendors & Third‑Party Brokers | Provide product volumes and logistics data; their systems need integration and real-time collaboration. | Exchange trade/invoice data, maintain compliance |
| Regulatory Bodies & Auditors | Require periodic disclosures on trades, risk exposure, environmental impact, and must validate audit-readiness | Validate data, ensure compliance |
| Industry Standards Groups | Entities like Energistics may offer standards (e.g., WITSML, PRODML) for streamlined data exchange with industry partners | Guide best practices in data interoperability |

Drawing from stakeholder theory and supply‑chain best practices, identifying who influences or is affected by the ETRM project helps in prioritizing engagement. High-power, high-interest groups like executive leadership, traders, IT, and risk/compliance teams should be closely managed. External partners and regulators also need structured communication channels to ensure smooth integration and compliance.

# Success Criteria

The following metrics will be used to measure success:

* **Operational Efficiency:** Measure the reduction in manual processes and time taken to complete trading cycles post-implementation.
* **Risk Exposure Reduction:** Track the decrease in unhedged positions and the effectiveness of risk mitigation strategies enabled by the new system.
* **Regulatory Compliance Rate:** Monitor the accuracy and timeliness of regulatory reporting to ensure full compliance.
* **System Uptime and Reliability:** Assess the stability of the ETRM system by tracking system uptime and the frequency of technical issues.
* **User Adoption Rate:** Evaluate the percentage of staff effectively utilizing the new system and their proficiency levels.
* **Return on Investment (ROI):** Calculate the financial benefits realized from the system against the total cost of ownership over a defined period.

# Dependencies

Below is a list of factors that the project depends on.

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Dependency Description** | **Impact if Delayed** | **Management Strategy** |
| D1 | ERP system integration for accounting, inventory, and settlements | Blocked financial processes, delayed go-live | Coordinate test schedules with ERP team and agree on data exchange formats early |
| D2 | Indirect Tax team must provide configuration and logic for taxes | Inaccurate tax calculations, non-compliance | Engage Tax team early; define config timelines and validate during testing |
| D3 | Data exchange with 3rd-party logistics systems (e.g., pipelines, marine) | Incomplete movement data, scheduling delays | Initiate external partner communication early and align on data specs and timing |
| D4 | Clean and consistent master data (e.g., products, locations, counterparties) | Incorrect transaction processing, reporting issues | Assign ownership and cleanse master data before go-live |
| D5 | Availability of business SMEs for workshops, design sessions, and testing | Delayed requirements gathering and UAT | Secure SME allocation in project resource plan and escalate conflicts promptly |

# Appendices

## Glossary

| **Term** | **Definition** |
| --- | --- |
| **Accounting** | Recording financial entries such as revenue, cost of goods sold (COGS), accruals, and tax in the financial ledger. Often integrates with ERP systems. |
| **Actualization** | Recording the actual physical movement (volume/date/location) of the commodity, which may differ from the original scheduled or traded amounts. |
| **Back Office** | Operational and financial functions including confirmations, settlements, invoicing, accounting, and reconciliations. |
| **Billing** | Generating invoices for counterparties based on contractual terms, prices, volumes, and movements. |
| **Change Management** | Structured approach to transitioning users, processes, and technologies to the new system to ensure adoption and minimize disruption. |
| **Counterparty** | The other party involved in a trading contract or financial transaction. |
| **Data Migration** | The process of transferring historical and master data from legacy systems to the new ETRM solution. |
| **Derivative Instrument** | A financial contract whose value is based on an underlying commodity or asset (e.g., futures, swaps, options). |
| **ETRM (Energy Trading and Risk Management)** | A software platform used to manage trading, risk, logistics, and financial operations in energy and commodities markets. |
| **Front Office** | Business functions that focus on trade capture, deal pricing, market exposure, and customer engagement. |
| **Go-Live** | The point at which the ETRM solution becomes the production system for day-to-day operations. |
| **Indirect Tax** | Taxes applied to transactions, such as VAT, excise, and duties, often requiring integration with specialized tax calculation engines. |
| **Integration Layer** | Software components or middleware that connect the ETRM system with other internal or external systems (e.g., ERP, tax engines). |
| **Mark-to-Market (MTM)** | Valuation method that reflects the current market value of open positions or contracts. |
| **Master Data** | Core reference data (e.g., products, locations, units of measure, counterparties) used across all ETRM processes. |
| **Middle Office** | Functions that manage market risk, credit risk, compliance, and analytics related to trading activities. |
| **Physical Commodity** | A tangible energy product such as crude oil, gasoline, diesel, or LNG that is bought, sold, transported, and stored. |
| **Risk Management** | The identification, analysis, and mitigation of risks (market, credit, operational) associated with trading activities. |
| **Scheduling** | The process of planning and coordinating the physical movement of commodities (e.g., oil, gas, refined products) between locations. |
| **Settlement** | The financial closing of a trade, including payment and receipt of funds. |
| **Trade Capture** | The process of entering and recording trade transactions into the ETRM system. |