



CASE STUDY

Multinational Operational Digitization for a Singaporean Recycling Enterprise

Utilizing Microsoft Dynamics 365 BUSINESS CENTRAL



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PROJECT OVERVIEW

Solution:

Microsoft Dynamics 365 Business Central.

Core Achievement:

Successfully automated ~17 end-to-end processes.

Key Impact:

70% reduction in administrative and payment processing time.
90% reduction in financial reconciliation discrepancies

Project Overview

Luvina Software has successfully concluded a comprehensive Digital Transformation (DX) initiative for BS Recycling Pte Ltd, a leading industrial scrap recycling enterprise in Singapore with an operational network spanning five countries. By replacing fragmented manual systems with the Microsoft Dynamics 365 Business Central platform, this project has successfully automated approximately 17 core processes. This strategic implementation has empowered the client to reduce administrative and payment processing time by 70%, while simultaneously decreasing financial reconciliation discrepancies by up to 90%

Customer: BS Recycling Pte Ltd (Singapore)

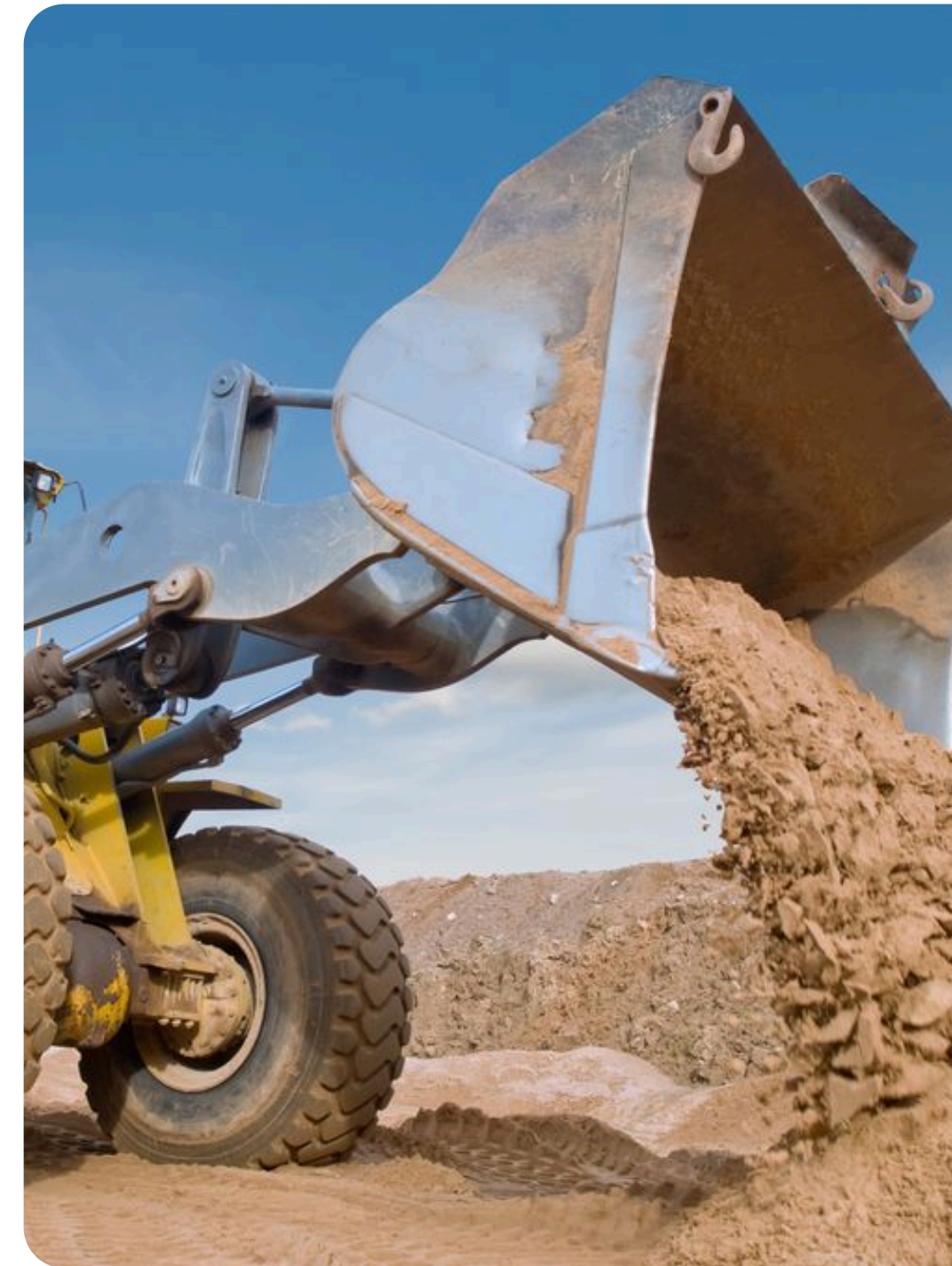
Sector: Industrial scrap collection, recycling, and trading, specifically focusing on Metals and Recycled Paper

Operations: Multinational network (Singapore, Malaysia, Indonesia, Thailand, China)

Applied Solution: Microsoft Dynamics 365 Business Central (Cloud ERP)

Services Provided: Solution Consulting, Business Analysis (BA), and Customized Development

Deployment Model: Hybrid approach (Waterfall Scope Lock + Agile Delivery)



Context & Challenges



Fragmented Manual Workflows:

The core financial system previously relied entirely on manual Excel spreadsheets and individual bank transactions. This complexity in multinational scrap procurement frequently led to errors and delays, making it exceptionally difficult to maintain control as the business scaled



Data Inconsistency & Duplication:

The absence of standardized processes resulted in severe data discrepancies between different operational regions, such as Singapore, Malaysia, and Indonesia. Consequently, the enterprise was required to repeatedly allocate budgets to hire independent third-party entities to review and standardize its data

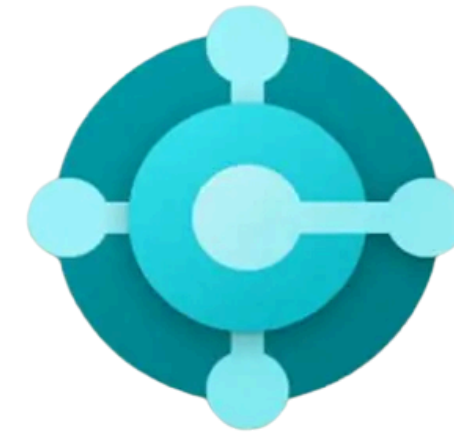


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STRATEGIC SOLUTIONS

Establishing a Single Source of Truth

Luvina initiated a comprehensive Digital Transformation campaign, re-engineering the entire technological infrastructure to integrate the complete value chain into a single Cloud ERP system.



Microsoft Dynamics 365
Business Central



Unified Infrastructure:

Integrated cash flow, debt management, and multinational invoicing into one Cloud ERP



Modernization:

100% replacement of disparate Excel files with a real-time database



Strategic Optimization:

Adopted "Common Practice" standards with < 25% customization to reduce costs

Strategy & Solutions

3 Pillars of Operational Digitization

End-to-End Digital Transformation:

We have fully **automated approximately 17 core processes**, ranging from Purchase Requisition (PR) approvals to Purchase Invoices (PI).

This initiative eliminated intermediary steps and **increased administrative processing efficiency by 70%**

Hybrid Implementation Model:

We combined the Waterfall "Scope Lock" approach during the business analysis phase with Agile-Scrum methodology for rolling development, delivering tangible value through 2-week sprints

DBS Bank Integration:

Luvina developed a direct API connection between Dynamics 365 Business Central and the DBS Bank Singapore electronic portal, providing seamless **automated transaction processing capabilities**

Strategic Solutions

Core Digital Capabilities Delivered

	Core Features	Business Value
DBS Integration	Automated reconciliation and payment batches	Eliminates 90% of manual errors
Claims Module	Automated compensation calculations based on metal indices (LME%, CU%, moisture)	Replaces Excel-based processing and automates approval workflows and Credit Memo generation
Procurement Module	Digitalized PR/PO/GRN/PI chain with flexible threshold approvals	Flexible approval thresholds and stronger budget control
Finance & Advanced Reports	Detailed logistics and scrap volume reports	Accurate real-time data for management and supply chain analytics

Business Impact Delivered

The ERP implementation successfully transformed BS Recycling's operational capabilities in Singapore, delivering measurable business outcomes:

70%

reduction in payment
and administrative processing time

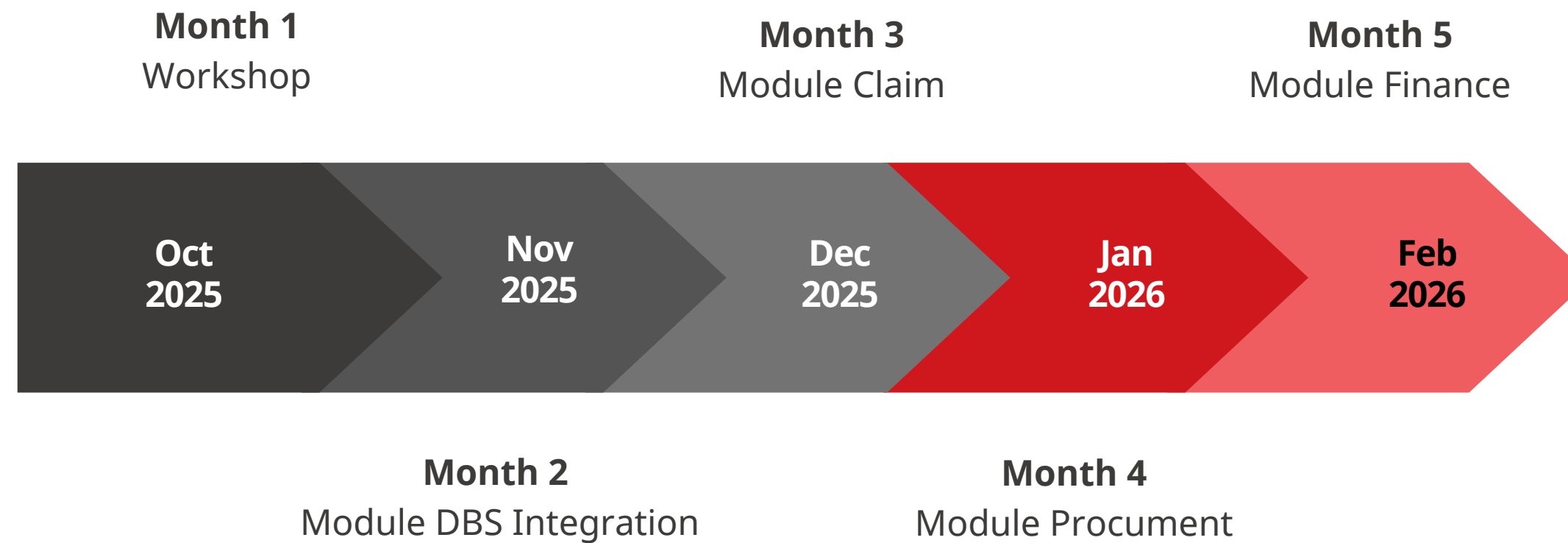
-
- ~17 end-to-end business processes fully automated
 - Up to 90% reduction in bank reconciliation discrepancies
 - Complete project handover with FRD, TDD, training materials, and source code
-



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IMPLEMENTATION APPROACH

Project Timeline & Delivery Roadmap



Delivery Methodology

Business Analysis Phase:

Waterfall ("Scope Lock") approach to define requirements and align stakeholders

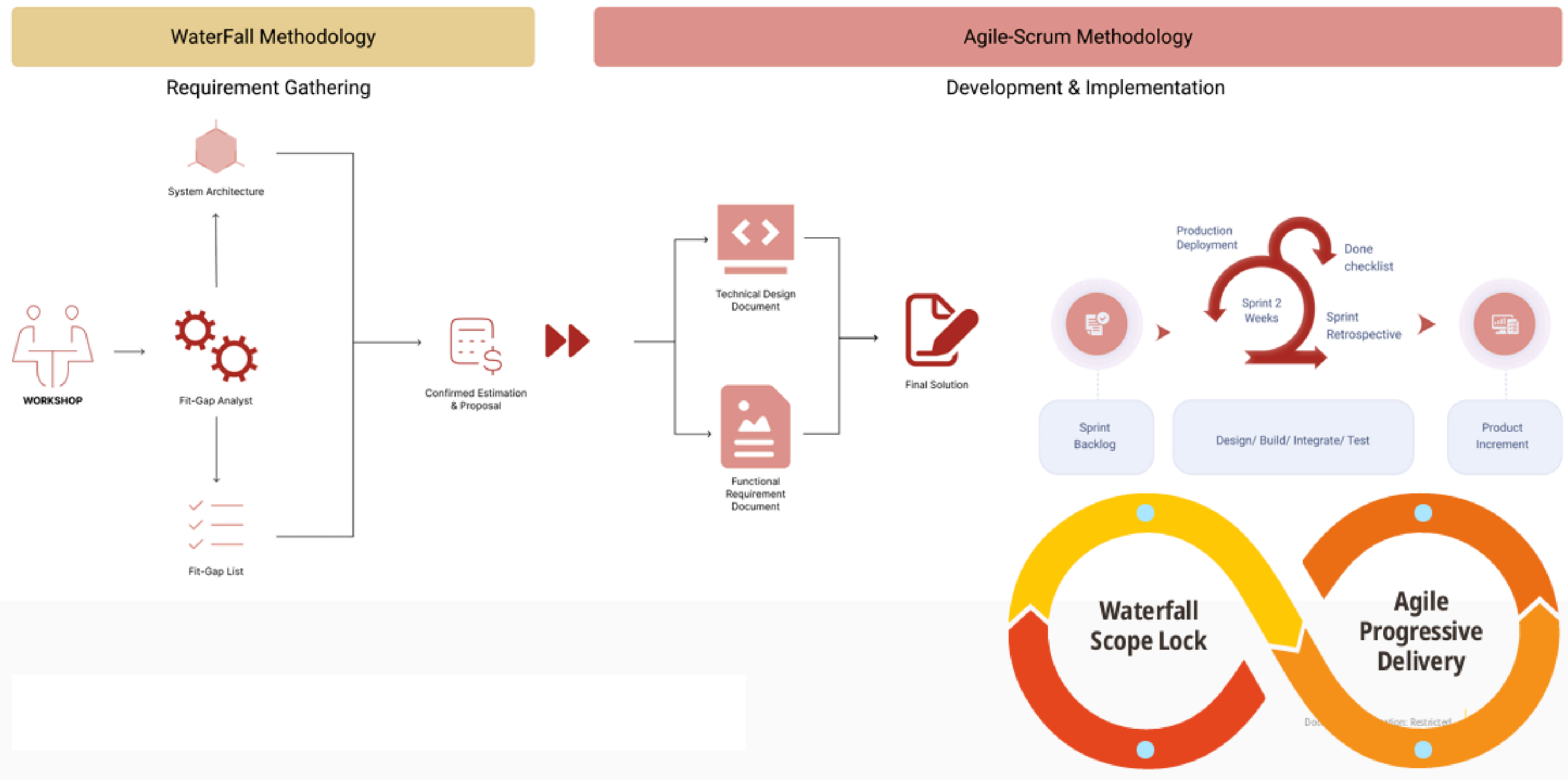
Development Phase:

Agile-Scrum delivery with 2-week sprints

Continuous Validation:

Regular demonstrations and feedback loops to ensure business alignment

Delivery Methodology



Project Deliverables & Knowledge Transfer

Deliverables	Values
FRD (Functional Requirement Document)	Ensures the solution aligns with business requirements and serves as a reference for UAT, operations, and future enhancements
TDD (Technical Design Document)	Enables internal IT teams to understand system architecture, support maintenance, troubleshooting, and future development
Training & User guide	Accelerates user adoption, reduces operational errors, and supports onboarding of new employees
Source code	Provides full ownership, supports future enhancements and integrations, and reduces dependency on the original vendor

Knowledge Transfer Outcome

The client gained complete control over the solution through comprehensive documentation, training, and source code handover.

Techstacks

Name	Description
Dynamic 365 BC	Cloud ERP platform that centralizes business operations within a single system
AL Language	Primary development language for Business Central customizations, extensions, APIs, and business logic
Report & Data	RDLC Reports and Word Layout Reports
Azure SQL Database	Fully managed cloud database service provided by Microsoft Azure
Microsoft Ecosystem Integration	Integration with Power Apps and Power Automate
Development Tools	Visual Studio Code and GitLab for source control and collaboration

Why This Architecture?

- Cloud-native and scalable
- Seamless integration within the Microsoft ecosystem
- Flexible customization with minimal technical debt
- Enterprise-grade security and maintainability



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FEATURES

DBS Integration Module

Automating Payment Processing and Bank Reconciliation with DBS IDEAL

LUVINA developed a seamless integration between Microsoft Dynamics 365 Business Central and DBS IDEAL, enabling end-to-end automation for payment execution, collections, and reconciliation processes.

Key Capabilities

Automated Payment Processing

- Generate vendor payment batches directly from approved Purchase Orders and invoices
- Support prepayment and invoice offset automation
- Standardize payment execution workflows

Customer Collection Management

- Auto-create Cash Receipt Journals from DBS bank statements
- Automatically match incoming payments
- Handle exceptions through dedicated workflows
- Generate receipt vouchers automatically

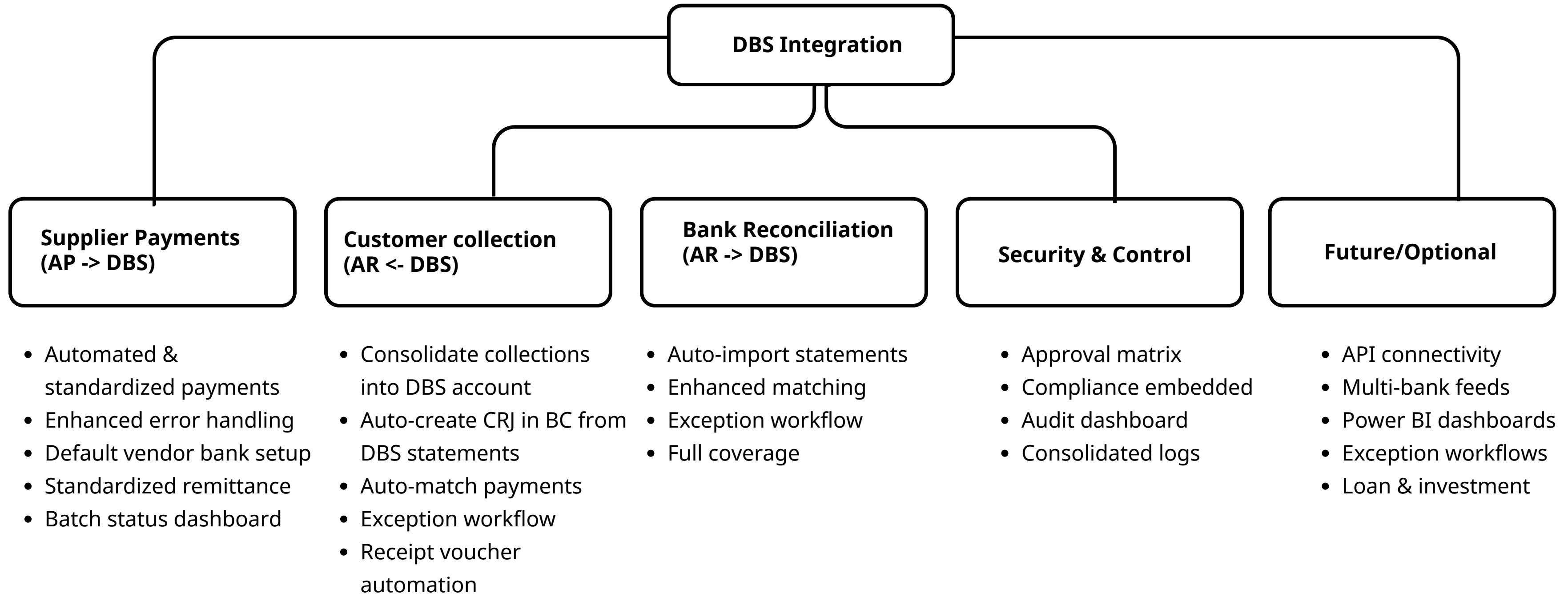
Intelligent Bank Reconciliation

- Import bank statements automatically
- Enhanced matching capabilities
- Full coverage of reconciliation scenarios

Monitoring, Compliance & Control

- Centralized payment status dashboard
- ACK1 / ACK2 / ACK3 bank status tracking
- Automatic delay notifications
- Approval matrix and audit-ready traceability
- Consolidated logs for compliance purposes

DBS Integration Module



DBS Integration Module



Business Impact

- ✓ Reduced manual payment and reconciliation effort
- ✓ Improved visibility into transaction status
- ✓ Enhanced accuracy and auditability
- ✓ Strengthened internal control and compliance
- ✓ Established an end-to-end integration between Dynamics 365 Business Central and DBS IDEAL

From payment initiation to bank confirmation, the entire process is managed within a single, traceable, and automated workflow.

Current Selection Details

Posting Date: 3/13/2026 Amount Excl. VAT: 24.50

Document Type: Payment Currency Code: SGD

Document No.: 01-PJ2603-00677 Prepayment Ref. No.: 032026

Select Only Selected Orders
 Refresh
 Check All
 Uncheck All
 More options

Mark	No. ↑	Buy-from Vendor No.	Buy-from Ven... Name	Order Date	Your Reference	Amount	Existing in another journal batch
<input type="checkbox"/>	01-S2603-00472	01-VEND-00...	01 C...	2/28/2026	032026	32.00	TEST0903
<input type="checkbox"/>	01-S2603-00474	01-VEND-00...	01 C...	3/10/2026	032026	4.50	CP1040326
<input type="checkbox"/>	01-S2603-00475	01-VEND-00...	01 C...	3/10/2026	032026	3.00	CP1G10032
<input type="checkbox"/>	01-S2603-00476	01-VEND-00...	A01 ...	3/10/2026	032026	6.00	CP1G10032
<input type="checkbox"/>	01-S2603-00478	01-VEND-00...	A01 ...	3/10/2026	032026	3.00	CP1G10032
<input type="checkbox"/>	01-S2603-00479	01-VEND-00...	A01 ...	3/11/2026	032026	16.50	CP1G10032
<input type="checkbox"/>	01-S2603-00488	01-VEND-00...	A01 ...	3/8/2026	032026	24.50	CP1G12032
<input type="checkbox"/>	01-S2603-00489	01-VEND-00...	A01 ...	3/9/2026	032026	12.00	CP1G12032
<input type="checkbox"/>	01-S2603-00490	01-VEND-00...	A01 ...	3/12/2026	032026	24.50	CP1G13032
<input type="checkbox"/>	01-S2603-00491	01-VEND-00...	A01 ...	3/12/2026	032026	12.00	CP1G13032
<input type="checkbox"/>	01-S2603-00492	01-VEND-00...	A01 ...	3/12/2026	032026	24.00	CP1G14032
<input checked="" type="checkbox"/>	01-S2603-00493	01-VEND-00...	A01 ...	3/12/2026	032026	24.50	CP1G170326
<input type="checkbox"/>	01-S2603-00494	01-VEND-00...	A01 ...	3/12/2026	032026	24.00	CP1G18032

Automated Vendor Payment Batch Creation

DBS Payment Status Dashboard

Manage

General Information

Batch Name: CP1G170326 EFT No.: 584

Document No.: 01-PJ2603-00677 EFT Batch Status: Not Sent

Line No.: 10000

Approval Entries Subform >

ACK1 Subform >

ACK2/3 Header Subform >

ACK2/3 Line Subform >

Centralized Bank Payment Monitoring Dashboard

Claims Management Module

Digitizing and Standardizing the Entire Claims Process

LUVINA developed a centralized Claims Management module on Microsoft Dynamics 365 Business Central, enabling end-to-end management of customer claims, calculation workflows, and supporting documentation.

Key Capabilities

Claim Registration & Tracking

- Centralized repository for all claims
- Real-time visibility into claim status and amounts
- Support for multiple claim types and currencies

Flexible Claim Creation

- Standardized claim information and processing workflows
- Customer-specific claim management
- Structured claim lifecycle control

Claim Calculation Engine

- Automated calculations based on:
 - Buyer Quantity
 - LME%
 - Copper Content (CU%)
 - Waste %
 - Moisture %
 - Fixed Price
- Consistent and transparent claim valuation

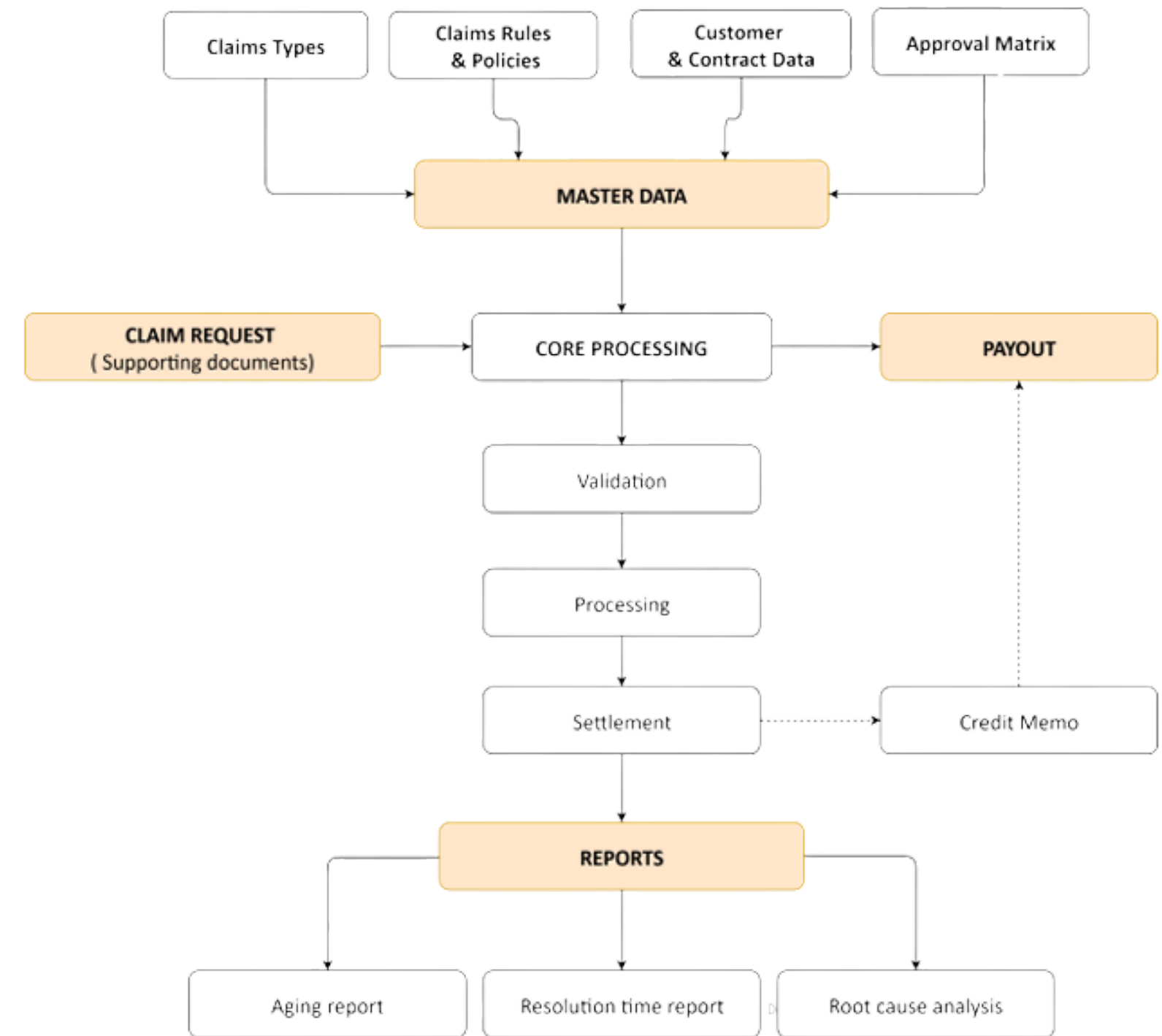
Document Management

- Upload, view, and maintain supporting documents
- Improve traceability and collaboration across teams

Claims Management Module

Business Impact

- ✓ Standardized claim processing across business units
- ✓ Increased visibility and transparency throughout the claim lifecycle
- ✓ Reduced manual calculations and operational errors
- ✓ Improved traceability and supporting document management



Claims Settlement & Financial Automation

Streamlining Claim Resolution and Customer Settlement

The system automates claim settlement and financial reporting, ensuring accurate compensation calculations and faster customer communication.

Key Capabilities

Credit/Debit Note Generation

- Automatically generate Credit Notes and Debit Notes
- Summarize claim calculation details
- Determine final settlement amounts

Financial Traceability

- Maintain complete records from claim initiation to settlement
- Support audit and reconciliation activities

Reporting & Control

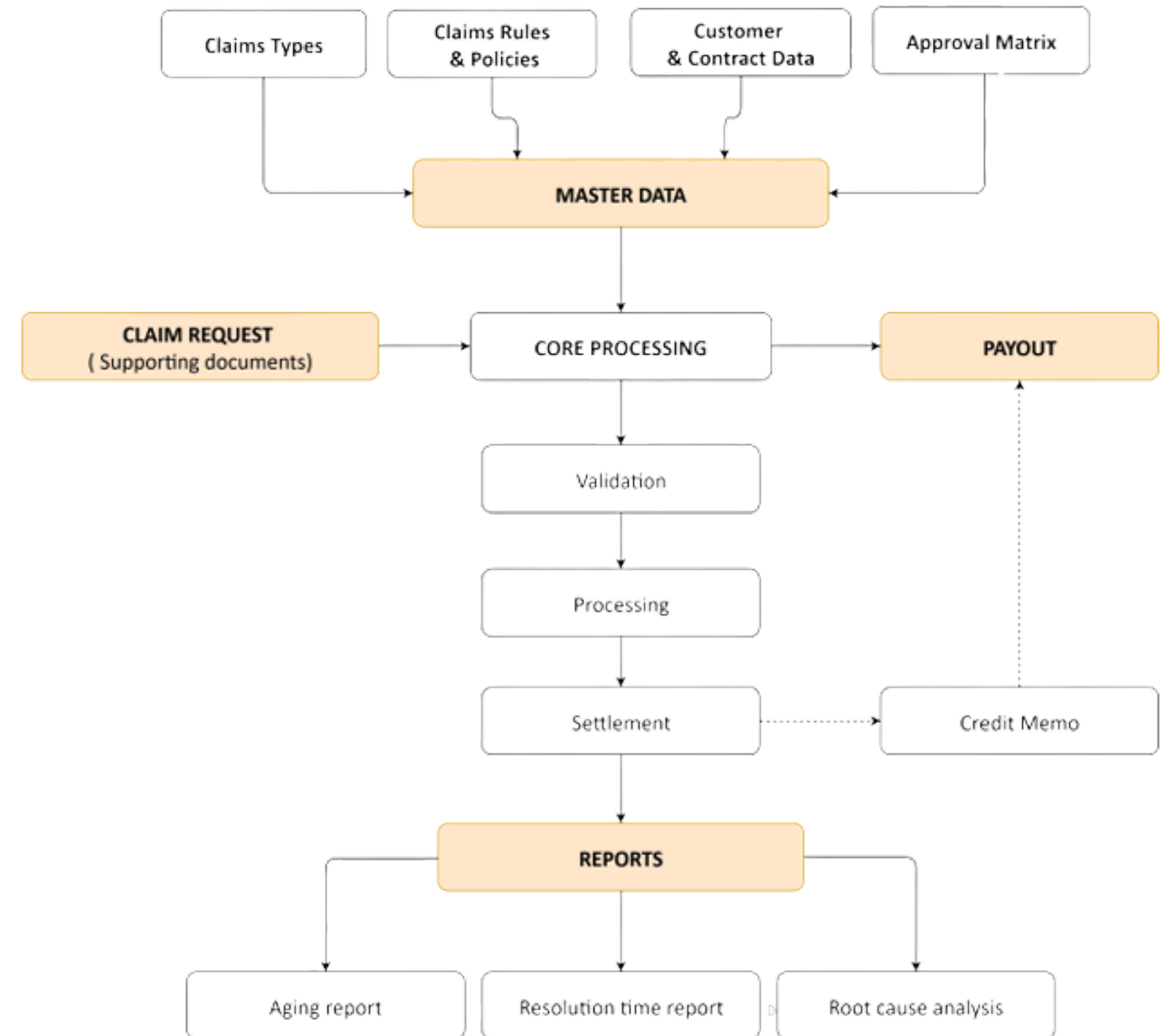
- Provide clear visibility into:
 - Initial Claim Amount
 - Final Approved Amount
 - Calculation details
 - Settlement results

Claims Settlement & Financial Automation

Business Impact

- ✓ Reduced reliance on Excel-based calculations
- ✓ Accelerated claim settlement processes
- ✓ Improved accuracy and consistency of customer compensation
- ✓ Enhanced financial transparency and audit readiness

Transforming claims management from a manual, calculation-intensive process into a transparent and traceable digital workflow.



Procurement Management Module

Streamlining Purchase Requests and Approval Workflows

LUVINA developed a centralized Procurement Management module on Microsoft Dynamics 365 Business Central, enabling standardized purchase processes, improved approval control, and greater visibility into procurement activities.

Key Capabilities

Purchase Requisition Management

- Create and manage Purchase Requisitions with standardized information
- Support different purchase categories and business units
- Capture request purpose, ownership, and regional information
- Improve traceability across the procurement lifecycle

Quotation & Item Management

- Maintain detailed purchase item information, including:
 - Item description
 - Quantity and unit of measure
 - Estimated unit cost
 - Estimated total amount
- Facilitate quotation comparison and evaluation

Approval Workflow

- Support approval and rejection processes with clear accountability
- Enable users to select the most suitable quotation
- Ensure compliance with internal procurement policies

End-to-End Procurement Process

- Seamlessly convert approved requests into:
 - Purchase Quotations (PQ)
 - Purchase Requisitions (PR)
 - Purchase Orders (PO)
 - Purchase Invoices (PI)
- Provide full visibility from request initiation to purchasing execution

Procurement Management Module

Business Impact

- ✓ Standardized procurement processes across departments and regions
- ✓ Improved transparency and approval governance
- ✓ Reduced manual coordination and processing effort
- ✓ Enhanced purchasing efficiency and cost control
- ✓ Established a traceable and scalable procurement workflow

Transforming procurement from fragmented manual requests into a standardized and controlled digital workflow.

Dynamics 365 Business Central
Purchase Requisition Card

Submit Approval Request | Cancel Approval Request | Cancel PR | Upload Attachments | Automate | Fewer options

General

No. PR-000005 | Purchase Type Non-Trade (1)

Document Date 12/4/2025 | Vendor No.

Department Code ADM (2) | Truck No.

Sales region Code LOCAL | Driver Name

Purchaser Code BS_BCADMIN | Truck Weight 0.00

Reason Code PR-NTCAPEX | Arrived Date

Status Draft

Processing

Comment | Completely Converted to PO

Requested By BS_BCTESTER (3) | Total Estimated Amount 0.00

Dimension Set ID 5 | Remark

Quote Attachment >

PR Lines | Manage Line

New Line | Delete Line

Finance & Operational Reporting Module

Enhancing Financial Visibility and Operational Control

LUVINA developed a Finance & Reporting module on Microsoft Dynamics 365 Business Central to improve financial traceability, automate routine processes, and provide real-time visibility into sales and shipment execution.

Key Capabilities

Financial Process Automation

- Automate offsetting of remaining amounts on Purchase Invoices
- Update transaction statuses automatically
- Reduce manual intervention and improve accounting accuracy

Sales Quote Management

- Track Sales Quote status throughout the lifecycle
- Automatically send customer notifications using standardized templates
- Improve traceability and standardize customer communication

Order Fulfillment Visibility

- Consolidate Sales Orders, Bookings, and Shipment information into a single view
- Monitor shipping progress and fulfillment status in real time
- Improve coordination between sales and logistics teams

Advanced Operational Reporting

Provide comprehensive reporting capabilities, including:

- Order Shipping Status Report: Track shipment progress across orders
- Order Status: ReportMonitor order quantities, shipment execution, and billing values
- Order Tonnage Report: Analyze ordered, shipped, and outstanding volumes within a selected period

Finance & Operational Reporting Module



Business Impact

- ✓ Reduced manual effort in financial processing
- ✓ Improved accuracy and traceability of transactions
- ✓ Standardized customer communication
- ✓ Increased visibility into order fulfillment and shipping progress
- ✓ Enabled data-driven decision making through real-time operational reports
- ✓ Strengthened coordination between finance, sales, and logistics functions

Transforming fragmented financial operations into a transparent, automated, and data-driven management platform.



Shipping Details Report

Customer Name: Cupral Asia Pte Ltd
Sales Quotes: SO2206-00010
Order Number: 01-SO2207-00014

Report Date: 30/01/2026
Created By: BS_BCTESTER

Booking Line No	Loading Date	Booking Confirmation	Packing List No	ETA	ETD	Quantity(MT)	Container No	Seal No
10000	29/06/2022	44446666	R220600533	18/07/2022	07/07/2022	22.73	CAXU8178482	PSQ210621
20000	04/07/2022	44446666	R220700031	07/07/2022	18/07/2022	22.17	TTNU9753960	PSQ210676

Period:
Report Date: 30/01/2026
Created By: BS_BCTESTER



Shipping Details Report

Customer Name: Cupral Asia Pte Ltd
Sales Quotes: SO2206-00010
Order Number: 01-SO2207-00014

Report Date: 30/01/2026
Created By: BS_BCTESTER

Booking Line No	Loading Date	Booking Confirmation	Packing List No	ETA	ETD	Quantity(MT)	Container No	Seal No
10000	29/06/2022	44446666	R220600533	18/07/2022	07/07/2022	22.73	CAXU8178482	PSQ210621
20000	04/07/2022	44446666	R220700031	07/07/2022	18/07/2022	22.17	TTNU9753960	PSQ210676

Total Order Qty: 2077.270 MT
Shipped Qty: 1898.228 MT
Outstanding Qty: 381.042 MT

Order No	Sell-to Customer Name	Document Date	Total Qty	Qty Shipped	Outstanding Qty	Item	Total Qty	Qty Shipped	Outstanding Qty	Amount Shipped Not Invoiced (LCY)	Amount Shipped Not Invoiced (LCY) Incl. GST	Amount	Amount Including GST
01-SO2301-00059	Hanwa Singapore (Pte) Ltd	25/01/2023	100	98.979	1.021	S-00010 COPPER SCRAP MILLBERRY (AS PER ISRI SPEC)	100	98.979	1.021	0	0	884268	884268
01-SO2302-00007	Hanwa Singapore (Pte) Ltd	08/02/2023	100	98.783	1.217	**Unit Price @ Provisional Price USD9,175.00	0	0	0	0	0	0	0
						S-00010 COPPER SCRAP MILLBERRY (AS PER ISRI SPEC) - LME x 99%	100	98.783	1.217	0	0	908325	908325
01-SO2302-00055	Hanwa Singapore (Pte) Ltd	22/02/2023	266.709	266.709	0	**Unit Price @ Provisional Price USD9,080.00	0	0	0	0	0	0	0
						S-00010 COPPER SCRAP MILLBERRY (AS PER ISRI SPEC) - LME x 99%	266.709	266.709	0	0	0	2392219.7	2392219.7
01-SO2302-00056	Hanwa Singapore (Pte) Ltd	27/03/2023	374.426	374.426	0	**Unit Price @ Provisional Price USD9,080.00	0	0	0	0	0	0	0
						S-00010 COPPER SCRAP MILLBERRY (AS PER ISRI SPEC) - LME x 99%	374.426	374.426	0	0	0	3358376.56	3358376.56

Thank You

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